

Torfaen Green Infrastructure Assessment (GIA)

December 2021

Executive Summary

*This document is available in Welsh
Mae'r ddogfen hon ar gael yn Gymraeg*

Purpose of the Green Infrastructure Assessment

Planning Policy Wales Edition 11 (PPW11, 2021) requires planning authorities to prepare a Green Infrastructure Assessment (GIA) to guide and shape the planning and delivery of green infrastructure within Torfaen. PPW11 promotes a green infrastructure approach to land-use planning, design and management to ensure green infrastructure forms an integral and significant part of development and wider infrastructure proposals.

What is Green Infrastructure?

Green infrastructure is defined in PPW11 as *“the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places”*. Green infrastructure can function at a range of different scales; from entire ecosystems such as wetlands and rivers to parks, fields and gardens. Street trees, hedgerows, roadside verges, and green roofs / walls can all contribute to green infrastructure networks. These features are termed Green Infrastructure Assets and have a role to play in supporting biodiversity and delivering health, social, economic and cultural benefits.

Why is Green Infrastructure important?

These green infrastructure assets form a network which if **planned, designed and well managed** provide **multiple** benefits to people and nature. These benefits, or **ecosystem services**, include clean air and water, fertile soil in which to grow our food and energy resources with which to heat our homes. We depend on many of these services for human existence. Less visible ecosystem services include the climate regulation and natural flood defence provided by woodlands, the billions of tonnes of carbon stored by peatlands, the pollination of crops by insects as well as the inspiration we take from wildlife and the natural environment and the spaces we use for recreation which



Parks and Formal Gardens

- urban parks; private gardens
- Cwmbran Boating Lake, Glansychan Park & American Gardens



Natural Green Space

- Woodlands, Grassland, Moorland
- Bogs, Rivers and Streams



Amenity Green Space

- Sports pitches, play areas, allotments
- Informal green space



Institutional Grounds

Churchyards, Cemeteries, grounds of schools, hospitals and residential homes



Heritage Assets

- World Heritage Site, National Park
- Listed Parks & Gardens, Scheduled Ancient Monuments, Listed Buildings



Green corridors

- Cycle routes, Rights of Way, river and canal banks, road and rail verges

contribute to our physical health and mental wellbeing. To function properly these ecosystems need to be healthy. The increasing fragmentation of green infrastructure is degrading the services that can be provided.

Key Issues and Challenges for Torfaen

The pressure on our natural resources is escalating, as we aim to provide housing and employment opportunities for our growing and ageing population. We need to face the challenge of a changing climate and declining biodiversity and tackle the health and well-being agenda enshrined in the Well Being for Future Generations Act (Wales) 2015. A strategic view of the management and development of our land resource is needed to tackle the diverse and often competing land management issues in a spatially coherent manner to make efficient use of the resources, both financial and natural, which we possess.

Table 1: Key Issues and Challenges in Torfaen

Key Issue (as identified in the Well Being Plan)	Challenges for Torfaen
Climate change	Mitigating and adaptation for climate change
Unhealthy population	Encouraging an active population
Ageing population	Catering for an ageing population
Biodiversity decline	Reversing Biodiversity decline and developing ecological resilience
Development pressures	Ensuring development does not exacerbate deficiencies in provision and adhere to placemaking principles including the incorporation of existing and new green infrastructure.

How GI Benefits can help deal with key challenges

Green infrastructure assets provide societal benefits which can help to contribute to the health, wealth and well-being of Torfaen. Investment in well designed and managed GI can help with the following:

address climate change	improve health and well being	develop ecological resilience	create great places to live
•help adapt to extreme weather events •reduce flood risk •improve water quality •storing and sequestering carbon	•reduce health inequality •improving physical activity •improving mental well being •promoting community cohesion and social cohesion	•increase extent and diversity of habitat •increase species population •increase ability of species to move	•attract inward investment and job creation •increase land and property values •contribute to economic regeneration

Multifunctional Green Infrastructure

GI Assets provide these benefits by performing various functions such as providing shade and shelter from winds, keeping us cool, trapping pollutants from air and water, absorbing and collecting rainwater to prevent flooding, providing us with food and fuel, providing habitats and movement corridors for wildlife, areas for recreation, sustainable transport routes and scenic beauty. These functions are also termed 'ecosystem services'. Table 2 below shows the full list of

functions which can be provided. Any given asset can be multifunctional providing multiple benefits.

Table 2: Ecosystem Functions

ENVIRONMENTAL	SOCIAL	ECONOMIC	CULTURAL
Shading from the sun	Green travel route	Food production	Heritage asset
Evaporative Cooling	Aesthetic	Fuel production	Cultural asset
Shelter from wind	Learning	Timber production	
Habitat for wildlife	Recreation	Green jobs	
Wildlife corridor		Setting for development	
Soil stabilisation		Supporting image	
Water storage			
Water interception			
Water infiltration			
Flow reduction due to surface roughness			
Carbon storage			
Carbon sequestration			
Pollination resource			
Noise absorption			
Trapping pollutants			

The Importance of Connectivity

Connectivity between different GI assets can help maximise the benefits that they generate. Well-connected GI assets create infrastructure that is adaptive and resilient to environmental changes. Physical connections make the most impact, often by creating physical 'stepping stones' that encourage biodiversity migration and connect places with sustainable walking or cycling routes. Linked together, GI assets form important multifunctional GI networks, which should be considered at all spatial scales.

The Green Infrastructure Assessment

This assessment:

- Identifies Green Infrastructure assets and the functions that contribute to each of the Green Infrastructure themes
- Maps the baseline of Green Infrastructure assets and functions across Torfaen on digital Geographical Information Systems (GIS)
- Develops an Urban Green Grid map of green 'ecological and leisure corridors' across Torfaen which link these assets and create the urban Green Infrastructure network
- Provides evidence for the protection of this network or Urban Green Grid through Local Development Plan and Replacement Local Development Plan policies
- Identifies a methodology to assess strategic need for each function based on baseline mapping of Welsh Index of Multiple Deprivation (WIMD) data etc.
- Identifies and provide guidance on ways in which Green Infrastructure can be improved and enhanced, depending on need i.e. opportunity mapping

Assessing Functionality

Each typology has been assessed to establish which functions they are able to perform. Though these assets may not perform all these functions in every circumstance, for simplification and for

the purpose of this exercise, it has been assumed that they do. A more in depth analysis of functionality for any given site can take place when detailed intervention proposals are being formulated. **Error! Reference source not found.** shows how each of these functions can help deliver against our four Green Infrastructure themes.

Table 3: Green infrastructure themes, functions and assets

GI THEME	FUNCTION	ASSET
Climate change	Shading from the sun	Woodlands, street trees
	Soil stabilisation	Woodlands, grasslands
	Carbon storage	Woodlands, street trees, bogs, cycle routes
	Water storage and conveyance	Natural greenspace, amenity greenspace, Sustainable Drainage Systems (SuDS)
	Pollutant removal	Woodland, trees, grassland, bogs, SuDS
	Local food production	Allotments, orchards, pasture
Health and Well Being	Recreation	Pitches, play areas, green leisure corridors,
	Active travel	Cycle routes, public rights of way (PRoW)
	Trapping air pollutants	Woodland, trees,
	Community space	Civic spaces, amenity greenspace
	Local food growing	Allotments, orchards, pasture
Ecological Resilience	Pollination	Grasslands, orchards, allotments
	Habitat for wildlife	Natural greenspace,
	Corridor for wildlife	Green corridors, verges, rivers, streams, water bodies, canal
Placemaking	Providing jobs	Parks, amenity green space, natural green space
	Lifelong learning	Institutional grounds, natural green space
	Skills and volunteering	Natural greenspace, amenity green space,
	Setting	All GI
	Connection to local environment	Green corridors
	Noise absorption	Trees, woodlands
	Heritage and culture	Blaenavon Industrial Landscape World Heritage Site, Conservation Areas, Scheduled Ancient Monuments, Listed Buildings, Listed Parks and Gardens

Assessing Need

To establish the need for any of these functions, a set of indicators has been suggested. Typologies which perform each function are mapped and areas of need defined as those areas where these typologies are lacking. Additional indicators of need such as areas of poor health or vulnerable groups such as the elderly or children will further prioritise the need for a specific function such as recreational space or shading.

Making an Assessment

This Assessment takes a dual approach to help us in our decision making with regard to how we need to manage our GI assets to maximize the benefits they provide for people and nature with limited resources. The **Top Down Approach** illustrated below is suitable for the strategic management of our GI resource with the **Bottom Up approach** appropriate where a site based analysis is required.

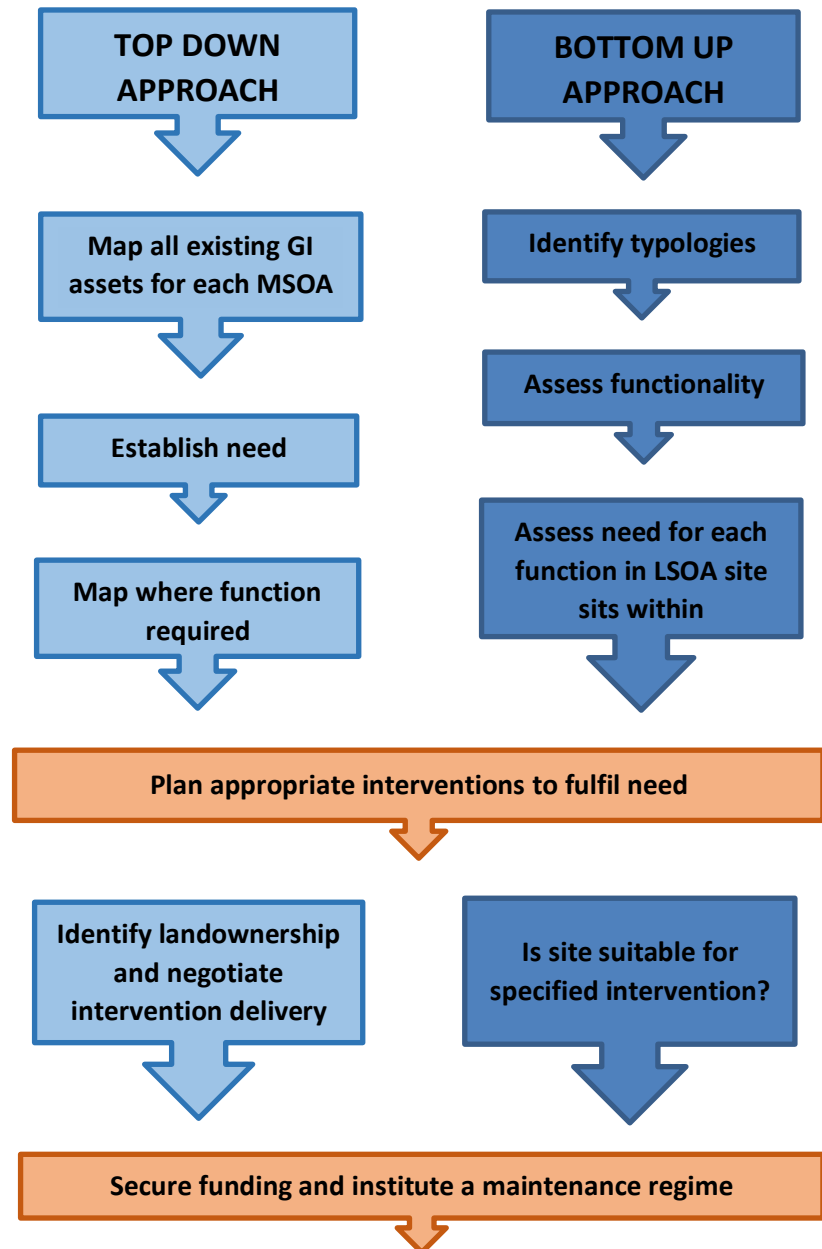
The Top Down Approach is relevant for the strategic management of our GI resource and looks to:

- map the GI assets for Torfaen County borough
- identify the functions they currently provide
- identify where these functions are not being provided
- suggest where the most appropriate interventions can be made.

The Bottom Up approach

provides a mechanism for assessing the functionality of a specific site to show the benefits it currently provides to the local community. This assessment can be used to decide whether future investment should be made on the site to increase its functionality

- when considering a candidate site for the LDP or when assessing a proposed development site through the development management process
- when considering an asset for disposal
- when seeking potential sites for mitigation for biodiversity
- to assist in assessing sites in accordance with the Site Design, Masterplanning and Development Briefs SPG, February 2023



The Council's Green Infrastructure SPG illustrates how existing green infrastructure present on a site should be incorporated into and enhanced as part of any development proposals.

Monitoring and Review

The Green Infrastructure Assessment will be reviewed on a five yearly basis. The Urban Green Grid mapping will be kept under review to ensure the data upon which decisions are being made is as robust as possible.

The Priority Open Spaces will be identified through the Ward Profile process and consulted upon and agreed by Ward, Community and Town Councils.

A Recreation Strategy will be developed for improvements to play, youth and sports provision in line with recommendations of Torfaen Open Space Assessment.

An Allotment Strategy will be developed to improve allotment provision within the county borough with consideration being given to the diversion of S106 resources into allotment improvements.

Conclusion

The key strategic opportunities where green infrastructure will deliver the most significant benefits to Torfaen have been identified as follows:

Restoration of:

- upland bogs
- ancient semi natural woodland habitat
- water quality along the Afon Lwyd and its tributaries
- reduction in grazing pressure on TCBC owned land to restore pasture to species rich grassland

Maintenance of:

- urban woodland stock
- reduced mowing regimes on publicly owned land to increase species diversity

Creation of:

- biodiversity and amenity value within sustainable drainage schemes on new development sites
- opportunities to retrofit sustainable drainage schemes into existing developments
- ponds, scrapes and other water bodies
- native tree and hedge species planting on development sites and throughout borough
- street and garden tree planting to provide shade and shelter
- green roofs and walls where appropriate especially in urban areas where planting is constrained

Connection:

- Protect and enhance the identified green corridors within the Urban Green Grid Mapping and create or maintain link to wider strategic green corridors to aid the movement of species for breeding and foraging
- Planting of new street trees and replacement of existing stock to link green infrastructure assets

Investment

- Improve quality of and access to our open spaces including formal parks, play areas, sports pitches and allotments

Torfaen's Urban Green Grid

The Torfaen PSB Green Infrastructure Strategy produced a strategic overview of the borough's green infrastructure with strategic corridors identified around the western and eastern fringes of the borough and along the Afon Lwyd and the Mon & Brecon Canal.

The Urban Green Grid Map concentrates on the intra urban Green Infrastructure network highlighting the green corridors which link specific green infrastructure assets and provide essential connectivity for both wildlife and people. The protection and enhancement of these so called

'stepping stone' sites are vital for ecological resilience but also allow for a permeable urban environment through which people can travel.

A public facing version of this Urban Green Grid Map is available to view at http://gis.torfaen.gov.uk:8010/connect/analyst/mobile/-/main?mapcfg=Public%20View&lang=en_GB&overlays=Urban%20Green%20Grid

A map of Torfaen's green spaces is available to view at http://gis.torfaen.gov.uk:8010/connect/analyst/mobile/-/main?mapcfg=Public%20View&lang=en_GB&overlays=Green%20Spaces%20-%20Mannau%20Gwyrdd

These maps will be updated on at least an annual basis as new information becomes available and through observation on the ground.

