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# Climate Adaptation Plan Lydney

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This report was issued to the Forest of Dean District Council; it's contents do not necessarily reflect the position of the Council.

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## Abbreviations

CCC	Climate Change Committee
CCRA	Climate Change Risk Assessment
CCRA3	The Third UK Climate Change Risk Assessment
DLUHC	Department for Levelling Up Housing and Communities
FoDDC	Forest of Dean District Council
FoDCAP	Forest of Dean Climate Action Partnership
FVAF	Forestry Voluntary Action Forum
GCC	Gloucestershire County Council
GWT	Gloucestershire Wildlife Trust
HWT	Herefordshire Wildlife Trust
INNS	Invasive Non-Native Species
LAG	Local Action Groups
LLFA	Lead Local Flood Authority
LTC	Lydney Town Council
LRF	Local Resilience Forum
NDP	Neighbourhood Development Plan
NFM	Natural Flood Management
NPPF	National Planning Policy Framework
ONS	Office for National Statistics
PPS	Planning Policy Statement
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Urban Drainage
TCPA	Town and Country Planning Association
UKCP18	United Kingdom Climate Projections 2018
UKHSA	UK Health Security Agency
WWNP	Working With Natural Processes

## Executive Summary

This adaptation plan identifies a pipeline of fundable adaptation projects for Lydney. The projects focus on addressing local climate change impacts, which have been identified through the Climate Risk Summaries and stakeholder engagement with the Town Council.

The plan is laid out in a simple format to enable easy interpretation of the projects. The projects have been prioritised according to factors including cost, barriers, stakeholder engagement findings, and funding, to provide a balance of projects that are implementable, and which address the most pertinent risks. Where appropriate the plan references other plans, policies and strategies of the Town Council, Forest of Dean District Council (FoDDC) or Gloucestershire County Council (GCC). Consideration is also given to relevant local actors who could assist in the delivery of projects. The climate risks addressed by each project and its benefits are clearly outlined with indicative costs and timescales.

The prioritised adaptation projects for Lydney are outlined in Table 1-1 below.

Table 1-1. Adaptation projects for Lydney.

Adaptation action	Risk addressed - 3.2	Timescale of actions - 3.3	Prioritisation - 3.4	Estimated cost and additional benefits - 3.5		Barriers for implementation - 3.6	Resources required and potential funding - 3.7
Small site rewilding	N1 – Risks to terrestrial species and habitats from changing climatic conditions and extreme events.	Less than 2 years	High prioritisation	Low cost	Improved biodiversity and green spaces Improved health Resilient Infrastructure and Communities	Acquiring the land and the cost of this  Location of land	Funding required  Need to work alongside landowners and community groups
Local climate knowledge	All risks	Less than 6 months	High prioritisation	Low cost or no cost	Resilient Infrastructure and communities Low carbon behaviours Benefits local adaptive capacity	Councillor time	Bought in service or no-cost social enterprise service (such as Climate Vision CIC)
NDP amendment / appendment	All risks	Less than 6 months	High prioritisation	Low cost	Flood Regulation Green economy Resilient infrastructure and communities Improved health Improve air quality Innovation and funding Low carbon behaviours Improved biodiversity and green spaces Clean water Reduce waste	Consultancy consideration ITT / procurement consideration	Funding required - could use existing, SPF or Section 137  Procurement of consultancy services
Ecosystem services study	N18 – Risks and opportunities from climate change to landscape character	Less than a year	High prioritisation	Medium cost	Green economy Improved biodiversity and green spaces	Relevance	Esmée Fairbairn Foundation has previously provided funding for ecosystem services studies
ELM engagement	N6 – Risks to and opportunities for agricultural productivity from extreme events and changing climatic conditions	Less than 6 months	High prioritisation	No cost	Green Economy Resilient Infrastructure and Communities	Uptake within the community	No funding required  Learning resources available from organisations such as the Nature Friendly Farming Network



Adaptation action	Risk addressed - 3.2	Timescale of actions - 3.3	Prioritisation - 3.4	Estimated cost and additional benefits - 3.5		Barriers for implementation - 3.6	Resources required and potential funding - 3.7
Adapting evacuation centres to be suitable for heatwaves as well as flooding / power cuts	H1 - Risks to health and wellbeing from high temperatures	Less than 2 years	High prioritisation	Medium cost	Resilient Infrastructure and Communities	Alignment with resilience planning	Adapting existing buildings
Urban Tree planting	H1 - Risks to health and wellbeing from high temperatures	Less than 2 years	Medium prioritisation	Medium cost	Improved biodiversity and green spaces Flood regulation Improved air quality	Location Landowners Skills Responsibility	Funding required Feasibility and Land acquisition Stakeholder engagement
Tap water refill scheme	H1 - Risks to health and wellbeing from high temperatures	Less than 2 years	Medium prioritisation	Low cost or no cost	Clean water Reduced waste	Local need	Scheme grant
INNS monitoring.	N2 – Risks to terrestrial species and habitats from pests, pathogens and invasive non-native species	Less than a year	Medium prioritisation	Low or no cost	Clean water Improved Biodiversity and Green Spaces	Experience / technical ability	Manpower, no funding available but could be undertaken by volunteers
Solar and / or green-heating scheme	H6 - Risks and opportunities from summer and winter household energy demand	Less than 2 years	Low prioritisation	Very high cost	Innovation and Funding Resilient Infrastructure and Communities Green Economy Co-benefits for decarbonisation, improved energy resilience	Cost / ownership / scale	Significant capital funding required, some funding available: AURORA project (FoDDC), Climate Action Fund - National Lottery Fund
Repair café or wi-fi enabled warm spaces	H3 – Risks to people, communities and buildings from flooding	Less than a year	Low prioritisation	Medium cost	Green Economy Resilient Infrastructure and Communities	Suitable buildings	Using existing community spaces will reduce <u>costs</u> FoDDC Rural England Prosperity Fund – Community Warm Space Grant

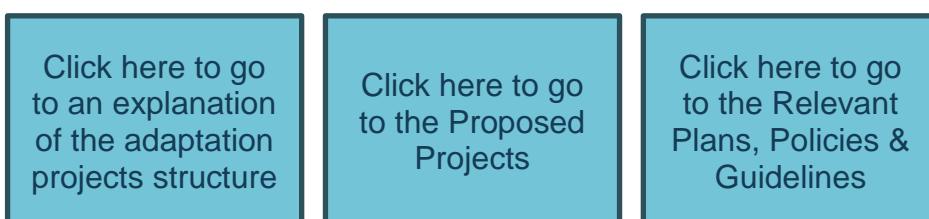
The table above outlines the identified priority adaptation projects for Lydney Town Council. More details on each project can be found in section 3, below.

# 1 Introduction

## 1.1 Organisation of this document

This plan presents proposed adaptation projects for the town of Lydney. Its purpose is to outline the anticipated locations, benefits, costs, timescales, and potential funding of the projects. Chapter 1 explains the background and context to this project, and its objectives. Chapter 2 provides an explanation of how projects are structured. Chapter 3 presents the individual projects. Finally, Chapter 4 gives an overview of the relevant plans, policies, and guidelines that have been considered.

You can navigate the document by clicking on the text boxes below.



## 1.2 Background

The Forest of Dean District Council (FoDDC) has declared climate and ecological emergencies, signalling that immediate action is required. The adopted Climate Change Strategy and Action Plan<sup>1</sup> (2022-25) outlines how the Council needs to mitigate the magnitude of climate change impacts through carbon emissions reductions, while also preparing to address the impacts of 'locked in' climate change.

This adaptation plan for Lydney focuses on future climate change impacts in a local context. It identifies local measures that build resilience, as well as outlining how towns can support adaptation over the longer term for both humans and the natural environment.

This plan is primarily focused on adaptation to climate change, the process of adjustment to actual or expected climate and its effects, to moderate harm or exploit benefits. In effect, reacting to climate change to reduce risk. This plan does not primarily consider climate change mitigation (human interventions to reduce greenhouse gas emissions). However, opportunities to achieve mitigation co-benefits as the result of an adaptation project have been identified and highlighted where relevant.

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<sup>1</sup> Forest of Dean District Council (2023), Climate Change Strategy and Action Plan  
[The Forest of Dean Climate Change Strategy and Action Plan](#)

### 1.3 Project Objectives

The objective of this plan is to provide a list of realistic, fundable projects that Lydney Town Council (LTC) can undertake, support, and develop.

Other objectives include:

- Indicating the location and scale of projects.
- Highlighting appropriate sequencing of projects.
- Identifying adaptation, mitigation, and other benefits.
- Outlining indicative costs and funding sources.
- Engaging with any other town plans currently held by the Town Council or local community groups and higher-level plans, county council or sectoral.

### 1.4 Policy

This climate change adaptation process is embedded within the policies, strategies and plans of the town and district councils. See Figure 1-1 for an overview of how these plans and policies overlap and interact.



Figure 1-1. National, regional and local plans overview.

## 1.5 Context: Lydney

Lydney is a small town in the Forest of Dean, with a population of around 10,000 (ONS, 2021)<sup>2</sup>. Across all three of Lydney's Census areas (lower super output areas - LSOAs), the proportion of the population over 65 is 22.8%, higher than the UK average of 18.6%. Lydney's economy centres on healthcare, manufacturing, and retail. Social equity varies across Lydney, resulting in a range of levels of deprivation, with differing vulnerabilities to the impacts of climate change.



Figure 1-2: Lydney Boating Lake alongside Lakeside Gardens

Lydney's natural topography is predominantly low lying, with flood risk varying across the town. The roads leaving the town are steep. It is situated between the Severn and Lyd rivers and small local watercourses drain into the larger Severn catchment. The town has previously been impacted by storm surges from the River Severn in addition to fluvial and surface water flooding.

The proximity to the River Severn has led to a general absence of cold extreme weather in Lydney, historically. Notably, the weather can change within a mile of Lydney due to its maritime location. During extreme weather events, the main routes into Lydney are generally clear but the main roundabout (A48 - High Street) has previously flooded, which can limit access to the town, and to higher ground (to the west).

### 1.5.1 Future Climate Impacts in Lydney

JBA has produced a Climate Risk Summary for Lydney which should be referred to for an understanding of how climate change is expected to impact Lydney. In recognition of Climate Leadership Gloucestershire's adoption of the Climate Change Committee's (CCC) principles for good adaptation policy sourced from the CCC's Independent Assessment of UK Climate Risk<sup>3</sup>, we have referenced headline projections to help the Forest of Dean Adapt to 2°C and assess the risks up to 4°C of warming. A snapshot of the front page is provided below in Figure 1-3.

<sup>2</sup> Office for National Statistics, (2021). 2021 Census Data.

<sup>3</sup> Climate Change Committee, (2021). Independent Assessment of UK Climate Risk

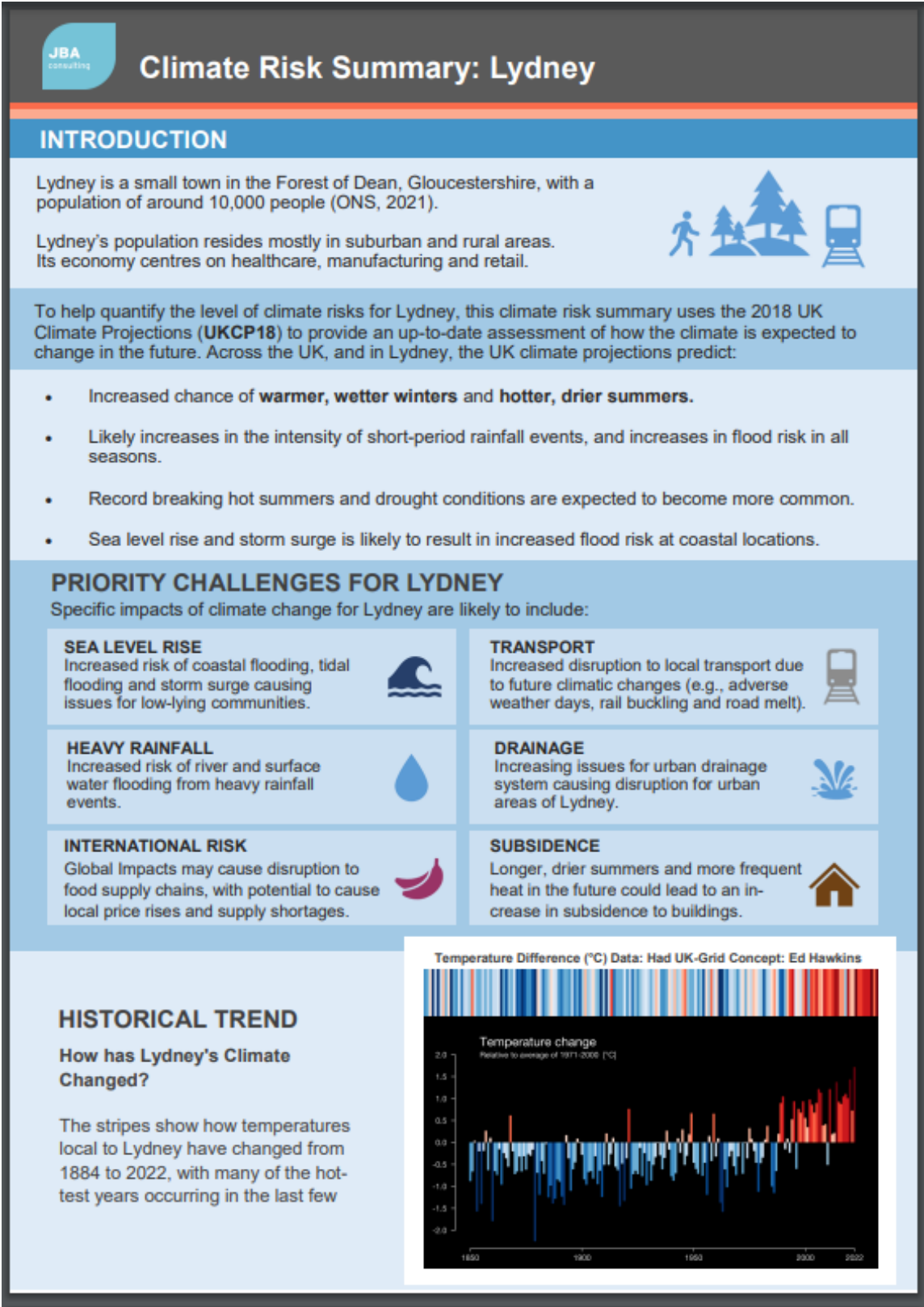


Figure 1-4 - The front page of the Climate Risk Summary produced for Lydney

## 1.6 The prioritisation process

Our team have used the most recent, publicly available climate change information, along with local insights, to inform the adaptation plan process. Local insights and perspectives were gathered through an in-person stakeholder engagement event with LTC on the 8th of November 2023.

At this meeting the Council raised some of their key priorities for adaptation - these are detailed further in section 1.6.2.

### 1.6.1 Climate Change Risk Assessment Summary

The climate change risk assessment summary identifies the following priority risk areas for Lydney:

- Health - Increased risk to vulnerable groups and ageing populations health from heat stress.
- Flooding - Increased risk of river and surface water flooding from heavy rainfall events.
- Wind damage - future increases in storminess are likely to increase the frequency and intensity of damaging wind gusts to people and property.
- Drainage disruption - Increasing pressures on the urban drainage system due to rainfall intensity increase causing disruption for urban areas of Lydney.
- Subsidence - Longer, drier summers and more frequent heat in the future could lead to an increase in subsidence to buildings.
- Energy demand - Increased energy demand for summer cooling which could raise energy bills during the hottest months of the year.
- Food supply chains - Global Impacts may disrupt food supply chains, with the potential to cause local price rises and supply shortages.

### 1.6.2 Stakeholder Engagement

These climate risk summaries were qualified against local understanding, including an understanding of historical, current, and potential future climate change risk during a series of semi-structured interview workshops.

LTC identified several key local challenges:

- Drainage infrastructure lacking capacity.
- Development pressures exacerbating the impacts of climate change.
- Flood risk to residential houses and sports clubs.

The town council also noted several key priority adaptation themes:

- Reducing damage to the built environment and heritage by managing surface water through SuDS.

- Behavioural changes and contingency plans from developers to increase accountability around flood risk.
- Expansion of water treatment works to cope with development pressures.

## 2 Adaptation projects - structure

A summary of the adaptation projects identified in this plan can be found in the executive summary at the start of this document.

### 2.1 Primary risk addressed

For each adaptation project, a 'primary risk addressed' has been identified. The risks addressed relate to the 61 risks and opportunities identified in the third UK national climate change risk assessment (UK CCRA3), conducted by the CCC<sup>4</sup>.

### 2.2 Additional benefits

For each adaptation project, a range of additional benefits have been identified. Additional benefits arise from enhancing adaptive capacity and/or addressing other challenges. They include:

- Flood Regulation
- Green Economy
- Resilient Infrastructure and Communities
- Improved Health and Wellbeing
- Improved Air Quality
- Innovation and Funding
- Low Carbon Behaviours
- Improved Biodiversity and Green Spaces
- Reduced Waste
- Clean Water.

### 2.3 Timing of adaptation projects

Table 2-1 below outlines the high-level timing of adaptation projects.

Table 2-1 - Timing of adaptation projects

Timing	Description
Immediate	Less than 6 months
Short	Less than a year
Medium	Less than two years
Long	Less than five years

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<sup>4</sup> Climate Change Committee (2022), The Third UK Climate Change Risk Assessment. UK CCRA3 - Technical Report.



This section will also note and consider potential synergies with any other policy action, neighbouring projects or processes which have been highlighted during the stakeholder engagement and desk-based review process.

## **2.4 Prioritised projects**

For each project, the plan considers feasibility and the need for urgent short-term actions. The stakeholder engagement process has drawn out the key challenges and considerations for Lydney.

To aid in prioritisation, priority risks and urgent adaptation has been determined from assessment at a national level. 61 risks and opportunities were identified in CCRA3, all of which overlap with local authority service delivery, with eight priority risk areas identified as requiring the most urgent attention:

- Risks to the viability and diversity of terrestrial and freshwater habitats and species from multiple hazards.
- Risks to soil health from increased flooding and drought.
- Risks to natural carbon stores and sequestration from multiple hazards, leading to increased emissions.
- Risks to crops, livestock and commercial trees from multiple climate hazards.
- Risks to supply of food, goods and vital services due to climate-related collapse of supply chains and distribution networks.
- Risks to people and the economy from climate-related failure of the power system.
- Risks to human health, wellbeing and productivity from increased exposure to heat in homes and other buildings.

Multiple risks to the UK from climate change impacts overseas.

Adaptation projects that address and overlap with some of the above priority risk areas have been assigned a higher priority for the local area. Adaptation projects have also been classified according to CCC definitions for adaptation (behavioural, data and R&D, institutional, financial, engineered solutions, nature-based solutions, new or emerging technologies).

Adaptation projects were scored according to cost, benefits, barriers, funding, stakeholders, and qualitative information gathered. Once ranked, the two highest scoring priority adaptation projects for each of the defined adaptation typologies were taken forward as priority projects for the Town.

## **2.5 Estimated costs (and benefits)**

Estimated adaptation project costs have been evaluated by JBA senior technical specialists, these values have been informed by research and our past experience for adaptation costs for town councils and other local authorities.

Table 2-2 - Estimated project costs key

Costs	
Extremely high	<£1M required for the project or approach
Very high	£100-250k required for the project or approach
High	Over £100k required for the project or approach
Medium	Between £25k and £100k required for the project or approach
Low	Under £25k required for the project or approach
Existing	To be met from existing and pre-identified resources

## 2.6 Barriers to the implementation of adaptation projects

Barriers to the projects are outlined here, these can reflect gaps in adaptive capacity, potential funding or understanding. They can also reflect barriers in the form of knowledge of climate change risk and adaptation. For example, knowledge of adaptation options, impacts, risks, evidence, and adaptation priorities. Where possible the plan references specific actions that councillors can take.

## 2.7 Resources required, potential funding and update period

This section of the table highlights the need for project owners, potential avenues of funding (4.1.2) and the timeframes in which the project should be reviewed and updated. For example, a project may be recommended to be updated every 5 years to ensure they reflect strategic and policy directions and can learn from the experiences of those delivering similar projects.

## 3 Climate Change Adaptation Projects

### 3.1 Summary of projects

The following section provides further information on the climate change adaptation projects which have been prioritised and identified in Table 1-1 for Lydney. Click on a project in the list below to be taken to the relevant section.

- Small site rewilding
- Local climate knowledge
- Neighbourhood Development Plan (NDP) amendment / appendment
- Ecosystem services study
- Environmental Land Management (ELM) engagement
- Adapting existing evacuation centres
- Urban tree planting
- Invasive Non-Native Species (INNS) monitoring
- Renewable energy or green heating
- Repair café / wi-fi enabled warm spaces

### 3.2 Project 1: Small site rewilding

#### Prioritisation: High

A high priority adaptation project to address risks to terrestrial species and habitats from changing climatic conditions and extreme events (CCRA3 risk N1) is small site rewilding. CCRA3 identified that temperature change, water scarcity, wildfire, flooding, wind and altered hydrology are all likely to negatively impact on terrestrial species and habitats. Small site rewilding will provide additional habitat for local species and help to improve biodiversity in the area.



As the Climate Risk Summary for Lydney identifies, Lydney is likely to experience increased heat stress by 2050. Drought conditions and heatwaves are expected to become more common and sea level rise and storm surge are likely to increase flood risk. The combination of these climatic changes will have cascading impacts onto habitats and terrestrial species through changes in soil, plant, and water conditions.

Consultation with Gloucestershire Wildlife Trust (GWT) has revealed that they are willing to provide input and collaboration on this adaptation project. We recommend that GWT are engaged to provide expert support and assistance. This adaptation action can be completed alongside others, such as Urban Tree Planting, as a community forest is a great example of a small site benefitting from rewilding.

Table 3-1. Small site rewilding details.

Category	Details
Primary risk addressed	N1 - Risks to terrestrial species and habitats from changing climatic conditions and extreme events.
Additional benefits	<ul style="list-style-type: none"> <li>• Improved biodiversity and green spaces</li> <li>• Improved health</li> <li>• Resilient infrastructure and communities</li> </ul> <p>Small site rewilding can bring a multitude of benefits. This includes improving local biodiversity through the expansion of green spaces, which in turn supports the community's physical and mental health. Soil health will improve too, having knock-on positive impacts to growing plants and food<sup>5</sup>. This action will also build the resilience of infrastructure and communities to climate change, for example, it has been found that the risk of flash flooding and wildfire is reduced through having vegetation growing in healthy soils.</p>
Suitable locations	Suitable land will need to be identified. This land could be town council, or district council owned, or discussions could be started

Category	Details
	with landowners. Homeowners could also rewild parts of their gardens, following the advice of <a href="#">Rewilding Britain</a> .
Timescale	Medium - <a href="#">Rewilding Britain</a> recommend doing nothing for 12 months on the chosen re-wilding site. After the 12 months, interventions can be put in place to encourage the re-wilding process, therefore this adaptation project should be in place in less than two years. Interventions could include mimicking natural processes where they cannot be restored <sup>6</sup> .
Cost	Low - The cost of this adaptation action is anticipated to be low, given the lack of required inputs outside of councillor time. However, it needs to be noted that there may be high costs with acquiring the land.
Assumptions, uncertainty and funding	<ul style="list-style-type: none"> <li>• <a href="#">Rewilding Britain</a> award two rounds of funding through the <a href="#">Rewilding Innovation Fund</a> each year. The next round of applications will open at the start of 2024.</li> <li>• Volunteers may be required to monitor spaces that have been rewilded to ensure benefits are realised.</li> <li>• Commitments to leave the land for 12 months will be required.</li> <li>• Barriers include acquiring the land, costs of acquiring the land and location of the land.</li> <li>• Rewilding can be a divisive topic and communities will be used to 'tidy' green spaces maintained by the council. Information about the site and what is seeking to achieve will help gain buy-in and prevent resistance from communities.</li> </ul>
Monitoring	During the first two years of the rewilding process, monitoring will be key to ensure progress is being made. In the first 12 months of doing nothing, it will be important to note what changes are seen as the site reverts to its natural conditions and gather information about the land. Following the introduction of any interventions, monitoring will provide evidence for the effectiveness of the intervention and help with the identification of further measures to be introduced. Outcomes from the monitoring should be used for engagement with local communities to highlight what improvements and changes the process is producing.

### 3.2.1 Actions and responsibilities

Table 3-2. List of actions and responsible parties.

Action	Responsible party
Identify suitable land	Town Council / FoDDC / Gloucestershire Wildlife Trust (GWT)
If relevant, make arrangements with landowners	Town Council / GWT
Apply for funding	Town Council / GWT
Consult with local community groups to see how they could help	Town Council / GWT
Promote garden rewilding to homeowners	Town Council / GWT

### 3.3 Project 2: Local climate knowledge

#### **Prioritisation: High**

A high priority adaptation project for Lydney is to provide climate change adaptation training for councillors and develop the community's climate knowledge. This will support addressing all CCRA3 priority risks through enhancing local adaptive capacity to climate change, as the management of the climate risks identified in section 1.6 and their impacts will fall in part to the Lydney councillors.

This project will also enhance local adaptive capacity as a wider understanding of the consequences of climate change may generate more community support for other adaptation and mitigation measures that the Council proposes, and increased knowledge should allow Councillors to propose more appropriately targeted actions.

Broadening community climate knowledge will help everyone prepare for the reasonably foreseeable changes. Lydney can expect to see a range of climate impacts under both the medium and high emission scenarios, as outlined in more detail in Lydney's Climate Risk Summary.

We propose extending the scope of the project to include a specific focus on climate-resilient water management strategies. This addition would involve training councillors and the community in effective water conservation measures, such as metering, enhancing water efficiency, and promoting rainwater harvesting. By integrating this water management guidance into the broader climate change adaptation training, this would empower Lydney's residents with practical knowledge and strategies to mitigate water shortages resulting from climate variability.

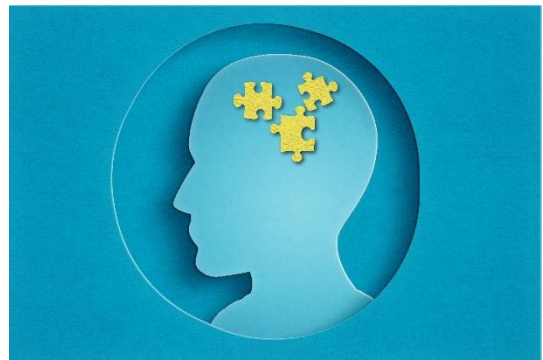


Table 3-3. Local climate knowledge details.

Category	Detail
Primary risk addressed	More than 60 risks and opportunities were identified in UK CCRA3, all of which have a touchpoint with improving local climate knowledge.
Benefits	<p>With the upcoming revision of the Local Neighbourhood Development Plan (NDP), equipping the councillors with the knowledge and skills for adapting to climate change will facilitate the development of an adaptation theme throughout the NDP. The councillors can also share their learnings with the local community, building overall community resilience and local adaptive capacity.</p> <p>Additional Benefits</p> <ul style="list-style-type: none"> <li>• Resilient infrastructure and communities</li> <li>• Low carbon behaviours</li> <li>• Benefits local adaptive capacity.</li> </ul> <p>Enhancing local climate knowledge will help the local population to understand the potential impacts due to climate change that are projected for the future in their local area and ways of increasing resilience to manage the effects.</p>
Suitable locations	Existing community hubs and communication channels could facilitate the sharing of climate change resources to the local community (such as the Forest Voluntary Action Forum (FVAF) community centre).
Timescale	Immediate - The above adaptation action could be achieved within less than 6 months once the service contract is in place to provide the training and resources.
Cost	Low - There are likely to be initial costs associated with the procurement and delivery of the services. The services could be procured or provided by a no-cost social enterprise (such as Climate Vision CIC). Once the councillors are equipped with the knowledge and resources, information can be shared through existing communication channels.



Category	Detail
Assumptions, uncertainty and funding	<p>Communications and sharing of climate change knowledge needs to be adapted to the different populations in the town. For example, younger people are known to be more aware of climate change so might be interested in learning about different aspects to those who are less aware and would benefit more from a broad understanding.</p> <p>Councillor time is key for the success of this adaptation project: a substantial amount of Councillor time will need to be set aside to both learn more about climate change and to disseminate climate knowledge throughout the community.</p> <p>Funding could be available for this project through Gloucestershire County Council's Greener Gloucestershire Community Fund. This fund is eligible for Town Councils and applicants can apply for £2000-£5000. The deadline for applications is Monday the 26th of February at 10AM.</p>
Monitoring	<p>A yearly review of climate related resources will ensure that the most up-to-date information is being provided. It will also be useful to review alongside any releases of updated climate datasets from the <a href="#">UK Met Office</a>.</p>

### 3.3.1 Actions and responsibilities

Table 3-4. List of actions and responsible parties

Action	Responsible party
Procurement of services	Town Council
Councillors undertake climate change adaptation training	Town Council and service provider
Development of climate change resources	Town Council (potentially assisted by the service provider, depending on the contract scope)
Communications of climate change knowledge	Town Council (assisted by FoDDC and other potential stakeholders if collaboratively approached)
Maintenance of resources	Town Council

### 3.4 Project 3: Neighbourhood Development Plan (NDP) amendment / appendment

#### Prioritisation: High

We recommend that this project seeks to incorporate climate change adaptation and adaptation planning into Lydney's Neighbourhood Development Plan (NDP). This could be achieved through integrating the potential local climate risks into development decisions.



For example, LTC should clearly outline the expected climate impact information they will require from applicants during pre-application discussions and ensure that this information is accessible to applicants and the community. These requirements should be clearly stated in the planning pre-application process. Integrating climate impact considerations and adaptation planning at an early stage might help avoid

cumulative impacts, such as surface water flooding resulting from drainage with insufficient capacity to meet expected future requirements.

Integrating climate risk considerations and adaptation planning into the NDP will prevent future developments (such as housing projects) increasing risks to existing developments or constrain future adaptation projects.

Importantly, this project also helps to ensure that Lydney's NDP aligns with National Planning Policy Framework (NPPF) guidance, as demonstrated by the quote below.

#### **Paragraph 153 of the NPPF states that:**

*'Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.'*

Table 3-5. Neighbourhood development plan amendment / appendment details.

Category	Detail
Primary risk addressed	More than 60 risks and opportunities were identified in UK CCRA3, all of which have links to local planning, such as Lydney's NDP, to further consider climate change and climate change adaptation.
Additional Benefits	<p>An effective and up-to-date NDP is important in ensuring that decisions fully reflect the need to manage the effects of climate change in Lydney.</p> <p>Additional Benefits</p> <ul style="list-style-type: none"> <li>• Resilient infrastructure and communities</li> <li>• Low carbon behaviours</li> <li>• Benefits local adaptive capacity.</li> </ul> <p>Recognising these issues is central to delivering resilient places, good plans can ensure a variety of additional benefits.</p>
Timescale	Timescale will depend on the size and scale of the intervention. This intervention has been labelled as Immediate. However, this could be longer depending on funding availability, lead time during consultancy hire and council time in developing the invitation to tender.
Cost	The cost has been categorised as low, we anticipate based on past consultancy experience that these works would not exceed the low cost threshold. Councillors suggested this would likely be a bought in service with consultancy support.
Assumptions, uncertainty and funding	<ul style="list-style-type: none"> <li>• Funding could be accessed through existing sources or through a government backed neighbourhood planning source.</li> <li>• Through <a href="#">neighbourhood planning</a> (via Locality) all groups (e.g., Parish or Town Councils) undertaking a neighbourhood plan or neighbourhood development order are eligible to apply for up to £10,000.</li> <li>• Technical support can also be provided (on top of grant funding).</li> <li>• DLUHC have extended the full support programme for this scheme into 2023/24.</li> </ul>
Monitoring	As a part of monitoring successful climate adaptation integration into the NDP, LTC should monitor the outcomes of adaptation measures to help build the case for further adaptation projects. It should also monitor where the integration of the climate change guidance in the NDP has led to a material change to developments.

### 3.4.1 Actions and responsibilities

Table 3-6 actions and responsible parties.

Integrate relevant principles and best practice from national guidance such as from the TCPA (2023 <sup>7</sup> ) into future NDP	Town Council, FoDDC and consultancy
Explore the potential of the use of nature-based solutions in the design of a new design of development <sup>8</sup>	Town Council
Integrate resilience into the plan e.g., stating future flood levels based on the climate change allowances or promoting design of property level flood resilience.	Town Council & FoDDC

<sup>7</sup> The Climate Crisis – A Guide for Local Authorities on Planning for Climate Change

<sup>8</sup> Environment Agency - Use nature-based solutions to reduce flooding in your area

### 3.5 Project 4: Ecosystem services study

#### Prioritisation: High

A data and research and development based, medium priority adaptation project recommended for Lydney is an ecosystem services study. This will support the assessment of CCRA3 priority risk N18, evaluating the risks and opportunities from climate change to landscape character.



Following guidance from the [Institution of Environmental Sciences](#) will help to ensure that the study provides robust and clear evidence. Findings from the study will help to support the placement of the natural environment at the heart of decision-making and will assist in optimising the benefits from ecosystems<sup>9</sup>:

Example ecosystem services include:

- Provisioning services - e.g. food and fresh water
- Cultural services - e.g. recreation and tourism
- Regulatory services - e.g. flood and climate regulation
- Supporting services - e.g. habitats and soil formation.

In line with the Climate Risk Summary, Lydney can expect to see an increased chance of warmer, wetter winters and hotter, drier summers, with record breaking hot summers and drought conditions expected to become more common. There are also likely increases in the intensity of short-period rainfall events. These projected changes are likely to modify landscapes, it is therefore crucial to understand the current baseline to enable monitoring of future changes.

Table 3-7. Ecosystem services study details.

Category	Detail
Primary risk addressed	N18 – Risks and opportunities from climate change to landscape character
Additional Benefits	<ul style="list-style-type: none"> <li>• Green economy</li> <li>• Improving biodiversity and green spaces</li> <li>• Innovation and funding</li> </ul> <p>Undertaking an ecosystem services study will benefit the green economy by identifying opportunities, as well as improving biodiversity and green spaces. The survey results will provide useful evidence for developing future policies and ensuring the benefits of the local ecosystems are maximised for building community resilience to climate change.</p>
Suitable	The assessment can be undertaken across the town, in all areas

<sup>9</sup> Institution of Environmental Sciences, (2013). [Ecosystem services assessment: How to do one in practice](#)

Category	Detail
locations	that host an ecosystem, primarily green spaces and marine environments. Conducting an assessment will be particularly useful for areas that are marked for development.
Timescale	Short - This project could be completed within a year once the areas for survey have been identified. Regular monitoring will be ongoing.
Cost	Medium - There is a medium cost associated with this adaptation action. Initial costs will be high as the primary survey is completed, then will be reduced as the areas are monitored regularly.
Assumptions, uncertainty and funding	<ul style="list-style-type: none"> <li>• The outline cost for this project has been based on expert judgement and past project experience.</li> <li>• Monitoring will need to be regular and ongoing to ensure changes are understood and plans adapted. This may be reliant on volunteer support.</li> <li>• The <a href="#">Esmée Fairbairn Foundation</a> has previously provided funding for ecosystem services studies.</li> <li>• Undertaking a study might not be relevant for all areas across the town.</li> </ul>
Monitoring	The surveyed areas will need to be monitored on a yearly basis. This will allow any negative changes to be caught early and mitigations to be put in place. Also, regular monitoring will develop an extensive evidence base that can be drawn upon for the development of future plans and policies. Monitoring may be reliant on volunteer support.

### 3.5.1 Actions and responsibilities

Table 3-8. List of actions and responsible parties.

Action	Responsible party
Identify areas where the study will be conducted	Town Council with support from FoDDC, local groups, Gloucester Wildlife Trust, Natural England and Forestry England
Engage with landowners and community groups	Town Council
Apply for funding	Town Council
Procurement of bought-in service to complete the survey	Town Council with support from FoDDC
Conduct assessment	Town Council / bought in service
Regular monitoring	Town Council supported by volunteers

### 3.6 Project 5: Environmental Land Management (ELM) engagement

A high priority adaptation project for Lydney Town Council is engaging with landowners in relation to the ELM scheme. This will help to address the CCRA3 priority risk N6 - Risks to and opportunities for agricultural productivity from extreme events and changing climatic conditions. As per the Climate Risk Summary, Lydney can expect to see an increase in the frequency of drought conditions and heatwave events, as well as increased winter rainfall. It will therefore be beneficial for local landowners to start taking steps to increase their resilience to these potential changes.



The UK Government released 'The Path to Sustainable Farming: An Agricultural Transition Plan 2021 to 2024'<sup>10</sup> in 2020, outlining three levels of support for sustainable Environmental Land Management (ELM) schemes. ELM schemes aim to support the rural economy, whilst also achieving the goals of the 25 Year Environment Plan and realising a commitment to net zero carbon emissions by 2050<sup>11</sup>.

Engaging with landowners on ELMs will help to ensure that they are aware of the benefits that sustainable practices can bring to their land and the local community and can help to encourage them to apply for funding to make the transition to sustainable farming. Collaborating with farming-focused organisations such as The Farming and Wildlife Advisory Group South West (FWAGSW) could increase the likelihood of positive engagement with groups by drawing on their experience of farming.

Table 3-9. ELM engagement details

Category	Detail
Primary risk addressed	N6 – Risks to and opportunities for agricultural productivity from extreme events and changing climatic conditions.
Additional benefits	<ul style="list-style-type: none"> <li>• Green economy</li> <li>• Improved biodiversity and green spaces.</li> </ul> <p>Transitioning to sustainable farming will build community and infrastructure resilience to the impacts of climate change. It will help to mitigate against the international risk of disruption to global food supply chains that could potentially cause local price rises and supply shortages. In addition, the ELMs focus on committing to net zero carbon emissions by 2050 will benefit the local green economy and encourage low carbon behaviours.</p>
Suitable	All landowners can be engaged with and from there, suitable

<sup>10</sup> Department for Environment Food & Rural Affairs, (2020).

The Path to Sustainable Farming: An Agricultural Transition Plan 2021 to 2024

<sup>11</sup> Future of farming in England - GOV.UK ([www.gov.uk](http://www.gov.uk))

Category	Detail
locations	locations on farmland surrounding Lydney urban areas can be identified. Existing community groups could be used as a mechanism for sharing this information.
Timescale	Short - Once the resources have been compiled and a plan developed, engaging with landowners can be completed within six months.
Cost	No cost - There are no costs associated with engaging with landowners on ELMs. Should any ELMs be implemented, this is when costs will begin to arise.
Assumptions, uncertainty and funding	<ul style="list-style-type: none"> <li>• No funding is required for this adaptation action. Learning resources are available from organisations such the <a href="#">Nature Friendly Farming Network</a>.</li> <li>• Successful engagement is dependent on uptake within the community. It might not be suitable for all landowners.</li> <li>• Engagement would need to be tailored towards Sustainable Farming Initiatives (SFI) and Countryside Stewardship (CS) as these are more achievable on the smaller scale.</li> <li>• Funding is available for landowners wishing to transition to ELMs. There are a wide range of grants and schemes available from the UK Government, including the SFI and CS<sup>12</sup>.</li> <li>• Collaboration with farming organisations and unions should be explored to increase chances of positive engagement and uptake with farmers.</li> </ul>
Monitoring	Monitoring for this project could be achieved by Councillors recording the number of engagements held with local farmers and landowners. This could be developed further by recording whether engagement led to subsequent landowner/farmer engagement with the ELM programme.

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12 Sustainable Farming Incentive (SFI)  
Countryside Stewardship (CS)

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### 3.6.1 Actions and responsibilities

Table 3-10. List of actions and responsible parties.

Action	Responsible party
Stakeholder mapping to capture all relevant landowners	LTC, with support from FoDDC
Development of engagement materials	LTC, drawing upon Government documents
Landowner engagement	LTC, and any relevant community groups

### 3.7 Project 6: Adapting existing evacuation centres

To address CCRA3 risk H1: Risks to health and wellbeing from high temperatures, it is recommended that LTC adapt designated evacuation centres for use during heatwaves and periods of prolonged high temperatures. This could include installing air conditioning units and providing water stations, which links with Project 8: Tap water refill.



As the Climate Risk Summary has identified, Lydney can expect to see increased average summer temperatures under both medium and high emissions scenarios, and increased frequency of heatwave events by 2050. Although evacuation is unlikely during heatwaves, these refuge places are already known by the community, and they can therefore function as locations for providing cooling spaces during heatwaves.

Cooling stations could open once the temperature reaches a certain threshold. This threshold could be linked to the UK Met Office's definition of a heatwave: when a location records a period of at least three consecutive days with daily maximum temperatures meeting or exceeding the heatwave temperature threshold<sup>13</sup>. The threshold varies by county. The threshold for Gloucestershire is 27°C.

Table 3-11. Adapting existing evacuation centres details

Category	Detail
Primary risk addressed	H1 - Risks to health and wellbeing from higher temperatures
Additional benefits	<ul style="list-style-type: none"> <li>Resilient infrastructure and communities.</li> </ul> <p>Preparing for projected changes in heat-related weather conditions now will build the community's resilience to climate change. Heat-related mortality is likely to increase with climate change, so completing this adaptation action will also help to mitigate the impacts of climate change in the community.</p>
Suitable locations	Existing evacuation centres can also be used as refill and cooling stations.
Timescale	Medium - Depending on the installations needed, evacuation centres could be adapted within two years.
Cost	Medium - Costs are dependent on facilities already in place in the evacuation centres. However, this project coincides with project 3.9. Efficiencies could be achieved by undertaking both projects at similar times.

<sup>13</sup> What is a heatwave? - Met Office

Category	Detail
Assumptions, uncertainty and funding	<ul style="list-style-type: none"> <li>Any work undertaken on existing buildings will need to align with resilience planning.</li> <li>Town Council funding may already be allocated to other projects in the local area.</li> <li>It is important the preventative action is taken as well as this project to minimise urban heat risk. This could be achieved through changes to planning requirements for any new developments as highlight in Project 3.4.</li> <li>FoDDC Rural England Prosperity Funding, covering themes such as the climate crisis, or the Gloucestershire County Council Climate Change Community Fund (in development) might be a feasible avenue for funding this project.</li> </ul>
Monitoring	Recording of prolonged high temperatures and heatwaves and centre usage during these events will support the monitoring of this action. Centre usage can be recorded through a sign-in book at the entrance, similar to the process used when it needs to be used as an evacuation centre.

### 3.7.1 Actions and responsibilities

Table 3-12. List of actions and responsible parties.

Action	Responsible party
Identification of facilities at current evacuation centres, and what will need to be installed	LTC
Sourcing which Town Council or District Council funding can be used to adapt the centres	LTC, with support from FoDDC
Arrangement of contractors	LTC
Delivery of upgrades	Contractors, sourced by LTC
Maintenance	LTC and building owner

### 3.8 Project 7: Urban tree planting

**Priority: Medium**



We propose that Lydney undertake an urban (or peri-urban) tree planting initiative to address heat risks to health (CCRA3 Risk H1) through the provision of shade and the creation of 'cool islands'. CCRA3 noted that climate change is likely to increase heat-related mortality. There are additional benefits of increased urban tree planting, as it presents an opportunity to support biodiversity recovery as well as carbon sequestration.

Lydney can expect an average summer temperature rise of 1.8°C by 2050 under a medium emissions scenario, with an average summer temperature rise of up to 2.7°C by 2050 under a high emissions scenario. Equally, the frequency of extreme heatwave events is projected to

rise to 1.8 events a year by 2050 under a medium emissions scenario, rising up to 2.8 events a year for the same period under a high emissions scenario. Further details on the impacts of climate change on Lydney can be found in Lydney's Climate Risk Summary. These impacts emphasise the need for the local area to be ready for average and extreme events as soon as 2050.

In instances where urban tree planting is not possible, urban shading can be provided through other means such as shade canopies, shelters and sails.

In some instances, it may be appropriate to remove existing hard landscaping to facilitate tree planting. This should be conducted in collaboration with FoDDC and GCC, as appropriate. Pre-existing tree planting locations should be adequately protected, and retained when future-proofing developments so that new trees may be planted.

For peri-urban tree planting, there may be opportunity to engage with the ongoing Severn Treescapes project, led by several partnered wildlife trusts (including GWT). It supports land managers, farmers and communities to access funding to plant, grow and manage woodlands and trees across these landscapes.

Table 3-13. Urban tree planting details

Category	Detail
Primary risk addressed	Contributed to addressing H1 - Risks to health and wellbeing from high temperatures.
Additional benefits	<ul style="list-style-type: none"> <li>• Improved biodiversity and green spaces</li> <li>• Flood regulation</li> <li>• Improved air quality</li> </ul> <p>Urban greenspace, such as woodland, parks and gardens, can create a 'cool island' effect to counteract urban heat islands, reducing surrounding local air temperatures by between 1.5 and 3.5°C<sup>14</sup>. There are associated, well-researched benefits to air quality, biodiversity, and mental health.</p>
Suitable locations	<ul style="list-style-type: none"> <li>• Feasibility studies, aligned with the latest research from Forest Research<sup>15</sup>, performed by a qualified arboriculture consultant would be required to assess the best locations for urban tree planting, taking account of local design codes.</li> <li>• Revisiting Neighbourhood Development Plan (NDP) policies to promote urban tree planting in suitable locations.</li> <li>• Planting could be facilitated in other locations in Lydney using tree planters, for example on suitably wide pavements. This would require permission and approval from the appropriate bodies such as FoDDC and Gloucestershire County Council.</li> </ul>
Timescale	<p>Short to medium - It is worth noting that there is a time lag between planting and realising the benefits of tree planting as trees take time to grow and mature, and this in turn is dependent on appropriate maintenance.</p> <p>The Urban Tree Challenge Fund is open for applications. If LTC want to plant trees in 2024 to 2025, an application needs to be submitted no later than 11:59pm on 30 June 2024.</p>
Cost	Medium - Tree planting schemes can be very expensive. There are a range of costs including the trees, labour for planting, subsequent maintenance, assessment of suitable locations by a suitably qualified individual and the potentially significant cost of purchasing land if there is not already available land.

14 Public Health England (2020), Improving access to greenspace a new review for 2020.

[Improving access to greenspace a new review for 2020](#)

15 Forest Research (2021), Trees, greenspace and urban cooling. [Trees, greenspace and urban cooling](#)

Category	Detail
Assumptions, uncertainty and funding	<ul style="list-style-type: none"> <li>• The scope of this adaptation action and cost of the adaptation is limited to available land, action ownership and cost.</li> <li>• Tree planting is not a panacea solution, planting regimes themselves will be affected by climate change. If done incorrectly, planting can cause biosecurity issues.</li> <li>• Planting will help aid urban heat risk but is not a substitute for public health activities, such as those that encourage behavioural change for high-risk groups and give information to caregivers of vulnerable individuals.</li> <li>• It is important the preventative action is taken to try to ensure that urban heat risk is minimised in the future. This could be achieved through changes to planning requirements for any new developments.</li> <li>• The government Urban Tree Challenge Fund (<a href="https://www.gov.uk/guidance/urban-tree-challenge-fund">https://www.gov.uk/guidance/urban-tree-challenge-fund</a>) or another tree planting grant scheme (of which there are others e.g., Urban Tree planting <a href="http://www.treesforcities.org/">http://www.treesforcities.org/</a>).</li> <li>• Funding could also be drawn from sources such as developer contributions (section 106) as tree planting could be undertaken to support clean air objectives (reducing local pollution).</li> </ul>
Monitoring	<p>The town council could monitor the success of urban tree planting by keeping a record of planting and installations. Establishing a tree monitoring programme following planting would help determine tree establishment and potential issues which can then be managed. There may be monitoring opportunities through encouraging public reporting, or through engaging with local groups.</p>

### 3.8.1 Actions and responsibilities

Table 3-14. List of actions and responsible parties.

Action	Responsible party
Identify verges and/or strips of acquirable land	LTC
Engage with GWT contact to discuss opportunities around tree planter rainwater harvesting/SUDS	LTC, GWT (Gloucestershire Wildlife Trust)
Urban Tree Planting Feasibility Study	LTC (stakeholder consideration likely required from FoDDC, Highways England and Forestry England).
Funding application	LTC
Delivery	LTC (assisted by FoDDC and other potential stakeholders if collaboratively approached)
Tree Maintenance	LTC & local volunteers

### 3.9 Project 8: Tap water refill scheme

#### Priority: Medium

A medium-tier priority for Lydney is the installation of a tap water refill scheme. This would engage with the Lydney community to encourage people to carry reusable water bottles, supporting people finding and using refill stations. Promotion and engagement are central to the success of community refill schemes, and the Council would need to identify organisations within the community who would support their efforts and provide refill locations. These organisations can be cafés, restaurants, zero waste shops, other businesses, or any community buildings willing to provide refills to the local community.



The CCRA3 noted that climate change is likely to increase heat-related mortality. Increasing access to freely available drinking water helps to reduce heat stress, while providing additional benefits in terms of reducing waste and therefore carbon emissions, and potentially also leading to increased footfall in town centres and therefore increased economic activity. As such, this adaptation project helps address those increased heat risks to health (CCRA3 Risk H1), while also providing co-benefits for the environment and local economy.

Table 3-15. Tap water refill details

Category	Detail
Primary risk addressed	Contributes to addressing H1 - Risks to health and wellbeing from high temperatures.
Additional benefits	<ul style="list-style-type: none"> <li>• Clean water</li> <li>• Reduced waste.</li> </ul> <p>There are benefits for human health from the provision of freely available public drinking water in urban areas. These benefits will be especially apparent during heatwave events.</p> <p>There are also associated benefits for mitigation, including a reduction in waste and therefore carbon emissions. There are also potential benefits for the local economy as refill schemes can lead to increased footfall in town centres and can encourage interactions with local businesses<sup>16</sup>.</p>
Suitable locations	Refill stations can be shops, cafés, businesses, community buildings, public water fountains, libraries and other local businesses and publicly owned buildings. So long as the location has a publicly accessible water point where the public can enter and refill with tap water, either directly or by having the bottle

16 Refill, Refill Stations How to Guide



Category	Detail
	<p>refilled by a member of staff, then that location can be registered as a publicly accessible water point. Given the number of businesses in the centre of Lydney there a range of potentially suitable locations.</p> <p>A refill scheme can be started in any area where one does not already exist. Refill schemes engage with the local community and sign post them to the Refill app to help them locate refill stations so that they can work to access freely available drinking water. There are refill schemes across the UK and the world, operating at a range of scales.</p>
Timescale	<p>Medium - However, an ambitious approach could see this action completed quicker than this.</p> <p>The time taken to get a scheme up and running will depend upon both the local need for the scheme, local buy-in (businesses, residents and visitors) and the number of suitable locations.</p>
Cost	<p>Low to No Cost - A refill scheme could be free to set up so long as there are sufficient refill stations within the surrounding area. Installations of public water fountains could be relatively costly (&lt;£5,000) and would likely require consultation with FoDDC at a minimum.</p>
Assumptions, uncertainty and funding	<p>The scope and cost of this adaptation project is dependent on local need, local buy-in and the ability to find and identify suitable locations.</p> <p>Funding pots for this project may be tied to other initiatives such as local regeneration and town planning.</p> <p>It is important that preventative action is taken to try to ensure that urban heat risk is minimised in the future. This could be achieved through changes to planning requirements for any new developments.</p>
Monitoring	<p>Monitoring of the tap water refill scheme is relatively straightforward. Adding local refill stations to the Refill app can assist the monitoring of this adaptation project. Feedback from the local businesses that host a refill station can also provide data on the number of people engaged with the scheme.</p>

### 3.9.1 Actions and responsibilities

Table 3-16 List of actions and responsible parties

Action	Responsible party
Identify suitable local businesses and locations. Check which outlets are already in the scheme and expand and advertise availability.	LTC
Engaging with the community and signing up suitable locations to act as refill stations	LTC, local businesses and volunteers
Funding application	LTC
Delivery	LTC (assisted by willing local businesses and residents)
Maintenance	LTC, local business owners & volunteers

### 3.10 Project 9: Invasive Non-Native Species (INNS) monitoring

INNS monitoring is an adaptation project with links to local risks in the natural environment (Ash tree dieback). According to Berry & Brown (2022)<sup>17</sup> the combined risk elements for INNS (climate and non-climate) suggest that the magnitude of this risk is increasing across the UK. There is a need locally to improve preparedness, surveillance of INNS and to address risks, especially for forestry.

The council should lead the formation of a local action group, aligning with other groups in the Non-Native Species Secretariat (NNSS). This project should work alongside the needs, expertise, and guidance of other relevant stakeholders, such as Gloucestershire Wildlife Trust (GWT), Herefordshire Wildlife Trust (HWT) and the Forest Voluntary Action Forum (FVAF).



The council should coordinate willing volunteers to undertake training for tree-surveys, such as those done by Observatree (under guidance from the Woodland Trust). Following engagement, the council should scope potential actions for this project, if resources are limited, awareness and communication of the risks of INNS could be a good starting point.

Table 3-17. Invasive non-native species monitoring details

Category	Detail
Primary risk addressed	N2 - Risks to terrestrial species and habitats from pests, pathogens and invasive non-native species.
Additional benefits	<ul style="list-style-type: none"> <li>• Clean water</li> <li>• Improved biodiversity and green spaces</li> </ul> <p>Local community interest might help leverage other opportunities and adaptation projects.</p> <p>For INNS, adaptation actions would help prevent introduction and Establishment, which is much more effective than trying to mitigate spread. INNS action, mitigation and monitoring would fit alongside local biodiversity policy (2023), as it would enable residents and local organisation activities to enhance and promote biodiversity. Mitigation performed locally could reduce INNS risks across the Forest of Dean. Local interest might help leverage other opportunities and adaptation projects.</p>
Timescale	Medium - The expected lead in time for volunteering activities could be up to two years. Engagement could be integrated into this timescale.

<sup>17</sup> Berry and Brown, (2021). *Natural Environment and Assets*. In: *The Third UK Climate Change Risk Assessment Technical Report* [Betts, R.A., Haward, A.B. and Pearson, K.V. (eds.)]. Prepared for the Climate Change Committee, London

Category	Detail
Cost	Low or No Cost - Funding likely to be available (as listed by the GB Non-Native Species Secretariat (NNSS)). Although would likely incorporate volunteering network arrangement.
Assumptions, uncertainty and funding	<ul style="list-style-type: none"> <li>• The formation of a local action group might require a large time commitment from willing volunteers, links with GWT should be explored to try to mitigate this.</li> <li>• Other volunteering arrangements, such as through Observatree, might be more accessible, though could require a lead in time (~1 year) and would be respective of the desired surveying arrangement of the Woodland Trust.</li> <li>• The nonnative species secretariat outlines many sources of funding for local action groups (LAGs), this can be found within their LAG toolkit here: <a href="https://www.nonnativespecies.org/local-action-groups-lags/toolkit/">https://www.nonnativespecies.org/local-action-groups-lags/toolkit/</a></li> </ul>
Monitoring	Following the engagement process, councillors could monitor the number of volunteers, volunteering activities and frequency of local interventions to determine success. This should be completed on a yearly basis.

### 3.10.1 Actions and responsibilities

Table 3-18. List of actions and responsible parties.

Action	Responsible party
General awareness of INNS	Town Council
Engagement with GWT to determine ongoing work, potential for volunteering and the potential of a NNSS aligned new Local Action Groups (LAGs).	Town Council, Volunteers, Gloucester Wildlife Trust
Engagement with the FVAF	Town Council, Forest Voluntary Action Forum
Awareness of other volunteering programmes (e.g., Observatree)	Town Council

### 3.11 Project 10: Renewable energy or green heating projects

#### **Prioritisation: Low**

During the formation of the adaptation plans, it was recognised that future actions could also benefit local decarbonisation efforts. Adaptation and mitigation should go hand in hand<sup>18</sup>. Therefore, we recommend that this project centres around upgrading town council buildings, through renewables, decarbonised heating, or energy efficiency actions. It has been categorised as a low priority action.

Within the district, the Forest of Dean District Council is facilitating a community energy project in the area through the Centre for Sustainable Energy.

The AURORA project, a Forest Energy Community Initiative is funded by the European 'Green Deal' initiative<sup>19</sup>. The initiative is aimed at promoting citizen led, bottom-up energy projects, such as a community solar energy project.



There are further opportunities, from other funding schemes dedicated towards the public sector which could also be accessed by Lydney, this includes programmes that could deliver energy efficiency and heat decarbonisation projects within their non-domestic buildings.

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<sup>18</sup> Local Government Association - Accelerating Adaptation

<sup>19</sup> AURORA, Forest Energy Community Initiative

Table 3-19. Renewable energy or green heating - details.

Category	Detail
Primary risk addressed	H6 - Risks and opportunities from summer and winter household energy demand.
Additional benefits	<ul style="list-style-type: none"> <li>• Innovation and funding</li> <li>• Resilient infrastructure and communities</li> <li>• Green economy</li> </ul> <p>Undertaking a decarbonisation project will help facilitate the transition to net zero locally (and to meet government targets). There are other additional benefits to this project, including building capacity for innovation and funding locally, improving the resilience of community infrastructure and supporting the Gloucestershire green economy.</p>
Suitable locations	<ul style="list-style-type: none"> <li>• Currently in Lydney, there are many Solar PV panels fitted to council properties. However, there is ambition locally for a community energy project.</li> <li>• Heat decarbonisation projects have not been explored in the area, but there are potential non-domestic buildings, such as recently taken on community buildings (acquired with UK Shared Prosperity Funds).</li> </ul>
Timescale	Medium to Long - Depending on the scale of the project, it could take one year to five years to undertake the above actions to completion.
Cost	High - The associated costs of energy schemes regardless of funding arrangements are likely to be high - although final capital expenditure will be project scale dependent. Projects would experience challenges around costs, ownership and planning.

Category	Detail
Assumptions, uncertainty and funding	<ul style="list-style-type: none"> <li>• Engagement with the AURORA Project/Forest Community Energy (FCE) would help to provide a useful template for how a scheme could be undertaken in Lydney.</li> <li>• Alternatively, funding or net zero and renewable energy projects might be best accessed through the South West Net Zero Hub, which details funding and financing opportunities. This funding usually includes costing for feasibility studies.</li> <li>• Local heat decarbonisation of public buildings could be facilitated through several different funds, a similar example of a local funded scheme (at a Parish Council level) in Gloucestershire was facilitated by the South West Energy Hub, which awarded Oaksey Parish Council a £14,000 Rural Community Energy Fund (CEF) grant to assess feasibility and to install a ground source heat pump.</li> <li>• Any project(s) developed through CEF funding should be designed to be at least 50% community owned.</li> <li>• Longer term ambitions around community energy (e.g., onshore wind) could take longer and would be dependent on addressing planning impacts identified by the affected local community and general community support.</li> <li>• FoDDC Rural England Prosperity Funding, covering themes such as the climate crisis, or the Gloucestershire County Council Climate Change Community Fund (in development) might be a feasible avenue for funding this project.</li> </ul>
Monitoring	<p>Monitoring and evaluation of this project should be undertaken to check progress against planned milestones, to understand how well various schemes are developing and delivering on their objectives, and to analyse how the scheme has performed against its intended impacts. This includes added capacity (for renewable schemes) or energy efficiency gains (for heat decarbonisation).</p>

### 3.11.1 Actions and responsibilities

Table 3-20. List of actions and responsible parties.

Action	Responsible party
Continued engagement with the AURORA Project/Forest Community Energy (FCE) scheme to determine community owned possibilities for Lydney.	LTC, Forest of Dean District Council and local interested groups.
Evaluate avenues for heat decarbonisation of council owned buildings.	LTC
Set up a working group with representatives from the local community to assess the practicalities of community ownership.	LTC, Community groups.
Application for funding, such as future rounds of the Public Sector Decarbonisation Scheme (Salix) or the Community Energy Fund (CEF) through the South West Net Zero Hub	LTC



### 3.12 Project 11: Repair café / Wi-Fi enabled warm space

#### Prioritisation: Low

An adaptation project identified as a low priority for Lydney is to facilitate a repair café or a Wi-Fi enabled space in a suitable location (most likely a Town Council owned building) to foster social and physical resilience for Lydney.



A repair café is a place where people can take ordinary household items that are no longer working, for them to be repaired, often at little to no cost.

Generally, they are free community spaces where people are welcome to ask for help in mending an item or can volunteer to help with repairs. A Wi-Fi enabled warm space, is a location that provides heating and free wireless connection to the internet.

A multifunctional warm space also enables the possibility of home-working, enabling local business contingency plans to be more effective, and business to operate in a way that facilitates local resilience. This multifunctional space could be integrated into local emergency and resilience planning.

Table 3-21. Repair café / wi-fi enabled warm space - details.

Category	Detail
Primary risks addressed	B6 - Risks to business from disruption to supply chains and distribution networks and, H3 – Risks to people, communities and buildings from flooding.
Additional benefits	<ul style="list-style-type: none"> <li>• Green economy</li> <li>• Resilient infrastructure and communities.</li> </ul> <p>Currently, 'warm spaces' are being utilised as a community response to provide support to those struggling to heat their homes.</p> <p>The creation of a warm, Wi-Fi-enabled space would help to create more resilient communities in Lydney.</p>
Suitable locations	Funding might allow for other town-council owned properties to be realised as either a repair café or wi-fi enabled warm space.
Timescale	Short - Timescale will depend on the size and scale of the intervention. However, this could be longer depending on funding availability, ownership arrangements and available spaces.
Cost	Low to Medium - Depending on the scale and need for feasible spaces, this scheme could entail low to medium costs. Engagement with GCC would help to determine potential costs and barriers to implementation.

Category	Detail
Assumptions, uncertainty and funding	<ul style="list-style-type: none"> <li>• Ascertaining support from Cost of living crisis grant funding for UK charities &amp; community groups and crisis grant funding for individuals &amp; families or the National Lottery Grants is two potential pathways to realise this project.</li> <li>• The Co-op funding scheme would likely have to have some community group responsibility - the funding stream is closed currently; however it is anticipated a similar stream will be available in 2024.</li> </ul>
Monitoring	There are practicalities for such schemes, which would factor into monitoring arrangements. For example, heating costs. The <a href="#">Centre for Sustainable Energy</a> offers a <a href="#">heating cost calculator</a> which might be beneficial for generating energy-use savings. Ongoing capacity could be monitored as an indicator during flood, storm events or general cold-weather use.

### 3.12.1 Actions and responsibilities

Action	Responsible party
Shortlist potential spaces	LTC
Engage with FoDDC or GCC around funding arrangements and learning from other schemes	LTC, FoDDC or GCC
Apply for funding streams in 2024	LTC
Develop a concise promotional strategy using social media and local channels.	LTC
Coordinate with stakeholders to prepare and furnish spaces.	LTC and community
Implement a simple monitoring system to track space use.	LTC
Develop strategies for long-term sustainability and explore partnerships for ongoing support.	LTC, FoDDC or GCC

## 4 Adaptive Capacity: Lydney

### 4.1.1 Adaptive capacity

Lydney's adaptive capacity includes the current capacity of the Town Council, the community and any others who may be expected to support the implementation of adaptation projects. It considers human, technical, financial, informational resources, and other capabilities.

The adaptive capacity characteristics in the table below have been informed by the ISO14091/2021 standard, Adaptation to climate change - Guidelines on vulnerability, impacts and assessment.

Table 4-1 below provides a high-level indication of the current adaptive capacity of Lydney, informed by stakeholder engagement with LTC. The projects detailed in section 3 have considered the capacity characteristics and should lead to improvements in local adaptive capacity in the future.

The adaptive capacity characteristics should also be considered when monitoring the projects detailed within this plan and used as a framework to inform the development of new projects in the future.

Table 4-1. Adaptive capacity characteristics and current adaptive capacity

Adaptive Capacity Characteristics	Current Adaptive Capacity
Leadership and commitment for climate change adaptation	Lydney forms part of a committee, representing three councils to respond to extreme weather events and a report is currently being written outlining the different areas of responsibility. The Council have drawn upon useful documents from the Gloucester Resilience Forum to write their own resilience plan.
Ability to identify risks	There is recognition that the elderly population are vulnerable to climate change, and that the town is at risk of flooding from a range of sources due to its topography.
Capability to act	Town Councils are somewhat restricted in their ability to act in that Town Councils only have limited authorities and powers. Being a Town Councillor is an unpaid position and some Town Councillors manage working alongside their responsibilities as a Councillor.

Adaptive Capacity Characteristics	Current Adaptive Capacity
Influence on decision making	There is a consideration of emergency planning and an understanding of resilience, demonstrated by Local Resilience Plan and Lydney Rapid Response Plan.
Accessible expertise	Atkins have been writing a report over the last 18 months exploring how to minimise flood risk. However, there is currently no climate change adaptation training for the councillors.
Engagement with local groups	There is a multi-agency flood group in the local area, with members from a range of organisations, including the EA and developers.
Collaboration with other councils and interested parties	The Council are working closely with two other councils to respond to extreme weather events. They also engage with Gloucestershire County Council and the Environment Agency on strategies for funding climate related projects.
Learning and recording - improving decisions over time	Lydney Town Council are currently revising their Neighbourhood Development Plan which will contain references to climate change risks and impacts. The Lydney Rapid Response Plan is also reviewed every three years, most recently being August 2020.
Financial resources	There are no specific financial resources for adaptation, but the Council do have strategies for funding climate related projects for example, flooding projects and reporting with Gloucestershire County Council and the Environment Agency.

#### 4.1.2 Funding

The Society of Local Council Clerks have compiled a list of potential funding sources available for climate and environmental action and adaptation. These vary from Section 106 and 137 agreements and the Community Infrastructure Levy, to grants and the National Lottery Fund. The grants have been categorised, and some relevant examples are detailed below in the table below.

Table 4-2. List of funding sources and typologies.

Categorisation of funding type	Funding source
Broader climate change	Climateworks Foundation, Lush Charity Pot Funding
Energy use, storage and creation	Thrive Renewables Collective Capital for Community Energy Groups VCSE (voluntary, community and social enterprise organisations) Energy Efficiency Scheme
Energy advice	Energy Saving Trust Energy Redress Scheme, E.O.N Next Fund
Environmental justice, campaigning and grassroots action	Friends of the Earth Climate Action Fund
Nature and land use	Ernest Cook Trust, Postcode Local Trust
Biodiversity Net Gain	BNG credits

This is not an exhaustive list. For more information, please see this [document](#). The Council could also seek advice from [Forest Climate Network](#) who work locally to bring together expert advice on local change, community-based regeneration and climate action.

## 5 Relevant plans, policies, and guidelines

This section outlines the local, district and county level plans, policies and strategies that have been identified as relevant and pertinent to the projects included within this plan.

### 5.1 Lydney Neighbourhood Development Plan (2014 - 2024)<sup>20</sup>

#### 5.1.1 ENV1 - Location of New Development

Development proposals will be supported within the settlement boundary as identified in map 1.4 or elsewhere in the prevailing development plan subject to those proposals being in accordance with Policies CSP.12 and CSP.13 of the adopted Core Strategy and other policies in this neighbourhood development plan. Development proposals outside the settlement boundary will be considered against the principles set out in the adopted Forest of Dean Core Strategy in general, and its policy CSP.4 in particular.

#### 5.1.2 ENV2 - Protecting the Natural Environment

Development proposals will be required to demonstrate how they respect the natural environment of the Plan area. In appropriate circumstances development proposals should be designed to enhance natural features within application sites.

### 5.2 Forest of Dean District Council Core Strategy (2012)<sup>21</sup>

#### 5.2.1 Policy CSP.1 - Design and Environmental protection

The design and construction of new development must take into account important characteristics of the environment and conserve, preserve or otherwise respect them in a manner that maintains or enhances their contribution to the environment, including their wider context. New development should demonstrate an efficient use of resources. It should respect wider natural corridors and other natural areas, providing green infrastructure where necessary.

#### 5.2.2 Policy CSP.2 - Climate Change

Proposals for development will be required to demonstrate that their design and layout will reduce the impacts of climatic change as identified in national, regional and local predictions over the lifetime of the development concerned. The following should be addressed in an integrated way, demonstrating that one element benefits another:

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<sup>20</sup> Lydney Neighbourhood Development Plan (2014 - 2024)

<sup>21</sup> Forest of Dean District Council Core Strategy (2012)

1. Water Management
2. Heating and Cooling
3. Biodiversity

### 5.2.3 Lydney Settlement Policies (7.20-34)

#### **Sustainable development**

- Promote Lydney in a sustainable manner as serving the Forest of Dean, gaining maximum advantage from its location.
- Contribute to the overall sustainability of the district by complementing the function of the other towns.
- Recognise that the town offers the greatest level of opportunity for change and to plan and promote and accommodate new development accordingly.
- Ensure new development uses resources efficiently, by following the guiding principles set out in the Core Strategy and elsewhere.
- Enhance the character of the Conservation Area and the setting of buildings or other features of historical importance.
- Ensure that proper account is taken of flood risk and that new development is not put at risk nor puts existing development at risk.

#### **Transport and access**

- Provide a better environment especially for the town centre including the bus station.
- New highway building and environmental improvements are part of the Lydney highway Strategy.
- Key elements of this are to be delivered as part of the east of Lydney development. This will result in a better town centre environment and will therefore support the wider objectives of the strategy.
- Optimum use should be made of the railway station which should offer improved facilities including parking, and the Dean Forest Railway. In the longer term the possibility of rail freight will be examined.
- New development will be required to take advantage of the town's access to the rail network and to contribute to the overall highway strategy and other necessary improvements.

#### **Natural Environment**

- Make best use of the natural environment with new development that is compatible with and protects it while also benefiting from the setting offered.

### 5.2.4 Policy CSP.12

In order to enhance the role of the town, the Core Strategy will support the proposed development of the land east of Lydney for a new neighbourhood and will promote a

new mixed development including amenity land along the axis between the harbour and the town centre. The development of the town centre including improvements following the implementation of the highway strategy and the improvement of key retail sites will be supported. This will:

- Enable employment generating uses to be developed, including about 15ha at Hurst Farm and about a further 5ha as part of the east of Lydney neighbourhood, and about 7ha at Mead Lane.
- Provide for about 1900 new dwellings over the period to 2026, and make maximum use of previously developed land. On eligible sites (over 10 dwellings/ 0.3ha, a 40% share of affordable housing will be sought\*).
- Improve the town centre and develop up to about an additional 600m<sup>2</sup> convenience retailing and about 1500m<sup>2</sup> for comparison goods principally within the south eastern part of the town centre.
- Encourage greater service provision and improved facilities to serve the town.

#### 5.2.5 Policy CSP .13

Within the area of the proposed Area Action Plan, a new mixed form of development will be promoted, using mainly under utilised land and redeveloping or adapting redundant buildings to form an area between the Harbour and the town centre containing recreation, employment and housing together with links to an improved town centre and the existing and new public recreation spaces. The plan will include proposals for improvements to the mainline station. Land within this area will be allocated for up to 200 dwellings, mixed employment, recreation and tourism/leisure uses together with retailing (at the town centre).

### 5.3 Response to the Biodiversity Duty - Biodiversity Policy. Adopted by Lydney Town Council in November 2023<sup>22</sup>

#### Planning applications

The Council will:

- when commenting on planning applications, support site and building design that benefits biodiversity through the conservation and integration of existing habitats or provision of new habitats.
- support protection of sensitive habitats from development and will consider whether the development would mean the loss of important habitats for wildlife in respect of all applications.
- consider what each proposed development might make in terms of biodiversity net gain.

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<sup>22</sup> Response to the Biodiversity Duty - Biodiversity Policy. Adopted by Lydney Town Council in November 2023



- include policies in support of biodiversity within the neighbourhood plan.

### **Land and property management**

The Council will:

- endeavour to carry out a biodiversity audit of its landholdings.
- consider the conservation and promotion of local biodiversity with regard to the management of its open spaces. This will include adopting beneficial practices with regarding to cutting and removal of vegetation, application of chemicals and timing of maintenance work, paying attention to the Government's regulations for plant protection products
- take special care in the specification of grounds maintenance contracts to ensure that the work, whilst reaching acceptable standards, does not harm the natural environment.
- endeavour to source sustainable materials when procuring supplies for the Council's use
- endeavour to consider biodiversity issues and the implementation of changes when managing its buildings.

### **Local community**

The Council will:

- raise public awareness of biodiversity issues, including through its website and newsletters.
- engage with local businesses and residents regarding biodiversity in the community and how members of the community can assist and make a difference.
- where feasible, involve the community in biodiversity projects on its land including for example tree planting, wildflower meadows, birdbox making.

### **Partners**

The Council will endeavour to work in partnership with other organisations to protect, promote and enhance biodiversity within the council area.

## **5.4 Lydney Rapid Response Plan<sup>23</sup>**

This plan's objectives relate well to adaptation actions that the town can take:

- To provide information on the properties, infrastructure and vulnerable communities potentially at risk from a rapid flood incident.
- To provide an outline of the community engagement/flood awareness measures undertaken or planned to raise awareness, and enable the local community and relevant businesses to be more resilient to a rapid flood incident.

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<sup>23</sup> Lydney Rapid Response Plan

## 5.5 Gloucestershire County Council (GCC) documents

Gloucestershire County Council (GCC) are the Lead Local Flood Authority for the county. The responsibilities for local flood risk management are detailed in Figure 5-1.

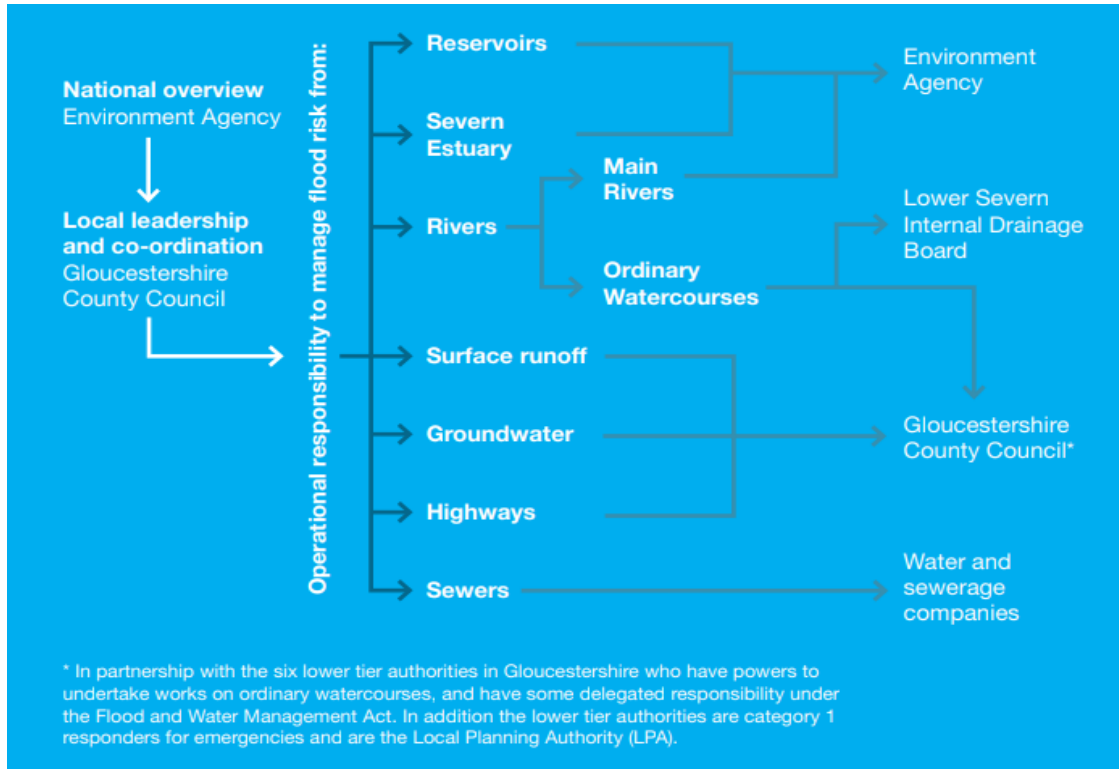


Figure 5-1: Responsibilities for flood risk management in Gloucestershire<sup>24</sup>.

### 5.5.1 Local Flood Risk Management Strategy<sup>24</sup>

GCC has a leadership and coordinating role in flood risk management across the County, in their role as LLFA. The strategy was adopted in 2014, and has a 10-year period.

The six key strategic objectives for the Local Strategy are:

- improve our understanding of local flood risk;
- put in place plans to manage these risks;
- avoid inappropriate development and ensure new development does not increase flooding elsewhere;
- increase public awareness of flooding and encourage local communities to take action;
- ensure close partnership working and co-ordination with other risk management authorities in Gloucestershire, and;
- support response to, and recovery from, flooding incidents.

Within the 2022-23 and 2023-24 implementation plan<sup>25</sup>, it is detailed that more than 100 properties in Lydney are at a high risk of surface water flooding (1 in 30 year). The calculated risk remains high, and a scheme is in progress. The proposed method of alleviation was a Natural Flood Management study and projects at Lakeside. This is a detailed flood risk mitigation study in partnership with the EA. The study encompasses 84 properties at risk of flooding, and costs estimated at £61,000, which is now complete. A three year extensive NFM project on Cannop and Lyd catchments has been agreed and is underway. The Lakeside modelling is complete and the options appraisal is underway.

### 5.5.2 Strategic Flood Risk Assessment<sup>26</sup>

The SFRA has been prepared to support the application of the Sequential Test (by the Councils) outlined in Planning Policy Statement 25: Development and Flood Risk (PPS25), and to provide information and advice in relation to land allocations and development control. Where it is found that some sites can only be placed in 'medium' or 'high' risk areas, a Level 2 SFRA is required which carries out the 'Exception Test' as set out in PPS 25. The 'Exception Test' is only appropriate for use when there are large areas in flood zones 2 and 3, where the sequential test alone cannot deliver acceptable sites and where some continuing development is necessary for wider sustainable development reasons.

### 5.5.3 Sustainable Drainage: A Design and Adoption Guide<sup>27</sup>

This Design and Adoption Guide sets out the requirements and design process for SUDS using examples that show how SUDS features can enhance the landscape. The guidance considers the Design and Adoption of SUDS as follows:

- The Principles of Sustainable Drainage describes the main ideas and concepts that must be understood to deliver high quality SUDS.
- The Design of SUDS explains how natural drainage informs SUDS design and provides a Design Process that integrates SUDS concepts and SUDS Design Standards into the development sequence set out in The SUDS Manual.
- SUDS Components are the features used to control runoff as it flows through development towards an outfall and are described in detail to clarify requirements for attractive and easily maintained SUDS.
- Landscape Design complements the appearance and management aspects of SUDS and must be integrated at every planning stage highlighting the multidisciplinary character of SUDS design.

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<sup>25</sup> Glos comms strategy ([gloucestershire.gov.uk](http://gloucestershire.gov.uk))

<sup>26</sup> Strategic Flood Risk Assessment

<sup>27</sup> Sustainable Drainage - A Design and Adoption Guide ([gloucester.gov.uk](http://gloucester.gov.uk))

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