

GREEN INFRASTRUCTURE FRAMEWORK FOR  
NORTH EAST WALES, CHESHIRE AND WIRRAL



**Green Infrastructure Framework for  
North East Wales, Cheshire and Wirral**

**Final March 2011**

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# Chapter 1 Introduction

## 1.1 Purpose of the Framework

This Framework addresses the natural environments within both the urban and rural locations of Denbighshire, Flintshire, Wrexham, Cheshire West and Chester, Cheshire East and the Wirral and sets out a vision of how a healthy natural environment can help sustain economic growth and self-supporting communities.

The Framework's purpose is fourfold:

- to identify priorities for management of the natural environment across this wide area;
- to support delivery of cross-boundary initiatives and local projects
- to provide robust evidence for policy to protect and enhance the natural and historic environment in plans produced by local authorities, community partnerships and infrastructure providers
- Address the conditions of the Growth Point

## 1.2 Why Plan for the Natural Environment?

These areas of North East Wales and North West England have distinctive character, based on the high quality of the natural environment, which attracts people to live, study, visit and invest. People value the area for its amenity, historic, cultural and wildlife interest.

Our prosperity depends on the health of the natural environment, which explains why it is often referred to as the “green infrastructure” of an area. For example: The River Dee supplies water for thousands of homes and businesses. Good management of the river's

entire catchment is vital to ensure continuity and quality of water supply and reduce the costs of treating water to remove sediments and pollutants.

The Dee and Mersey Estuaries are European nature conservation sites with a unique estuarine ecology that supports internationally important populations of birds. The estuaries, waterfront settlements and coastline are hugely important economic assets, supporting jobs and tourism, as well as creating a sense of place. The marine ecology and economy of Liverpool Bay is affected by the quality of water arriving from these rivers.

Farming and woodland management create direct employment and supply products to the local economy. The visitor economy of Cheshire and North East Wales includes pubs, restaurants, accommodation and outdoor attractions whose selling point is distinctive foods, drinks, walks and amenities.

The economy depends on workforce health, which in some parts of our area is significantly weaker than the national average. For a 10% increase in local green space there can be a measurable reduction in health complaints within the community<sup>1</sup>. Evidence from the Natural England Walking for Health scheme suggests that for every £1 invested in the scheme, £7 worth of health benefit is delivered<sup>2</sup>.

Although the area has a wealth of natural and cultural assets, the accessibility and quality of these assets varies, as does its distribution. Areas of good supply contrast with areas of deficiency. In some areas, environmental quality has been damaged by past unsustainable industrial and agricultural practices; and could be improved to meet biodiversity, community and economic needs.

Green infrastructure can help realise several opportunities:

- The opportunity to help unlock economic potential of development sites and attract investment in green employment.
- The opportunity to help address health inequalities and create a high quality of life for communities across the area.
- The opportunity to underpin the economy with a healthy and biodiverse landscape fabric that provides the setting for living and working whilst enabling wildlife to thrive and adapt to environmental change.
- The opportunity to help climate proof our settlements and our rural economy

To realise these opportunities there is an overall need to ensure that policy, planning, investment and action on the ground seeks continuous improvement in environmental quality.

### 1.3 Why Plan at this scale?

The six local authorities have economies that benefit each other, a connective transport infrastructure and natural environment network. Sustainable economic growth is a shared priority, and green infrastructure planning is a vital element in catalysing growth while minimising its environmental impact.

The green infrastructure assets in the area include coastlines, rivers, floodplains, canals, woodlands, farmland and urban parks. These assets have economic, social and cultural value for the towns and villages of North East Wales, Cheshire and Wirral. Green

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<sup>1</sup> de Vries S, Verheij RA and Groenewegen PP. (2001) Nature and Health The Relation between health and green space in people's living environment. See: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(08\)61669-4/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(08)61669-4/fulltext)

<sup>2</sup> See: [www.naturalengland.org.uk/Images/TIN055\\_tcm6-12519.pdf](http://www.naturalengland.org.uk/Images/TIN055_tcm6-12519.pdf)

infrastructure planning can help consolidate landscape quality, whilst promoting other environmental functions such as flood-risk management, recreation and improved air quality.

This framework is not intended to dictate how local authorities, landowners and communities should plan, create and manage green infrastructure. This is rightly a matter for local decision-making. However, the natural environment does not stop at administrative boundaries so cross-sector, cooperative working is needed to ensure that existing and future generations enjoy the benefits of a healthy natural environment.

**“Some issues will require partnership working between neighbouring local authorities, because nature and its services do not align themselves neatly to administrative boundaries. For example, on water management, biodiversity and habitat protection, green infrastructure and air quality” (An invitation to shape the Nature of England – Defra discussion document, July 2010)**

The framework respects the cultural, political and economic differences within the area and is intended to be flexible enough for policy makers and land managers to adapt to their own specific cultural and political needs.

## 1.4 What is Green Infrastructure?

Green Infrastructure is the network of green and blue spaces that surround, pass through and create the structure and form of our settlements and landscapes, connecting our cities, towns and villages. The green infrastructure approach can be used at a number of levels, from neighbourhoods through to regions, as its multiple benefits and vital functions are applicable at all geographical scales.

Green infrastructure planning recognises that these networks of green and blue spaces are vital to our economic, environmental and community well being through providing the setting for healthy and sustainable communities, enhancing and creating a sense of place, providing ecosystem services and helping to adapt to a changing climate.

Green infrastructure goes beyond traditional protective approaches to land-use planning and green space management, by articulating the multiple benefits that our environment can provide and adapting the management of our rural and urban landscapes, maximising its value to local communities, the economy and the natural world. In many cases simply adapting our current use of existing green spaces can make significant differences and enhance our quality of life and increase the benefits derived from the environment.

The term “green infrastructure”, in the context of this Framework, has the same essence as other terms in frequent use; notably “a healthy natural environment”, “ecosystem services” and the natural elements of “environmental infrastructure”.

## 1.5 The Economic Value of Green Infrastructure

The value of Green Infrastructure is recognised in several independent economic appraisals<sup>3,4</sup> and is part of Welsh and English spatial planning documents<sup>5,6</sup> concerned with biodiversity, climate change and sustainable development.

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<sup>3</sup> e.g. Economic Analysis of Forest Policy in England (2003) CJC Consulting; Social and Economic Benefits of the Natural Environment: Review of Evidence (2006) GHK Consulting

<sup>4</sup> The Economic Value of Green Infrastructure, (2008), ECOTEC for NWDA

<sup>5</sup> People, Places, Futures; The Wales Spatial Plan 2008 Update, (2008), Welsh Assembly Government

<sup>6</sup> An invitation to shape the Nature of England (2010) Defra Discussion document

The Technical Appendix to this Framework provides more evidence about the many ways green infrastructure contributes to prosperity.

## 1.6 River Dee Green Infrastructure Feasibility Study

An important driver for this framework is a feasibility study that identified the need for green infrastructure planning for the River Dee corridor and surrounding areas. This was commissioned in 2009 by the Mersey Dee Alliance in response to the need for a more strategic approach to land management and to the shared economic priorities and interdependencies of the area.

The study considered how the area's natural environment could be managed while maximising social and economic benefits.

In 2010, the framework boundary was extended to include Cheshire East, in recognition of shared economic and physical geography and the shared environmental challenges of projected housing and economic growth throughout Cheshire, the neighbouring Liverpool and Manchester city regions and North Staffordshire.

## 1.7 Aims of the Framework

The feasibility study identified six long-term aims for the Green Infrastructure framework. These were re-examined and validated for the entire framework area, through a review of policy, a public benefit assessment and stakeholder consultation. The wording of the 6 aims has been slightly amended to be more immediate and dynamic.

The six aims are to:

1. Create a setting for urban and rural prosperity.
2. Support and enhance the visitor experience and economy.
3. Build healthier communities.
4. Maintain and enhance quality of place
5. Ensure urban and rural areas are resilient to effects of climate change.
6. Protect and enhance biodiversity and natural networks, providing opportunity for people to experience the natural environment.

## 1.8 Vision

Based on the six aims, a vision for the framework is articulated below.

*'Our vision for green infrastructure in North-east Wales, Cheshire and Wirral is to enhance and connect the collective potential of our diverse natural, urban and cultural environments, threading them together to enhance and create many special places. Places that sustain and grow our economy and draw people in to visit, live, work and invest.*

*A basic principle is that green infrastructure activity consists of "a few major projects and a thousand smaller changes" which collectively achieve the vision. So we will enable communities and businesses which have positive aspirations for their local environment to fully participate in managing green infrastructure.'*

## 1.9 Structure of the Framework

**Chapter 2** summarises the evidence underpinning the framework. We have reviewed policy, mapped green infrastructure assets, and carried out a public benefit assessment to identify where there is most need for protection and investment. The assessment has been tested by the programme of stakeholder consultation and the approach to this is outlined. We also examine case studies that demonstrate the benefits of a co-ordinated approach to management of the natural environment.

**Chapter 3** considers the six aims in turn. Based on the evidence, we identify detailed objectives, together with key diagrams illustrating the priority themes and areas for investment.

**Chapter 4** is the heart of the Framework. It sets out a number of initiatives to deliver green infrastructure in the priority areas. For each of the proposed initiatives, we describe what can be achieved, how it could be done and who could be involved. Roles and responsibilities for delivery are suggested. The chapter concludes with a list of proposed Action Plans, several of which require cross-boundary and partnership working.

**Chapter 5** discusses the range of mechanisms needed to deliver the initiatives, with recommendations for how these can be implemented and refined in forthcoming years. It also discusses the need for leadership and co-ordination of green infrastructure activity at framework-wide level.

## Chapter 2 Evidence and Best Practice

### 2.1 Spatial Portrait of the Framework Area

The North East Wales, Cheshire and Wirral Framework area covers just under 2,150km<sup>2</sup> and is home for over 1.3 million people. It contains a diverse range of landscapes, both cultural and physical, and a number of different economies.

Its green infrastructure resource is equally as varied, with the highly valued landscapes of the Clwydian Range AONB, fringes of the Peak National Park and the coast providing a major asset for the area. Smaller but no less important landscapes can be found within and close to settlements in the lowland areas and are highly regarded by their populations.

The area has a long record of human occupation and our use of the land over the millennia has created landscapes rich in historical interest. Throughout the area this legacy is clearly visible, whether this is the Bronze Age burial mounds of the Clwydian Range or the field patterns of the Cheshire Plain.

More modern but no less culturally important practices have also left their imprint on the landscape; mineral workings and mining for example have significantly altered the natural landscapes around Wrexham and Nantwich. In addition to this, the infrastructure needed to support these industries has given us the canals, Pontcysyllte World Heritage Site and disused railway lines, important elements of our green infrastructure network.

Our settlements are equally valued as a cultural and historic record. The local economies of several settlements are supported by their cultural and historic associations. Chester's long and important history of occupation and Llangollen's annual International Eisteddfod are two examples of culture and heritage aiding economies and preserving cultural identity.

Figure 2.1: Framework Area

Our settlements also contain some significant green space assets, for example the River Dee in Chester, Marbury Park at Northwich and Erddig Country Park in Wrexham all provide an important function for the communities of those settlements. There are however still some areas that require attention and improvement in the provision and functionality of green space.

The Welsh and Wirral coastlines are a dominant landscape element in the area and provide both biodiversity and economic benefits. The coastal settlements of Rhyl and Prestatyn have relied on this resource as a major income generator and will continue to do so. The coast of Wirral is equally as important to its communities providing open and recreational space.

Much of the coastal area is recognised for its wildlife interest with the Dee and Mersey estuaries designated as Ramsar Sites and Special Protection Areas (SPA). Inland, part of the Clwydian Range is designated as a SPA and the River Dee itself is Special Area of Conservation (SAC). The rivers, canals and other watercourses act as corridors for wildlife, providing links between the uplands, lowlands and the coast.

In both the uplands and the lowlands, farming is still the major influence in shaping the landscape and continues to manage and protect the countryside. New approaches to farming and funding are increasingly allowing the industry to adopt more wildlife friendly practices to the benefit of not only wildlife but the wider environment on which we all depend.

The area has a comprehensive transport network serving the main population centres, including the M6, M56, M53, A556, A500, A55 and the rail network which serves the North Wales coast providing sustainable transport options to these tourist/visitor areas. The West Coast Mainline also passes through the study area connecting many of our settlements.

Our societies are developing and changing, evolving economies, housing growth and the added challenge of climate change means that preserving and enhancing our cultural and natural resources has become a priority. Several settlements are undergoing significant growth and regeneration and there is a real need to understand how we can best maintain the natural, cultural and historical value of the area.

## **2.2 Green infrastructure assets and existing cross-boundary partnerships**

### ***Green infrastructure assets***

The range of formal and natural green spaces has been mapped using a variety of existing datasets and sources of information, including:

- Designated sites such as Local Nature Reserves (LNR) and Sites of Special Scientific Interest (SSSI)
- Green space assets without designation, such as pocket parks, amenity grassland, non-statutory nature reserves
- Water courses and water bodies
- Land under Environmental Stewardship and/or management regimes
- Parks and gardens and heritage features such as Scheduled Monuments and historic buildings
- Recreation facilities
- Access networks; including footpaths, promoted routes such as the Wirral Way, bridleways, cycle routes, multi-user routes (MURs) and by-ways

Two plans demonstrating some of the GI assets are presented below, with further asset mapping located within Appendix 1 – Baseline and Asset Mapping.

### ***Access and Recreation***

Figure 2.2 shows the spatial distribution of these assets, with the predominance of accessible green spaces located within the urban areas, and some significant additional areas north of Northwich, north of Helsby and Frodsham and Delamere.

Open access land is available to the public without the need to remain on footpaths and there are extensive areas of this to the east of the Framework area (within the Peak District National Park), the Clwydian Range and Berwyn Hills.

Historic parks and gardens are concentrated within north and south Cheshire, also across both Flintshire and Denbighshire, with some larger parks and gardens located to the south of Wrexham.

The public rights of way network provides an important means of enjoying green infrastructure, however, the quality of the network varies across the Framework area. In broad terms the network is more comprehensive within the following areas:

- Fringes to the Peak District National Park
- Delamere and the Cheshire Sandstone Ridge
- Clwydian Range

The fringes of some settlements, notably Macclesfield, Northwich, Flint and Holywell are better served by the public rights of way network, with noticeable gaps located within the following areas:

- Cheshire East countryside between Wilmslow, Northwich, Crewe and Congleton
- South west Chester
- Central Wirral
- South of Wrexham

The more strategic promoted paths and national cycle network are concentrated within the Clwydian Range, the Cheshire Sandstone Ridge and connecting the Cheshire East towns of Crewe, Congleton and Macclesfield with the surrounding countryside.



## **Biodiversity**

Within the Framework area there are a number of locally, nationally and internationally important sites for wildlife including Ramsar, Special Areas of Conservation, Special Protection Areas, Sites of Special Scientific Interest and National Park as well as a number of Local and National Nature Reserves. In addition to this there are numerous Local Wildlife Sites and Woodland and Wildlife Trust Sites.

The biodiversity within the Framework area is varied and could be described under five broad areas. The first is the upland area to the west with extensive areas of woodland, Sites of Special Scientific Interest and Special Protection Areas located within the Clwydian Range and Berwyn Hills and the river catchments of the Clwyd and Dee all contributing to biodiversity.

The second area is relatively urbanised, characterised by the Flintshire and Wrexham settlements, Chester and the urban areas of the Wirral and these are separated mostly by agricultural land. Within this area the middle and lower sections of the River Dee connect biodiversity value. While the estuary, with its range of wetland habitats is designated under the Ramsar Convention, is a Special Protection Area and notified as a Site of Special Scientific Interest.

The third area is the Cheshire Sandstone Ridge which is relatively sparsely populated, with some significant pockets of woodland at Delamere and Beeston and extensive agricultural land.

The fourth area is Cheshire east (broadly following the local authority boundary), with some larger settlements, surrounded by extensive areas of agriculture. There is a limited patchwork of woodland, a number of meres and the Bollin, Dane and Weaver river catchments that provide some connectivity for biodiversity.

The final area is the upland fringes to the Peak District National Park, where there are number of woodlands associated with watercourses or reservoirs and several Sites of Special Scientific Interest.

## **Landscape**

The Framework area has a number of varied landscapes and strategically these have been mapped by national character areas for the North West Landscape Character Framework<sup>7</sup> and the Landscape Character Map for Wales<sup>8</sup>. Within the Framework area on the English side encompasses 5 character areas and with partial coverage of a further 10. While on the Welsh side the Framework encompasses 4 areas and interfaces with another 6. (see Figure 2.4)

The character areas are widely recognised as a national spatial framework used for a range of applications, including Natural England's Environmental Stewardship scheme and work by the Forestry Commission and will provide the landscape context for this GI Framework.

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<sup>7</sup> North West Landscape Character Framework, Natural England (2009)

<sup>8</sup> Landscape Character Map for Wales, Countryside Council for Wales (2006)





### ***Existing cross boundary initiatives***

There are already many initiatives within north east Wales and Cheshire that contribute to and/or could benefit from green infrastructure. Some of the more significant initiatives are outlined below.

#### ***Mersey Forest***

The Mersey Forest is a growing network of woodlands and green spaces spread across Cheshire and Merseyside, that has been creating 'woodlands on your doorstep' since 1994. Through community and partnership working, Mersey Forest has planted more than 8 million trees offering significant multi-functional benefits. Mersey Forest also provides support and advice to many organisations on policy, planning and mapping. Some current initiatives within the Framework area, include the Ellesmere Port Green Streets project (see Case Studies, page 33) and the Northwich Woodlands, the emerging forest park north of the town.

#### ***The Mersey Partnership***

The Mersey Partnership campaigns for the Liverpool City Region, (comprising of Liverpool, Halton, Knowsley, Sefton, St Helens and Wirral), as a place to invest, live, work and visit. The Mersey Partnership aims to play a pivotal role in shaping the future economic vision, attracting new investment and developing tourism for the City Region and with its members and partners is committed to the creation of a dynamic regional economy.

The partnership hosts the Mersey Waterfront - a regional park with a programme set up to make an impact on the economic, ecological, cultural and aesthetic value along the 84 mile coastline, building on key assets in the area to attract investment, assist in regeneration and sustain the visitor economy.

#### ***Clwydian Range Area of Outstanding Natural Beauty (AONB)***

The existing AONB extends from the outskirts of Prestatyn in the north, south towards Llandegla, with proposals for the extension of the AONB as far south as Llangollen and the Pontcysyllte World Heritage Site. Confirmation of the extension of the designation is expected during 2011.

The Clwydian Range AONB Management Plan (2004) sets out a path to better and more focussed management of the many assets within the designation. The plan identifies the pressures and issues affecting these assets and outlines approaches to manage them effectively. Specific actions have been identified that will help target funding and ensure that the special characteristics of the area are protected and enhanced. These actions include measures to address biodiversity, moorland, woodland, river valleys, the historic environment and the rights of way system.

#### ***Peak District National Park***

The National Park is located on the fringes of the framework area and the Park Management Plan (2006-11) sets out an overarching vision for future of the park and seeks to address the many demands placed on it. To achieve this, the plan sets out a number of measures to improve the quality, conservation, enhancement on these key issues; biodiversity, cultural heritage, natural beauty, natural resources, mineral extraction; also outlining measures to reduce the impact of climate change. In addition, the plan promotes more sustainable travel patterns, while improving the quality of offer and range of recreation and tourism products.

## 2.3 Policy Review

Key Welsh and English documents have been reviewed to establish how policy supports and directs the priorities for this green infrastructure framework; and where in turn the framework can influence policy. The review of policy is set out in full in the Technical Appendix.

### **Existing Policy**

In England, green infrastructure has risen up the political agenda in recent years and has evolved in both process and definition as an essential part of sustainable development. At the national level Planning Policy Statement 12: Local Spatial Planning (PPS12) describes green infrastructure as:

*'a network of multi-functional green space, both new and existing, both rural and urban, which supports the natural and ecological processes and is integral to the health and quality of life of sustainable communities.'*

In Wales, green infrastructure is referred to less explicitly, although within Planning Policy Wales (Edition 2 – 2010), the importance of planning for sustainability, the multi functionality of open green space and the emphasis on a sustainable approach to flooding are all stated. More specifically within the Wales Spatial Plan's (Update 2008) the vision for north east Wales is stated as:

*'An area harnessing economic drivers on both sides of the border ... reducing inequalities ... improving quality of natural and physical assets'*

Green infrastructure can help achieve wide-ranging policy objectives in social, economic and environmental arenas. The diagrams below illustrate the relationship between some key policies/strategies and the benefits derived from green infrastructure identified within the Natural Economy North West's Economic Value of Green Infrastructure (2008). The diagrams demonstrate Welsh and English policy links separately.

### **Figure 2.5 Benefits of Green Infrastructure & Welsh Policy Links**

**Figure 2.6 Benefits of Green Infrastructure & English Policy Links**

**Emerging Policy**

The coalition government's decision to abolish Regional Spatial Strategies (RSS) has implications on guidance for green infrastructure policy within English local development frameworks.

Abolition of RSS also means that Local Authorities are able to set their own policies and targets for housing and economic growth.

At the time of writing (late 2010) it is unclear where green infrastructure will sit within the national planning policy framework. Nevertheless the coalition government remains committed to two key concepts which are fundamental to green infrastructure planning:

1. actively planning for a healthy natural environment at local and strategic scales
2. enabling communities and local businesses (civil society) to have a majority stake in the management and planning of land-uses and green spaces

The Benefits of Green Infrastructure report by the Forestry Commission (October 2010) further supports the Green Infrastructure agenda and is fully supported by Defra and DCLG.

The abolition of RSS housing targets and the continuing economic slowdown mean it is not clear how much and where new housing will be delivered in Cheshire, Wirral and North Wales. Nevertheless, the Local Authorities within the Framework area have not indicated any significant move away from the levels of growth anticipated in their emerging Local Development Plans and Frameworks prior to the 2010 change of government. This is with the exception of Cheshire East, which proposes varying growth scenarios including growth rates in excess of the RSS.

From 2010 onwards, policy changes and transfer of increased powers to civil society offer opportunities to further embed green infrastructure planning into the corporate policies of

local authorities, local enterprise partnerships and community groups. This aspect of delivering green infrastructure is considered in Chapters 4 and 5.

In October 2010, Government announced a comprehensive spending review which has the effect of reducing the availability of public funds for most infrastructure development and depressing the general rates and availability of central government funding for environmental stewardship of land and waterways. The Government also announced a review of the operation of many of the English and UK green infrastructure delivery and advocacy bodies (including Natural England, Forestry Commission, Environment Agency and British Waterways); while the possibility of a Welsh Environmental body was mooted. The process and outcome of the review will also affect the effort and funds such bodies can invest in the area's green infrastructure.

## 2.4 Needs and Opportunities (the Public Benefit Assessment)

One of the purposes of the Framework is to inform the identification and agreement of priorities by local authorities in conjunction with their partners. This is informed by the process of public benefit assessment. The Public Benefit Assessment illustrates where there are particular needs for, or opportunities to deliver green infrastructure benefits across all the local authority areas. Using the Public Benefit Recording System (PBRs) tool, we identified:

- location and functions of existing green infrastructure assets,
- gaps in provision or functionality of green infrastructure assets
- areas of strong community wellbeing and business enterprise
- areas where specific issues (such as poor health) constrain community wellbeing and/or business enterprise

The essence of PBRs is that it provides robust evidence on needs and opportunities. PBRs marries asset-based and deficiency-oriented models of community development and natural resource management. It considers green infrastructure assets and deficiencies in a broad sweep, encompassing the natural environment and the ways that people and businesses benefit from it.

The PBRs was designed to respond to the particular needs and opportunities in Cheshire, Wirral and North East Wales. It covers the six aims of the green infrastructure framework:

1. Create a setting for urban and rural prosperity.
2. Support and enhance the visitor experience and economy.
3. Build healthier communities.
4. Maintain and enhance quality of place
5. Ensure urban and rural areas are resilient to effects of climate change.
6. Protect and enhance biodiversity and natural networks, providing opportunity for people to experience the natural environment.

PBRs uses a range of datasets to map priorities for each of these aims<sup>9</sup>. Mapping displays **Need** and **Opportunity** using appropriate datasets as described below.

### **Need**

PBRs identifies areas with social or economic or environmental needs; where green infrastructure interventions can help address those needs. An example could be an area with high levels of health deprivation, where well-managed and usable green spaces can contribute towards increasing levels of exercise.

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<sup>9</sup> In practice, Aim 1 is over-arching and integrates the five following aims. Since it applies across the entire area, TEP considered that it did not require its own spatial map. Indeed the combined PBRs maps showing all needs and opportunities for the whole area are the best spatial representation of how and where the natural environment can underpin prosperity

Another example could be areas prone to flooding, where land-use could be managed to increase rainfall/run-off storage, reducing flood-risk, providing natural habitats and providing a recreational opportunities.

### **Opportunity**

PBRS identifies areas with a prevalence of existing GI assets. These offer an opportunity to create a wider green infrastructure network through improved access and/or management. Such asset-rich areas offer opportunities for businesses and social enterprises operating in the “green” economy to grow and create jobs.

The Opportunity maps also show where major housing or employment is proposed or planned. These offer opportunities to create a fully-functioning green infrastructure and reverse past environmental degradation through the process of development.

### **Combined Need and Opportunity Maps**

The Technical Appendix describes the PBRS in detail, presenting each aim in turn and identifying areas of need and opportunity within local authority boundaries. The Combined and Opportunity Maps (shown on pages 22 and 23) integrate the findings.

Figure 2.5 represents the combination of the needs maps. It provides a spatial understanding of where green infrastructure initiatives can address the greatest range of needs.

Figure 2.6 represents the combination of the opportunity maps. It provides a spatial understanding of where existing green infrastructure assets can be managed to broaden benefits for communities and the environment. It also shows areas likely to experience significant investment and transformation as a result of growth and regeneration.

The findings of the PBRS were tested and refined through consultation with stakeholders who have a detailed knowledge of the local area.

The PBRS suggests areas of priority for the GI Framework. Table 2.1 (pages 24,25) provides a summary.

The priority areas have different combinations of need and opportunity. Inner urban areas typically have environmental deficiencies and social needs, but offer opportunity for strengthening GI through new development.

Some areas are rich in GI assets and sustain thriving businesses operating in the green economy – here the GI priority is to build on strengths by enabling more business and community activity, while sustaining the quality of the natural environment.

Many areas have a mix of needs and under-realised opportunities. For example the Dee Valley from Chester upstream to Llangollen is an area of reasonable environmental quality, but, with investment, could be developed as a linear landscape of accessible biodiverse greenspace with associated business opportunities to add to the visitor “offer”.

### **Strategy Response**

The PBRS informs the framework, not only by identifying areas of priority, but also by hinting at initiatives appropriate to these areas. Table 2.1 suggests appropriate strategy responses.

In areas of environmental deficiency, GI initiatives should focus on restoring the conditions necessary for a healthy natural environment. This may involve the creation or linking of assets, or may involve management of existing assets.

In areas of socio-economic need, GI initiatives should create or manage green space, and more crucially, should increase levels of community and business use of such green spaces.

In areas of opportunity, GI initiatives should also build on the opportunities provided by existing assets and/or prospering businesses through further environmental enhancement, filling gaps in GI provision and supporting enterprises operating in the natural/visitor economy.

In areas where high levels of transformation are anticipated, there will be opportunity to address needs and create opportunity through careful GI planning in new development.

The full set of maps prepared for the PBRS are located within Appendix 3 – Introduction to the Public Benefit Recording System.





**Table 2.1: Areas of priority for GI Investment; indicating needs for, and opportunities arising from, green infrastructure.**

	<b>NEEDS</b> √ Need √√ Significant Need		<b>OPPORTUNITIES</b> √Opportunity √√ Significant Opportunity		
	Environmental Deficiencies	Socio-economic needs	Coherent networks of existing GI assets contributing to local distinctiveness, community life and climatic resilience	Existing Natural / Visitor Economy	Area of probable transformation through housing and economic growth
<b>STRATEGY RESPONSE</b>	<i>Create &amp; restore GI assets</i>	<i>Create &amp; manage GI for community benefit</i>	<i>Conserve &amp; enhance assets, enabling community management</i>	<i>Support enterprise</i>	<i>Set standards for provision and management of GI assets</i>
<b>AREA</b>					
1.Denbighshire Coast	√	√√	√	√√	√
2.Bodelwyddan & St Asaph	√		√	√	√√
3.Clwyd Valley			√√	√√	
4.Flintshire Dee Coast	√√	√	√		√
5.Halkyn and river valleys	√	√	√	√	
6.Deeside employment areas and adjacent towns	√√	√√			√√
7.Clwydian Range	√		√√	√√	
8.Mold, Ruthin, Denbigh market towns and the Clwyd Valley		√	√√	√√	√
9.Llangollen & Pontcysyllte World Heritage Site	√	√√	√√	√	
10.Wrexham and surrounding settlements	√√	√√	√	√	√√
11.Dee valley (Chester to Llangollen)	√	√	√	√	
12.Chester City Centre	√	√	√√	√√	√
13.Chester – Ellesmere Port M53/A41 corridor	√√	√√		√	√√
14.Ellesmere Port & Chester housing renewal areas	√	√√			√
15.Ellesmere Port to Mouth of the Weaver inc Gowry River	√√	√	√	√	√
16.Wirral Coast & Wirral Way			√√	√	

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<b>STRATEGY RESPONSE</b>	<i>Create &amp; restore GI assets</i>	<i>Create &amp; manage GI for community benefit</i>	<i>Conserve &amp; enhance assets, enabling community management</i>	<i>Support enterprise</i>	<i>Set standards for provision and management of GI assets</i>
<b>AREA</b>					
17. Birkenhead & Wallasey housing renewal areas	√√	√√			√√
18. Wirral Waters development	√	√√	√		√√
19. Mersey Shore (Ellesmere Port to Seacombe)	√	√√			√√
20. Northwich and lower Weaver valley	√	√	√	√	√√
21. Delamere, Helsby, Beeston and the Cheshire sandstone landscape	√		√	√√	
22. Winsford & the mid-Weaver valley	√	√√	√	√	√√
23. Nantwich and Crewe – town regeneration and urban extensions	√	√	√		√√
24. Macclesfield urban extension	√	√	√	√	√√
25. Cheshire Peak and fringe farms and towns	√		√	√√	
26. Rivers Bollin, Dane and valley farmland	√		√	√	
27. The canal network and associated market towns and villages, such as Middlewich, Congleton, Sandbach, Audlem	√	√	√	√√	√

## 2.5 Stakeholder Consultation

Stakeholder views were gathered in four ways:

Firstly, the project steering group included representatives of the following Local Authorities and environmental agencies. The composition of the Steering Group is broad and enabled representation of a breadth of priorities of a local and strategic nature. The list of organisations is outlined below:

- Denbighshire
- Flintshire
- Cheshire West and Chester
- Cheshire East
- Wirral
- Wrexham
- Countryside Council for Wales
- Natural England
- Environment Agency
- Mersey Dee Alliance

Secondly, a questionnaire was circulated to 30 community and environmental groups, based on contact lists provided by the Steering Group and others known to TEP. The questionnaire was written and presented concisely to maximise response rates. The questionnaire covered the following topics:

1. What is your role regarding green infrastructure provision?
2. What do you think are the key issues regarding green and natural spaces and assets in the Framework area?
3. Green infrastructure includes habitats, landscapes, waterways, access routes, parks and other assets. Which do you think are the most important assets in the Framework area? Which do you think are the most at risk? What do you think the area needs more of and why?
4. What would you think are or should be the green infrastructure priorities? (e.g. protecting individual sites, enhancing particular landscapes, expanding habitat/access networks, providing flood storage, sustainable development)
5. Do you think a Green Infrastructure Framework and Action Plans will help you or your organisation achieve its objectives? If so, how?
6. How do you think you and/or your organisation can help in developing & delivering green infrastructure?

The results of the questionnaire are included with in the Technical Appendix.

Thirdly, interviews were held by TEP with members of the Steering Group individually or as part of broader focus groups to explore particular topics of cross-boundary significance, and to understand local priorities. The focus groups included:

- A meeting with planning representatives from the Welsh local authorities, the Countryside Council for Wales and Environment Agency to establish how the Framework could be most useful for the North east Wales authorities and how it could be linked to their planning policy.

- A meeting with Mersey Forest to ensure the Liverpool City Region GI Framework being produced by the Mersey Forest (draft due in March 2011) in respect of the Wirral local authority area, overlaps effectively with this Framework.
- A meeting with officers from Cheshire West and Chester Council, to discuss how the outputs of the Framework could effectively incorporated into the Council's growth agenda and planning policy

Fourthly, a stakeholder workshop was held on 27<sup>th</sup> September 2010. This included a range of environmental and community organisations as well as Local Authority officers from development and countryside management teams. The workshop presented interim conclusions about the priority areas for GI investment and recommendations for GI action plans. The Workshop report is included in the Technical Appendix

Feedback from the questionnaire and the workshop has informed the objectives and recommendations set out in subsequent chapters of this document.

## 2.6 Case Studies

The following case studies are located within or close to the Framework area and demonstrate how investment in green infrastructure can deliver multi functional benefits in a variety of locations and situations. Stamford Brook in Altrincham and the Green Streets project in Ellesmere Port have been largely completed; whereas the Pontcysyllte aqueduct (near Llangollen) has recently been inscribed as a World Heritage Site and that case study demonstrates how green infrastructure intervention and investment could deliver benefits to the wider area.

Each case study has been assessed in terms of how it contributes to the six aims of this Framework.

Further exemplar GI projects can be viewed at [www.grabs.eu.org](http://www.grabs.eu.org) (Green and Blue Space Adaptation for Urban Areas and Eco Towns).

### 2.6.1 Case Study 1 – Stamford Brook

#### *Introduction*

Winner of a National Waterways Renaissance Award in 2008, Stamford Brook is an urban extension located on the fringes of Trafford MBC in Greater Manchester, with a site area of 45 hectares (111 acres). It is nearing completion and will accommodate 700 homes; it is well served by a new local retail centre and community facilities, existing education facilities and proximity to transport links. Green infrastructure plays a major role in underpinning Stamford Brook and the case study delivers 5 of the 6 aims of the Framework.

In terms of the case study, it is pertinent that the site was previously owned by the National Trust and significantly the Trust took the decision to maintain a degree of control over the scope of the development, working in partnership with Trafford MBC, the Environment Agency (which also contributed considerable funding) and with the two appointed developers. The Trust used development agreements to ensure that Stamford Brook was carried out in a way that was as environmentally sustainable as possible.

#### *Green Infrastructure Assets*

The holistic approach to masterplanning has ensured that a strong spatial framework of green infrastructure has determined the layout and structure of the scheme as a whole. Over 40% of the site area is devoted to green infrastructure and the following assets are being delivered:

- Amenity space – the network of space provides the setting for 4 character areas
- Green corridors
- Children's play spaces
- Diverse natural and semi-natural habitat for wildlife
- Community woodland
- Waterways – the restored Sinderland Brook corridor, including 500m of new channel
- Cycleways and recreational routes

#### *Planning process*

The local authority has also had an important role in ensuring the delivery of GI by applying a number of conditions to the outline planning permission granted during 2000, including the production of a development framework and design guide to secure the vision and delivery of Stamford Brook. The drivers underpinning the framework and guide are described under a section on development priorities.

Further to this a Section 106 agreement attached to the outline planning permission with the requirements that included:

- Provision of 10% affordable housing
- Securing the layout and maintenance of open space at Sinderland Brook
- Securing the layout and maintenance of incidental open space



Figure 2.9: Sinderland Brook before river restoration  
(source – Environment Agency)



Figure 2.10: Sinderland Brook after river restoration  
(2007) (source – Environment Agency)



## Summary

Framework Aim	How does Stamford Brook deliver green infrastructure (GI) ?
1. Create a setting for urban and rural economic prosperity	GI is a major component within the development, with an extensive corridor situated along the northern edge connected to north – south corridors
3. Build healthier communities	GI infrastructure delivers a network of footways, cycleways that connect into Trafford Metropolitan Borough Council's wider network.
4. Maintain and enhance quality of place	The enhancement of Sinderland Brook & retention of some of the historic hedgerows and trees contribute to local distinctiveness
5. Ensure urban and rural areas are resilient to effects of climate change	A comprehensive sustainable urban drainage system (SUDS) serves the whole development & will protect it from a 1:100 year flood event
6. Protect and enhance biodiversity and natural networks, providing opportunity for people to experience the natural environment	The layout & detailing of the GI network provides an important connection for Trafford's wider biodiversity network. The Sinderland and Timperley Brook corridors provide enhanced habitats

## 2.6.2 Case Study 2 – Green Streets, Ellesmere Port

Green Streets is a Mersey Forest project which uses greening projects to improve the quality of life for urban communities by planting trees within the following locations:

- Residential streets
- Business areas
- Gateway sites
- Green space linkages

Green Streets works with local residents, businesses and partner organisations to promote the value of green infrastructure as a means of tackling a range of social, economic and environmental issues.

An initial feasibility study identified 15 possible sites for the planting of street trees within Ellesmere Port. The Mersey Forest staff then investigated the viability of these sites based on a number of criteria, including visual impact, strategic location, impact on the community, and support to business development areas. Following liaison with council officers, four sites were chosen for street tree planting out of the original fifteen.

Sixty two street trees were planted in four locations across Ellesmere Port during February and March 2009, and the cost to supply, plant and maintain (2 year) the trees was approximately £550 per tree and the project was funded by Ellesmere Port Borough Council through a number of Section 106 agreements

To ensure successful establishment, post implementation maintenance is undertaken on a regular basis and will be handed over to the Local Authority during 2011. Community engagement formed an important part of the project as the proposals, including the benefits of tree planting, were discussed with local residents. At one of the locations, a publicity event was held, where residents planted the tree pits with shrubs and bedding plants.

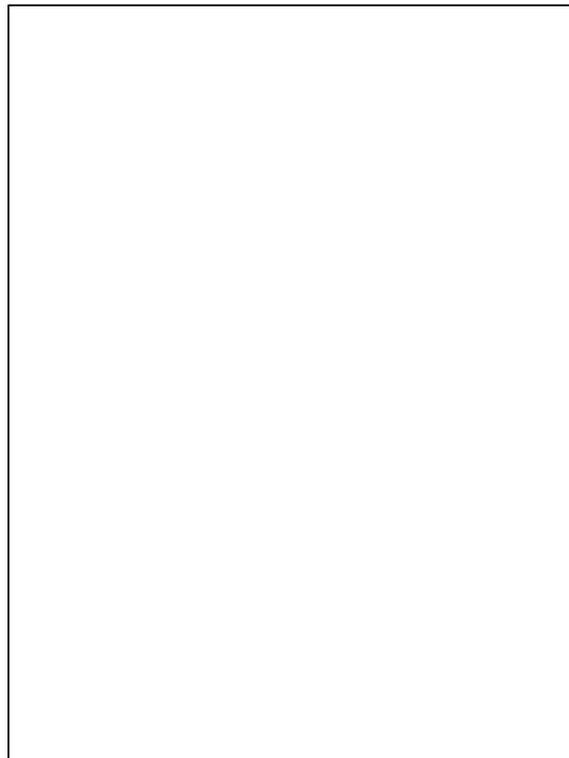


Figure 2.12: Green Streets, Ellesmere

Some of the many benefits of the tree planting projects in relation to the Framework aims are outlined below.

### Summary

Framework Aim	How do Green Streets deliver green infrastructure (GI) ?
1. Create a setting for urban and rural economic prosperity	Tree planting to residential streets and business areas, to improve image and inward investment.
2. Support and enhance the visitor experience and economy	Tree planting at key gateway sites that present better first impressions to visitors to the area
3. Build healthier communities	The project involved community engagement with local residents and businesses raising the importance of tree planting and the environment and fostering a sense of ownership and community spirit. The trees provide a green setting to existing streets and detracting from problems such as graffiti and vandalism and reducing noise and air pollution.
4. Maintain and enhance quality of place	Tree species were selected for their distinctive form and seasonal interest
5. Ensure urban and rural areas are resilient to effects of climate change	Some of the trees were planted within footways and along hard surfaced central reservations. This would help mitigate the heat island effect during hotter weather and modify surface water build up from significant rainfall events.
6. Protect and enhance biodiversity and natural networks, providing opportunity for people to experience the natural environment	Some of the tree species contribute to biodiversity and the linear nature of the tree planting proposals contribute to natural corridors

### 2.6.3 Case Study 3 – Pontcysyllte World Heritage Site (WHS)

#### *Introduction*

Pontcysyllte is the tallest navigable aqueduct in the world and transports the Llangollen Canal over the Dee Valley linking Llangollen with the Shropshire Union Canal. The aqueduct along with connecting canal infrastructure (extending approximately 10 miles: west to Llangollen and south to Chirk) was inscribed onto the UNESCO World Heritage list during 2009, and the setting of the WHS is protected by a designated buffer zone along with a number of other planning and conservation designations.

There are a number of green infrastructure components that contribute to the very essence of the WHS and there are opportunities to enhance, protect and manage these. Furthermore there are opportunities for green infrastructure to provide linkages from the WHS to the wider area and deliver important socio-economic and environmental benefits.

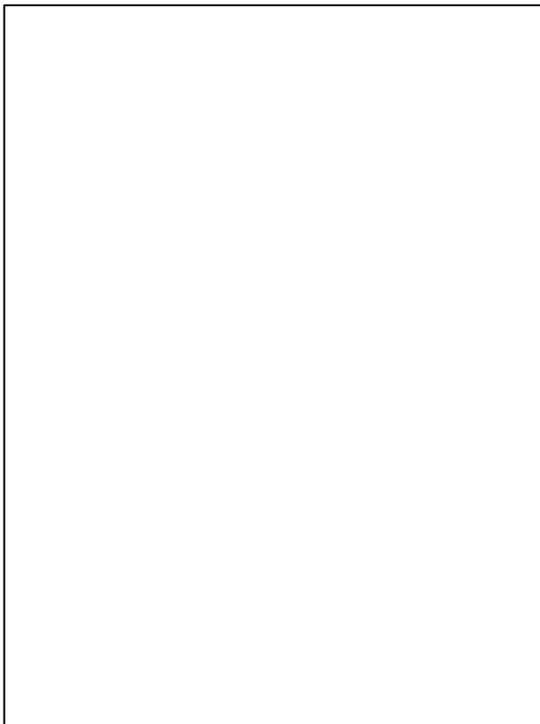


Figure 2.13: Pontcysyllte Aqueduct

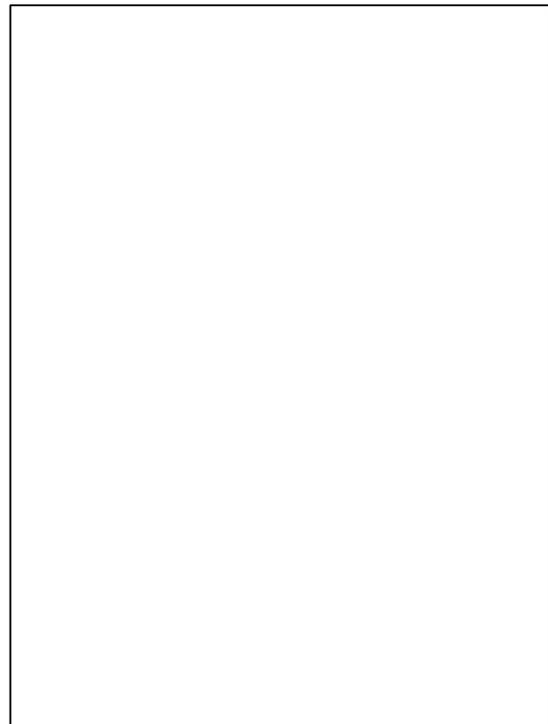


Figure 2.14: Pontcysyllte Aqueduct from towpath

### ***Longer term sustainability***

A number of pressures, threats and key actions to support the sustainability of the WHS have been identified<sup>10</sup> as follows:

- Mitigation of impact of climate change on River Dee & canal infrastructure (water levels & damage)
- Managing side effects of public access such as litter & graffiti through community engagement
- Setting to proposed infrastructure & interpretation in key locations of the WHS (Llangollen, Chirk, Cefn Mawr)

Green infrastructure interventions can be used to substantially support and deliver some of these key actions, with benefits to the wider area, outlined below.

### ***Linking opportunities to areas of need***

Within the wider context, there are many other major green infrastructure assets including the River Dee, Offa's Dyke (historic Welsh & English boundary) and the Clwydian Range (including the extension south to the Vale of Llangollen). The PBRs indicates that there are significant opportunities for green infrastructure to provide links between these assets, and opportunities and areas of need.

The PBRs analysis indicates that green infrastructure can address multiple needs to the settlements west and south of Wrexham, as they suffer from high levels of multiple deprivation and green infrastructure actions can offer a number of benefits including: economic growth and investment, health and wellbeing and biodiversity.

The following actions (illustrated by Fig. 2.13) demonstrate how further investment can deliver better linkages between need and opportunity

#### *River corridors*

The River Dee corridor is strategically an important green infrastructure asset, however along sections, it could be argued that its potential has not been fully realised. The rights of way network does not extend comprehensively along its length, so where appropriate, connected footpaths could be promoted along its corridor and its tributaries.

#### *Rights of way system*

The rights of way system shows good coverage within the local area, however a survey of the network could highlight where improvements could be made to the infrastructure and connect into some of the actions listed below.

#### *Heritage trail*

The settlements to the west of Wrexham developed through a variety of industrial activities, including steel making, lead mining, coal mining and gravel working. Many of these are now redundant, however there are opportunities to enhance the setting, infrastructure and interpretation of the industrial relics to demonstrate their heritage and historic value.

#### *Offa's Dyke*

Offa's Dyke is a massive linear earthwork roughly following the current border between England and Wales. The structure dates from the 8<sup>th</sup> century following the delineation between the Anglian Kingdom of Mercia and the Welsh Kingdom of Powys.

Offa's Dyke is visible between the settlements of Cefn-mawr, Rhosllanerchrugog and Brymbo and there is opportunity to enhance the setting and promote the integrity of the dyke.

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<sup>10</sup> World Heritage Site Management Plan 2007-2012, (Wrexham Borough Council)

### *Disused railway lines*

A number of railway lines formerly connected some of the key industrial sites to the national network, however they are all now disused. Despite this there are opportunities to refurbish the lines to create pedestrian & cycle routes and connecting the WHS with Llangollen and other local towns; they are as follows:

- Llangollen to Cefn-Mawr and footpath onto Rhosllanerchrugog
- Rhostyllen to Rhosllanerchrugog
- Wrexham to Brymbo

### *Former industrial sites*

A number of former industrial sites within the area could benefit from investment in green infrastructure to deliver a high quality setting for proposed new uses and these include (not exhaustive):

- Former Flexys site at Cefn-Mawr
- Former steel works at Brymbo
- Spoil heap at Rhostyllen

**Figure 2.15 Case Study 3 – Pontcysyllte World Heritage Site (WHS) & wider linkages**

## Summary

Framework Aim	How does/could green infrastructure contribute to & support the WHS & wider linkages ?
1. Create a setting for urban and rural economic prosperity	Investment in green infrastructure could deliver high quality settings to regenerated industrial sites
2. Support and enhance the visitor experience and economy	Green infrastructure is the major contributor to the setting of the WHS and could enhance improved facilities for the tourist economy
3. Build healthier communities	Investment in footpaths and/or cycleways along the river corridors, rights of way systems and disused railways could contribute to the setting and infrastructure for sustainable communities
4. Maintain and enhance quality of place	Planning guidance designations protect green infrastructure within the WHS and there is opportunity to extend these designations to the wider area to enhance local distinctiveness
5. Ensure urban and rural areas are resilient to the effects of climate change	Strategic interventions to green infrastructure could assist in mitigating the effects of climate change on the River Dee catchment and canal infrastructure
6. Protect and enhance biodiversity and natural networks, providing opportunity for people to experience the natural environment	The linear nature of many of the key actions identified above, could be enhanced with appropriate native planting to manage and enhance connectivity and biodiversity for wildlife. Measures could also enhance the visual quality and management of landscapes that contribute to local distinctiveness.

## **Chapter 3      Aims and Objectives**

This chapter analyses the six aims of green infrastructure planning in North East Wales, Cheshire and Wirral. For each aim, detailed objectives to guide the framework are listed. Key Diagrams illustrate the spatial priorities for each aim, building on the findings from Public Benefit Assessment and stakeholder consultation (reported in chapter 2).

The Key Diagrams seek to convey “headlines” and indicate the overall thrust of the framework, without going into detail. They cannot display every priority throughout a wide area such as this, particularly those of a local or thematic nature. Boundaries are deliberately fluid and indicative. For reference purposes detailed maps showing many of the green infrastructure assets and areas of social need and economic opportunity are shown in the Technical Appendix.

### 3.1 Aim 1: Create a setting for urban and rural prosperity

#### Context

This aim is focused on improving the quality of place and competitiveness of areas of economic activity, particularly employment areas, regeneration and development areas and those subject to future housing growth. Green infrastructure investment will be required within such areas to boost their attractiveness for inward investment, their environmental performance and to help resolve environmental risks and pressures, needed to unlock site potential. This includes measures such as managing flood risk, surface water management, reducing run-off into sensitive watercourses and providing opportunities for wildlife.

The most direct economic argument for green infrastructure is its contribution to Gross Value Added<sup>11</sup>. It has been credited in helping to attract, create and safeguard new jobs and is important in influencing perceptions of quality of place. Workforce productivity and retention rates increase in a higher quality environment<sup>12</sup>. Recovery from the recession will require strong economic growth and the ability to offer attractive employment and development land. Resilience of property to future climatic change, especially flooding, influences investment – green infrastructure can reduce flood and other climatic risks.

During the past two decades the area has seen a sustained period of economic transformation with the attraction of high quality businesses and significant local employers. This has happened alongside better interpretation and promotion of the area's natural assets; its coastlines, river valleys and rural uplands.

A significant challenge to economic prosperity is multiple deprivation. However, some aspects of deprivation, notably health, can be improved through investment in GI.

Rural landscapes also offer economic opportunities, particularly in relation to farm diversification, woodland based recreation and tourism, energy generation and harvesting and processing of food and forest products. In Wales the natural environment supports 117,000 jobs and provides almost 10% of Wales' GDP<sup>13</sup>

**Case Study:** The Heritage-Lottery Funded refurbishment of Birkenhead Park has provided a setting for local businesses to offer catering, arts courses, health and fitness training. The Friends group has grown and is now involved in park management, offering opportunity for healthy outdoor activity and networking.

#### Objectives

- Increase the attractiveness and climatic resilience of new and existing employment land and associated transport and flood defence infrastructure
- Support diversification and entrepreneurship in the rural economy, through measures that enhance the resilience and biodiversity of the natural environment
- Involve local communities and businesses in the creation and management of green infrastructure
- Use the natural environment to offer opportunities for healthier and more active lifestyles, particularly in areas of high worklessness and poor health

#### Key Diagram

Figure 3.1 illustrates some of the priority areas in respect of urban and rural prosperity:

- Key business-sector areas, strategic employment sites and major mixed-use regeneration areas
- Neighbourhoods experiencing high levels of worklessness and poor health
- Rural enterprise priority areas (thematic)

<sup>11</sup> The Economic Value of Green Infrastructure, (2009), ECOTEC for North West Development Agency NWDA and Natural Economy Northwest

<sup>12</sup> The Economic Benefits of Green Infrastructure – an Assessment Framework for the NWDA, (2008), AMION

<sup>13</sup> Wildlife Economy Wales: An Economic Evaluation Scoping Study, (2007), Valuing Our Environment Partnership, (EA, Wales, CCW, WAG, HLF, DE&T, FC Wales)

Figure 3.1 is not exhaustive. There will be local priority sites and neighbourhoods which cannot be illustrated at this scale, but should be included in local GI plans. In respect of area-wide objectives such as the rural economy, the diagram can only hint at the priority areas, based on recent and emerging policy, coupled with an indication of areas of existing GI value. Nevertheless, enterprises which create a significant employment, based on the quality of their environmental setting, merit support throughout the framework area.



## 3.2 Aim 2: Enhance the visitor experience and economy

### Context

Green infrastructure is an important aspect of supporting and preserving the area's valuable "outdoor" tourism assets. It creates a quality setting for such assets and provides additional destinations and activities that support jobs. Green infrastructure also enhances journeys to such destinations.

In North West England, the visitor economy is worth £10.9bn a year, supporting 200,000 full time jobs and attracting around 8 million people from outside the region<sup>14</sup>. Tourism in North Wales is estimated to be worth £1.8 billion and around 37,000 jobs<sup>15</sup>. Chester is named in the North West England's Tourism strategy as one of four '*attack brands*', with its ability to attract significant numbers of high spending visitors and draw them to the wider area.

### Objectives

- Promote outdoor visitor destinations in North East Wales, Cheshire and Wirral
- Maintain and enhance the setting of key tourism assets and gateways
- Promote green infrastructure as an integral part of uplifting underused destinations
- Improve the connectivity, setting and quality of strategic rights of way, cycle ways and canal corridors

### Key Diagram

Figure 3.2 highlights the principal areas where green infrastructure assets sustain the "outdoor" visitor economy:

- Areas we have termed "outdoor economy focus areas", where there is already a concentration of GI assets which collectively form destinations e.g. the Clwydian Range, the Pontcysyllte UNESCO World Heritage Site, Llangollen Valley, Weaver Valley and Delamere Forest, Peak National Park and fringe estates, Denbighshire, Flintshire and Wirral Coastlines
- The canal network
- Chester, which is highlighted in both English and Welsh strategy as a major destination, offering a "gateway" to other assets and destinations in the surrounding area

Some of these areas are under-used but are capable of significant uplift as destinations; for example the Flintshire coastline, the Wirral Mersey Shore and the Weaver Valley. In these areas, long-term co-ordinated action is needed to improve access, greenspace quality, interpretation, site safety and other aspects of visitor infrastructure.

Figure 3.2 also shows some of the principal routes (footpaths, cycleways and canals) that connect these areas with each other and with urban areas; for example the Sandstone Trail, Offa's Dyke Path and other long-distance trails. It also indicates gaps and weaknesses in the network of routes.

The area has many other assets such as registered parks and gardens, historic buildings and market towns e.g. Lyme Park, Erddig Country Park, Tatton Park, the border castles and market towns, the Cheshire salt towns etc. So, Figure 3.2 is not exhaustive because it would be impossible to display all these assets. Detailed maps of woodlands, registered parks and gardens, long-distance routes, open access areas are found in the Technical Appendix.

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<sup>14</sup> The Economic Value of Green Infrastructure, (2009), Ecotec for the North West Development Agency and Natural Economy North West

<sup>15</sup> Tourism Strategy North Wales 2010-2015, (2010), Tourism Partnership North Wales



### 3.3 Aim 3: Build healthier communities

#### **Context**

Numerous studies<sup>16</sup> show that safe and attractive green space increases levels of physical activity and provides mental health benefits and well-being; with consequent reductions in cardiac and respiratory disease and stress. For young people, attention deficit disorders can be managed better in schools with a good natural environment. Significantly, greenspace reduces the health inequality gap which is very dramatic in our area, with differences in life expectancy as great as 10 years within individual boroughs.

Poorly managed spaces become the focus for anti-social behaviour. Through promoting ownership, stewardship and better understanding and appreciation of these spaces, anti-social behaviour can be turned around. Safe and well-used greenspace, accessible from people's homes, provides a setting for community activity and social networking, including sport, food-growing, crafts, horticulture, music, arts and education. In some cases these activities can also be managed as social enterprises, providing additional benefits such as training, jobs and products which can be sold into local markets.

Often, there is no need to create new spaces in existing towns and villages. The challenge is to engage the widest possible section of the surrounding community in using and managing existing spaces. This may include making space for social and commercial entrepreneurs who are willing to use parks and open spaces for activities that create jobs while sustaining the quality of the environment. In an era of austerity, the commitment and enthusiasm of environmental activists is critical.

It is anticipated that the area will experience significant new housing development within urban areas, and also as sustainable urban extensions. It is important to plan good quality green infrastructure at the outset of new development. In mature urban areas, GI may need to be retrofitted into neighbourhoods where there are current deficiencies. A GI masterplan can identify how existing GI assets can be incorporated into development, and set standards for the optimum location and types of new green spaces.

#### **Objectives**

- Improve the quality, accessibility & connectivity of green space in and around settlements, especially in areas of health deprivation
- Improve legibility, quality & connectivity of public rights of way and cycle ways
- Develop and apply green infrastructure guidance and/or standards to influence the design of new housing developments and urban housing renewal schemes
- Support the community in promoting, developing and managing green space

#### **Key Diagram**

Figure 3.3 shows the priority areas for healthy and sustainable communities

- Major housing growth and development sites, including areas of brownfield renewal
- Areas of high health deprivation

Figure 3.3 is not exhaustive. There will be smaller new housing developments not shown and some of those illustrated may not be built. The vital objective of supporting community activism applies throughout the area, not just in the main areas of housing growth and renewal.

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<sup>16</sup> for example "The Great Outdoors" by the Faculty for Public Health (2010) which compiles the results of about 100 studies into the positive effects of the outdoor environment on mental and physical health in individuals and communities



### 3.4 Aim 4: Maintain and enhance quality of place

#### **Context**

Historic buildings, high value landscapes and waterways contribute to distinctiveness and quality of place. This supports and overlaps with the first 3 aims of the framework. Distinctiveness is an important component of HM Government's Quality of Place strategy<sup>17</sup> which considers the provision of GI and treatment of historic buildings and places as two of the four key elements that contribute to quality of place.

Natural England considers the importance of highly valued landscapes as essential to social well being and an economically healthy society<sup>18</sup>. Landscapes are valued because of their inherent interest and their contribution to both national identity and local distinctiveness. National landscape character areas have been mapped for both England and Wales and provide the context that GI interventions should support. Any interventions should respect landscape character and support the management, protection and enhancement of cultural, historic and natural features.

GI interventions should also be used to develop and enhance urban quality of place through measures such as street greening, approaches to sustainable drainage and enhancement and restoration of green spaces.

#### **Objectives**

- Protect and enhance the cultural and heritage dimensions of the landscape
- Direct investment that supports the restoration and management of historic parks, gardens and historic landscapes
- Support local community input to management of distinctive landscapes
- Promote enterprises which rely on, and contribute to, environmental distinctiveness
- Promote distinctive approaches to land management in all areas covered by the Framework

#### **Key Diagram**

Figure 3.4 shows the priority areas for maintaining and enhancing landscape distinctiveness:

- Clwydian Range and the UNESCO World Heritage Site
- The Vale of Clwyd
- The River Dee Valley
- Flintshire and Denbighshire coast
- Wirral coast
- Delamere, Beeston, Helsby and the Cheshire sandstone landscape
- Peak Park and River Bollin countryside and estates
- Canal network

These areas have concentrations of GI assets which contribute to distinctiveness. Figure 3.4 is not exhaustive, as it cannot show the many individual parks, gardens, historic buildings or landscape character areas which merit protection and investment. We also recognise the principle (expressed in the European Landscape Convention) that all landscapes have distinctive features which merit conservation or repair, as appropriate.

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<sup>17</sup> World Class Places: The Government's strategy for improving quality of place, (2009), Communities and Local Government CLG

<sup>18</sup> Natural England

The diagram also highlights urban fringe areas where measures are required to improve landscape distinctiveness, as means to improve the setting of building form and places to encourage healthy lifestyles and recreation.

Reference should also be made to the Key Diagrams for the visitor economy, healthier communities and biodiversity (Aims 2,3 and 6) since these also show landscapes and sites where distinctiveness needs to be maintained or created.



### 3.5 Aim 5: Ensure urban and rural areas are resilient to climate change

#### Context

Creation and management of GI is an important way of adapting to the effects of changing climate on communities and the environment. In relation to flood alleviation and water management, GI initiatives such as protecting and creating floodplain woodlands and washlands; along with sustainable drainage systems for built-up areas can prevent or alleviate flooding. Flood defence policy is shifting from reliance solely on engineered defences towards risk management using washlands and catchment-wide land stewardship. Natural England's Uplands Strategy<sup>19</sup> promotes increased planting of scrub alongside gullies to reduce erosion, improve attenuation and boost wildlife.

There is increasing recognition of the value of woodlands and peaty soils as carbon sinks, tempered by evidence that these habitats are under threat. The UK has 15% of Europe's resource of peat and those peat soils in the Peak District and in North Wales are very vulnerable to oxidation and erosion as a result of human activity<sup>20</sup> and the effects of climate change such as desiccation and subsequent loss of soil due to changes in structure. Other soils are also vulnerable to climate change and consequent erosion with downstream effects on water quality.

Predicted climate change also brings a risk of excessive heat in urban areas, with effects on human health and air quality. Dense urban areas are also vulnerable to "flash-flooding" due to highly sealed surfaces, coupled with capacity problems from ageing sewerage infrastructure. In many cases, these effects are predicted to occur more frequently in neighbourhoods already experiencing poor health. Green spaces, coastal environments and urban trees can alleviate the worst effects.

The Climate Change Action Plan for Cheshire, Cumbria, Greater Manchester, Lancashire and Merseyside<sup>21</sup> provides a framework for green infrastructure provision as a tool to mitigate against and adapt to, climate change. This action plan provides a structure upon which local authorities, including those in North East Wales, and other agencies and organisations to consider in their strategies, plans and projects.

#### Objectives

- Woodland cover should be promoted in appropriate upland areas where it would not conflict with biodiversity or landscape objectives and could contribute to key climate change adaptation functions such as water management and soil conservation needs
- Promote catchment-friendly farming methods and natural flood management in floodplains
- Improve the climatic resilience of urban areas, especially areas with poor access to greenspace and/or high levels of sealed surfaces
- Ensure new developments include adequate green infrastructure that optimise climate change services it provides
- Promote measures that reduce water demand such as rainwater harvesting to ensure that green infrastructure is maintained during the summer/drier months
- Maintain peat soils as carbon sinks through restoring lowland mosses and upland blanket peat
- Encourage working together between planners, designers, developers and local communities in the provision and management of green infrastructure

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<sup>19</sup> "Vital Uplands: Uplands Vision" (2009) Natural England

<sup>20</sup> Up to 4 million tonnes CO<sub>2</sub> per annum are released from English peatlands through erosion and fire; equivalent to the country's aviation emissions – from Natural England's Uplands Vision

<sup>21</sup> Green Infrastructure to Combat Climate Change – A Consultation Draft Action Plan for Cheshire, Cumbria, Greater Manchester and Merseyside, (2010), Community Forests Northwest

### ***Key Diagram***

Figure 3.5 shows priority areas for GI investment to adapt to, and mitigate climate change:

- Fluvial Floodzones 2 and 3
- Areas at risk from coastal flooding
- Upland Soils
- Urban areas with a high percentage of sealed surfaces
- Proposed growth areas



## 3.6 Aim 6: Protect and enhance biodiversity & natural networks

### Context

A coherent and resilient ecological network is essential for the future of our wildlife and therefore our enjoyment of it. The fragmentation of our natural habitats by development, infrastructure and agricultural practices have created a legacy of natural areas and the species that depend upon them vulnerable to climate change, local extinction and poor genetic exchange, vital for species resilience and viability.

An ecological network that is indistinguishable from the green and open spaces within and around our settlements brings with it the opportunity for human contact with a wide variety of wildlife and habitats, provides an educational resource and ensures that species can move between and through our settlements.

Beyond our urban areas there is a pressing need to consider a landscape-scale approach to increasing the size and scope of the ecological network that connects our natural habitat resources. It is essential that we make the step change in protecting and improving the ecological fabric of our landscapes and adopt practices that underpin the delivery of a richer, healthier and biodiverse landscape contributing to our sustainable development and protecting our natural heritage.

The area has many international and national wildlife designations, including Ramsar sites, Special Areas of Conservation, Special Protection Areas, SSSIs, Local and National Nature Reserves, as well as local wildlife sites, community woodlands, Wildlife and Woodland Trust sites. The rivers and canals are landscape-scale connecting features, providing corridors from the uplands through the rural countryside and settlements to the coast. Many landowners have Farm Environment Plans subsidised by CCW and Natural England.

Biodiversity is essential for prosperity, because of the numerous ecosystem services it supplies (e.g. pollination, soil fertility, composting of waste). A bio-diverse environment also provides communities with access to natural greenspace, a component of well-being. Areas of high biodiversity can become destinations popular with visitors. The Red Kite Project in Mid-Wales attracts 250,000 visitors whose associated expenditure supports 120 jobs.

Despite positive trends, the overall prospect for biodiversity is poor. Defra's research concludes<sup>22</sup> that England's collection of wildlife areas is not coherent and lacks a robust ecological network resilient to climate change, demographic and development pressures. Cheshire and Wirral have particularly fragmented habitats. Although the study is concerned with England, the geographical continuity means it is unlikely that North East Wales differs.

The Environment Agency's 2010 report on river quality identifies that 116 of Britain's rivers, including parts of the River Dee and Mersey remain in "bad" condition; with knock-on effects on biodiversity and water security. Better management of farming practices and urban discharges, using GI where appropriate, can help overcome the cumulative negative effects and assist the UK towards its obligations under the EU water Framework Directive.

### Objectives

- Work with land owners/managers to adopt land management practices that protect and enhance designated wildlife sites and networks in the uplands, waterways, coastlines and throughout the lowland countryside
- Promote creation of local Biodiversity Action Plan habitats appropriate to the area, particularly wet woodlands and upland oak/ash woodlands
- Promote biodiversity within new development, including performance standards in respect of access to natural greenspace

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<sup>22</sup> Making Space for Nature: A review of England's wildlife sites and ecological networks (2010): Research report by Lawton J. et. al for Defra

- Increase the biodiversity value and accessibility of existing green spaces and wildlife corridors, particularly those close to settlements
- Protect existing GI, biodiversity and networks within development
- Explore opportunities for 'Ecological Restoration Zones' within the Biodiversity Management Areas
- Seek opportunities for the development of an Integrated Habitat Network for North East Wales and Cheshire that builds upon the existing EcoNet within Cheshire
- Encourage the development of Ecological Frameworks for urban areas to improve the ecological functionality of our settlements.
- Undertake an assessment of our natural greenspace to understand the deficiencies in access and potential for improvement

### **Key Diagram**

Figure 3.6 illustrates, in schematic form, the network of major river valleys which are key natural networks. It also shows areas we have termed "Biodiversity Management Areas", which incorporate the key areas of existing biodiversity where there is also opportunity to link and "defragment" habitat networks. We recognise that mapping of biodiversity opportunity, habitat fragmentation and ecological networks is still developing, so we advise against a prescriptive use of Figure 3.6 to identify priority areas – no doubt continuing research by Natural England, CCW and the Wildlife Trusts, Local Authorities and members of the ad-hoc GI community in the area will clarify priority areas in the forthcoming years.

Figure 3.6 also indicates some areas where there is an apparent deficiency of access to natural greenspace, either due to the absence of greenspace and rights of way around settlements, or due to barrier effects caused by transport infrastructure. However, we recognise this map is not exhaustive and this is a matter which is best mapped and resolved at local level, involving communities, landowners and planners.



## Chapter 4 Action Planning

This chapter is the heart of the framework. It sets out how the green infrastructure objectives formulated in Chapter 3 can be put into practice. We recommend a number of green infrastructure initiatives, and conclude with suggested Action Plan Areas (4.6) and Integrated Environmental Management Areas (4.7), illustrated at Figure 4.1.

The natural environment is a complex system, whose management is made even more challenging because of the diversity of communities and businesses that depend on it; and the patterns of land-use that constrain management. Formulating a strategy for management and enhancement of any complex system is a process analogous to servicing a car – each component is tuned, repaired and assembled in a specific way so the whole system functions effectively.

How can we analyse the area's green infrastructure and identify effective initiatives to manage its component parts?

The ecological concept of the transect may be an appropriate way to consider how to manage natural systems. This “transect” imagines a flow from the uplands, through the lowlands, along river valleys and thence through settlements into the urban core. Leaving the urban core, the transect flows to the coast. Along this transect are communities and businesses which value and rely on the natural environment. This concept can be visualised as shown opposite<sup>23</sup>.

Each stage along the transect has distinct characteristics, based on shared patterns of land-use, infrastructure, environmental policy, community organisation and environmental challenges. For example green infrastructure actions on the coast will require partnerships that differ from actions within urban areas.

Thus we recommend the GI framework for North east Wales, Cheshire and Wirral that should include initiatives under the following headings:

1. Settlements
2. Land and Water Management
3. Coast and Estuary Management
4. Community Participation
5. The Natural/Visitor Economy

We are mindful that a GI framework should not duplicate or undermine the activity of existing partnerships. The evidence cited at Chapter 2 notes a number of GI projects already occurring. A GI framework should add value to these projects, typically by:

- increasing the number of benefits they bring
- addressing gaps in existing activity
- promoting cross-boundary and cross-agency environmental actions

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<sup>23</sup> The Smart Growth Manual (2010), Duany, Speck and Lydon

Table 4.1 summarises the proposed Green Infrastructure Initiatives. It also shows examples of Action Plan Areas where the initiatives are relevant.

<b>4.1 SETTLEMENT-FOCUSSED INITIATIVES</b>	<b>Examples of Action Plan Areas where the initiative is relevant.</b>
<ul style="list-style-type: none"> <li>• 4.1.1 Greening the built environment (including GI guidance and standards for new development)</li> <li>• 4.1.2 Safe, accessible and healthy natural environments</li> <li>• 4.1.3 Urban river and water management</li> <li>• 4.1.4 Greening economic centres</li> </ul>	<ul style="list-style-type: none"> <li>• Wirral housing renewal areas and sustainable urban extensions e.g. at Crewe, Northwich</li> <li>• Green Network Strategy for Wrexham's settlements</li> <li>• River Weaver at Northwich</li> <li>• Deeside Employment areas and Flintshire's coastal towns</li> </ul>
<b>4.2 LAND &amp; WATER MANAGEMENT</b>	
<ul style="list-style-type: none"> <li>• 4.2.1 Lowland river valley networks</li> <li>• 4.2.2 Upland landscapes</li> </ul>	<ul style="list-style-type: none"> <li>• Dee catchment integrated environmental management</li> </ul>
<b>4.3 COAST &amp; ESTUARY MANAGEMENT</b>	
<ul style="list-style-type: none"> <li>• 4.3.1 High-quality, accessible coasts</li> <li>• 4.3.2 Protecting and restoring estuary ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>• Wirral Mersey Shore</li> <li>• Flintshire and West Wirral</li> </ul>
<b>4.4 COMMUNITY PARTICIPATION</b>	
<ul style="list-style-type: none"> <li>• Enabling community leadership and business participation</li> <li>• Supporting green apprenticeships and volunteering</li> </ul>	<ul style="list-style-type: none"> <li>• Cheshire East's Local Area Partnerships</li> <li>• Ellesmere Port Estate Environmental Improvements</li> </ul>
<b>4.5 NATURAL &amp; VISITOR ECONOMY</b>	
<ul style="list-style-type: none"> <li>• Define and complete a strategic access network.</li> <li>• Support natural economy enterprises.</li> </ul>	<ul style="list-style-type: none"> <li>• River Dee Path</li> <li>• Pontcysyllte World Heritage Site and extension of the Clwydian Range AONB plan</li> </ul>

Each initiative is considered in turn and is structured under the following headings:

**Why ?**

This gives the rationale for the initiative, supported by evidence and research and where appropriate illustrated by case studies.

**What we can do ?**

This outlines key interventions and projects that contribute to the initiative.

**Where are the priority areas ?**

This confirms the area of search for the initiative within the framework area.

**Delivery**

Each grouping of initiatives (eg. Settlement focussed) concludes with mechanisms for delivery, including planning policy and funding.

## Settlement – Focussed Initiatives

Parts of the area will experience housing growth, most of which will be within or adjacent existing settlements. The overall aspiration is for green infrastructure that contributes to sustained and enhanced quality of place, in growing and established towns and villages. Particularly important are initiatives that contribute to sustainability, health, well-being and economic competitiveness.

Within settlements most green infrastructure is relatively fine-grained, including street trees, sustainable drainage systems, civic parks and squares, playing fields, Conservation Areas, waterways, amenity greenspace, parks and gardens, play areas, green corridors, outdoor sport and recreation, allotments, memorial gardens, greenways and footpath/cycleways. Semi-private spaces such as institutional and corporate grounds can also be valuable to their users, as well as contributing to climatic resilience, amenity and biodiversity. Collectively, gardens are also a GI resource.

Settlement-focussed initiatives contribute to all the six aims of the Framework detailed in Chapter 3. The following initiatives apply to all settlements, and particular areas of priority are highlighted in the narrative below.

### 4.1.1 Greening the Built Environment

#### *Why?*

This initiative focuses on green infrastructure closely associated with buildings, streets and civic areas. It is concerned with:

- retrofitting green elements into urban environments to improve environmental performance and human access to green space;
- ensuring new development meets good design standards in respect of green infrastructure.

Our built environment is challenged by the changing climate, especially more frequent storms and hotter summers. Built form often contributes to the severity of surface water (pluvial) flooding. Poor drainage infrastructure, increased rainfall and surface ‘sealing’ can create serious flooding, locally and downstream. Increased flooding and higher insurance costs affect competitiveness, depress property values and act as a drag on investment and enterprise.

The urban “heat island” results from reflective surfaces, lack of shade and vegetation, and low levels of ventilation. Long periods of dry weather and high temperatures can affect soil structure, with implications for building stability through potential subsidence. Reduced rainfall infiltration affects aquifer recharge, with possible water supply and quality impacts.

Green space and vegetation has significant beneficial cooling effects and in attenuating surface water run-off (see box).

Urban waterways and larger greenspaces act as ventilation corridors, improving air quality. Street trees and urban greenery can also contribute towards absorption of particulates. Urban greenspaces also provide refuges for biodiversity and enable human contact with nature. The collective resource of urban gardens provides a habitat for invertebrates that have experienced significant decline in farmland.

North East Wales, Cheshire and the Wirral all expect housing growth and regeneration. This includes major brownfield re-development, urban extensions and renewal of existing housing areas. Well planned and sited development can retain and enhance elements of landscape distinctiveness such as field boundaries, waterways, ponds, trees, rights of way and historic structures. These add historic and natural character and provide valuable wildlife habitats.

Enhancing safe and well-connected routes for walking and cycling is important if people are to choose these options for commuting and leisure, so a network that connects local destinations is key.

### ***What can we do?***

1. Urban Tree Planting programmes, especially on streets and in corporate grounds.
2. Woodland and wetland establishment on brownfield sites
3. Temporary greening and food-growing schemes on land awaiting development
4. Protection and creation of green infrastructure assets during (re)development
5. Greening of urban surface water flowpaths and flood zones
6. Create new wetlands in urban greenspaces and highway verges as part of neighbourhood scale sustainable drainage scheme
7. Protect green infrastructure ventilation corridors (e.g. networks of greenspaces and waterways) linking inner urban areas to surrounding coast and countryside

Research by the University of Manchester has shown that:

- increasing the green space cover in urban areas by 10 per cent reduces surface run-off by almost 5 per cent
- increasing tree cover in urban areas by 10 per cent reduces surface water run-off by almost 6 per cent
- grassed areas can be up to 19°C cooler than adjacent bitmac surfaces

from “Adapting cities for climate change: the role of the green infrastructure” and the i-trees research  
(S. Gill, J. Handley, R. Ennos, S. Pauleit)

8. Create and promote green commuting routes from inner urban areas to economic centres, and to the coast, waterways and countryside
9. Ensure new building adopts high environmental standards, using vegetation for climatic adaptation where appropriate (e.g. shade trees, green roofs, green walls)
10. Enable communities and businesses to “adopt” civic spaces
11. Gateway greening schemes on major transport corridors and in town centres

12. Promote wildlife-gardening and urban allotments
13. Protect linkages between the GI network and communities
14. Enhance accessibility and functionality of the GI network
15. Make room for (sometimes quirky) community initiatives using civic greenspace

***Where are the priority areas?***

The Key Diagrams, especially Figures 3.1, 3.3 and 3.5 illustrate priority “areas of search” for this initiative, although it must be appreciated that these diagrams are not exhaustive. Several Action Plan Areas, notably the possible housing growth centres, include this GI initiative. Action Plan Areas are illustrated at Figure 4.1 and listed at Table 4.2

## 4.1.2 Safe, healthy and accessible natural environments

### *Why?*

This initiative focuses on ensuring that, where possible:

- All our residents live within 10 minutes walk (300m) of a safe, attractive and accessible greenspace
- Greenspaces are multifunctional with an emphasis on community activity and biodiversity

Our network of public parks was created, in part, out of a philanthropic desire to improve public health during the mass urbanisation associated with the Industrial Revolution. Continuing research proves that attractive and usable green space is vital to health and mental well being, providing opportunities for recreation. Green spaces can be a focus for community activities and allow social interaction. Children's social development is aided through natural play.<sup>24</sup>

Access to green space and good neighbourhood design also supports people with mental health problems to live independently.<sup>25</sup>

Well cared-for green spaces contribute to an area's character, distinctiveness and quality of place. Community stewardship can engender pride, which in turn can help to reduce aspects of anti-social behaviour such as fly-tipping and vandalism. Increasing the number of functions of a green space will usually increase its community value and, at the same time, its ability to provide "ecosystem services" such as biodiversity and flood risk management.

Employment and housing areas set in attractive surroundings is an important element, amongst others, of retaining people and reducing out-migration as well as attracting potential in-migrants to boost the local economy.

#### Case Study: Exercise and Parks - Nottingham

"Following a bid to the Nottingham City NHS Primary Care Trust (PCT) in October 2008, over £400,000 of funding was secured by the Sports Development section towards development projects to increase physical activity of residents across the city. £145,000 was allocated towards providing new outdoor fitness equipment in four parks and open spaces across the city. Gym equipment was added to the designs for new playgrounds, complementing the modern play equipment encouraging people of all ages to use their park for healthy exercise.

Following invitations to tender and consultation on initial designs, plans for the major outdoor gym at 2 other sites were chosen. The Forest site includes 12 pieces of fitness equipment such as chest presses, lat presses, cross trainers, exercise bikes and sit-up benches as well as a traverse climbing wall, basketball hoop and area for exercise or dance classes. Combined with the new children's playground currently in progress, these improvements are just part of the wider Masterplan for the restoration of the site and have already seen people flocking to use the park's new facilities. A resounding success, all four gyms were completed by March 2009 and are being extensively used by people enjoying their local parks and getting fit at the same time"

GreenSpace 2010

<sup>24</sup> Fair Society, Healthy Lives: A strategic review of health inequalities in England post-2010 – a review chaired by Prof. Marmot; see <http://www.marmotreview.org/>

<sup>25</sup> New Horizons: A shared vision for mental health (2009) HM Govt.; see [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_109705](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_109705)

**What can we do?**

1. Increase the functionality of existing green spaces through creating wildlife areas, rainfall storage and tree planting, prioritising ‘green desert’ amenity green space
2. Enable community groups to adopt green spaces and promote the use of green and public space for community, charitable and sporting events
3. Use vacant land (including land awaiting development) for community use, such as food-growing, fuel-production, art, education and play.
4. Promote green gyms and therapeutic schemes such as “walking to health”
5. Ensure that design of greenspaces in new development takes account of the needs of an ageing population and uses approaches that enhance mental health and wellbeing
6. Create and/or maintain tranquil reflective areas especially in or near hospitals, GP surgeries, in areas of higher mental health problems and in town centres
7. Enable allotment schemes in parks, school grounds, corporate environments and in social housing estates
8. Identify areas of local deficiency in access to green space and opportunities for natural play. Through dialogue with private, corporate or public-sector landowners, consider innovative ways to open access to under-used spaces.
9. Link green spaces to the wider footpath/cycleway access network

**Case Study: Incredible Edibles - Todmorden**

Incredible Edible Todmorden aims to increase the amount of local food grown and eaten in the town. Businesses, schools, farmers and the community are all involved. Vegetables and fruit are springing up everywhere. Public flower beds are being transformed into community herb gardens and vegetable patches. The concept is spreading across other towns in the UK and North America

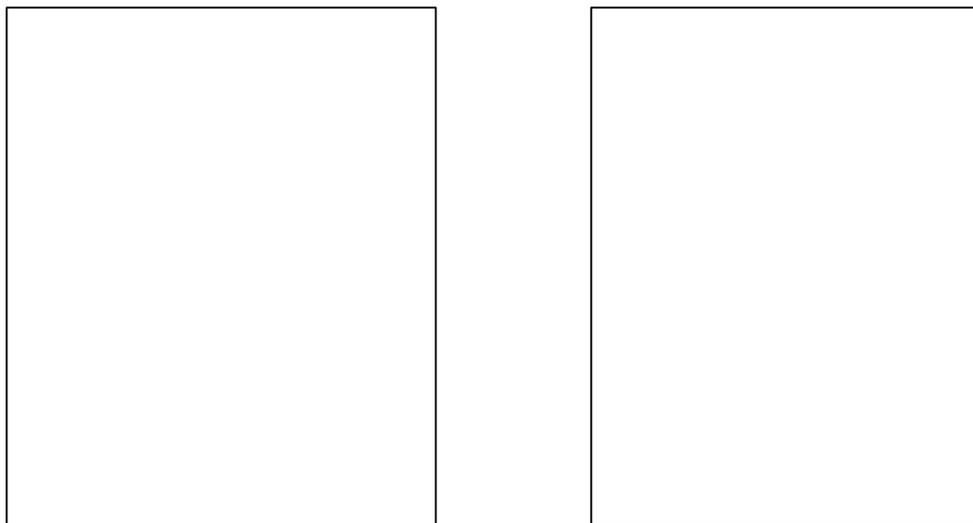


Fig 4.a Incredible Edibles. Todmorden

### ***Where are the priority areas?***

The Key Diagrams, especially Figures 3.1, 3.3 and 3.6 illustrate priority “areas of search” for this initiative, although it must be appreciated that these diagrams are not exhaustive. Several Action Plan Areas, notably the housing growth centres, include this GI initiative. Action Plan Areas are illustrated at Figure 4.1 and listed at Table 4.2

### 4.1.3 Urban River and Water Management

#### *Why?*

This initiative is concerned with:

- Protecting and enhancing the biodiversity, recreation and water quality of rivers and canals within urban areas
- Using urban green spaces to act as natural flood defences, increasing their storage capacity at times of storm

Our rivers and streams have experienced considerable improvements in water quality over the past 25 years, yet many still fall short of standards expected under the Water Framework Directive. Urban pressures (discharges, tipping, lack of natural banks and the legacy of leachate problems from waste sites) compound and contribute to poor water quality. Riverine geomorphology and river restoration are also key aspects of the WFD and the North West River Basin Management Plan.

Watercourses and canals are important movement corridors for wildlife and people and also cool urban areas. Water-frontage is important for recreation, property value and amenity.

The Dee is an important drinking water source and has high biodiversity value. Its estuary is internationally important for birds and sustains an economy based on its wildlife value.

To add value to urban watercourses we need to protect and where necessary provide access to them and ensure that they remain attractive. Culverted watercourses and those within man-made channels can increase flood risk and offer almost no wildlife or amenity value.

The Rivers Dee, Weaver and Dane in particular are also prone to flooding within the urban areas they pass through. Reducing urban rainfall run-off is a vital aspect of protecting water quality. During heavy rainfall the wastewater system can become overloaded and rivers and streams often bear the load. By managing storm water flows within the urban area, we can reduce the risk of damage due to river flooding and help to safeguard rivers and streams from pollution.

#### Case Study: Sutcliffe Park

"In 2003 at Sutcliffe Park, the Environment Agency released the River Quaggy from an underground culvert. Today the river flows across the park in a sequence of meanders exactly matching those it had in the 19th century. At the same time, the surface of the park has been lowered and shaped to create an enhanced "natural" flood plain where flood water will collect during severe storms. Instead of a flat and uniform stretch of metropolitan grassland, there is now a rolling landscape with a range of natural habitats - the river itself, a lake, ponds (with dipping platform), wildflower meadows, reed beds and a variety of native trees" Quaggy Waterways Action Group 2010

### ***What can we do?***

1. Protect watercourses from negative effects of development e.g. providing a buffer zone and creation of natural vegetated corridors;
2. Create and promote access routes alongside urban watercourses, improving signage, surface and interpretation and facilities for anglers and other users;
3. De-culvert, de-canalise and de-engineer watercourses that pass through green space to improve flood performance and improve wildlife and amenity value;
4. Identify “urban surface water flowpaths” and create natural flood storage areas within existing green spaces on these flowpaths;
5. Use natural vegetation and “source control” methods to improve water quality problems caused by discharges of polluted (or low-quality) water
6. Create woodlands and wetlands on brownfield sites;
7. Develop design guidance that ensures that all (re)development has a positive effect on run-off, through storage/interception or reduced flow rates;
8. Create washlands, wetlands, wet woodland habitats and wildlife refuges, especially upstream and within settlements;
9. Encourage the creation of ‘Friends of’ groups for waterways
10. Continue to support the actions outlined in the River Dee River Basin Management Plan & North West River Basin Management Plan
11. Avoid development on, and protect the functionality of the floodplain

#### **Case Study: Water Management in New Design Upton, Northamptonshire**

“Upton was granted original planning permission in 1997 as phase 1 of the strategic urban expansion within the South West District of Northampton. The principal aim of the project was to create an integrated urban extension promoting the best practice in sustainable urban growth, creating a distinctive sense of place and a test bed for environmental technologies. Central to this was the concept of a sustainable water management system being fully integrated into both the landscape structure and a key component of the MasterPlan. Key elements of the integrated sustainable urban drainage system (SuDS) are: street and courtyard SuDS, green swales, balancing ponds, wetland areas and reedbeds.”  
Chris Blandford Associates 2010

### ***Where are the priority areas?***

The Key Diagrams, especially Figures 3.2, 3.3, 3.5 and 3.6 illustrate priority “areas of search” for this initiative, although it must be appreciated that these diagrams are not exhaustive. Several Action Plan Areas, include this GI initiative. Action Plan Areas are illustrated at Figure 4.1 and listed at Table 4.2

## 4.1.4 Greening Economic Centres

### *Why?*

This initiative is concerned with:

- Increasing the vegetation cover, attractiveness and climatic resilience of town centres, employment areas and key transport corridors
- Remediating derelict, underused, neglected and contaminated land using green techniques

Evidence from national and international studies shows that well cared for and attractive green space is key to attracting new investment as well as maintaining levels of existing usage. This is particularly true in town centres in light of our need to adapt to climate change and retain footfall in the face of competition from out-of-town retail development.

Creating attractive town centres (and other commercial centres) is important to attract investors but also for people employed in those centres. A green and accessible environment around the workplace can also improve productivity and workforce health.

High-value industries, especially those concerned with green technology, bio-science and innovation usually expect to locate in an attractive environment.

Transport hubs and places of arrival form first impressions and green infrastructure can help form a positive image of an area, while disused and neglected land creates a negative image of an area. Green infrastructure creates a more positive image and improves property values, giving investors more confidence.

The area has a legacy of sites that were used for municipal waste disposal, or for chemical and oil/gas engineering. There are some remaining colliery waste tips. Along with Liverpool and Manchester, the area has developed an international reputation for soft end-use remediation of brownfields and urban rivers; this knowledge is an exportable commodity.

Many of the areas expected to experience housing and employment growth are in or near areas of social deprivation. The PBRs (see chapter 2) shows that many of these areas also experience poor environmental quality. Environmental regeneration is a key ingredient of housing and employment growth; both to create a setting for growth and also to ensure its future sustainability.

### *What can we do?*

1. Maximise functionality and amenity of business landscapes through SuDS, shade planting and foot/cycle links to nearby GI assets
2. Encourage high-quality public realm in economic centres/hubs.
3. Identify key gateways/hubs and transport routes for greening such as street tree planting or wildflower road verges

4. Tackle the remaining legacy of brownfield sites that are unsuitable for redevelopment, establishing community woodlands and wetlands
5. Promote positive green uses of vacant land awaiting development.

## 4.1.5 How can we deliver settlement-focussed initiatives?

GI delivery mechanisms which seem most appropriate in settlements are listed below. Chapter 5 gives a more detailed discussion on the feasibility of these delivery mechanisms and suggests ways in which delivery might be enhanced:

1. Planning Policy which:
  - a. *defines, maps and protects existing GI assets and functions;*
  - b. *requires new development to create, restore and manage green infrastructure (including sustainable water management and green commuting routes) within the development boundary*
  - c. *promotes links to strategic GI networks*
  - d. *sets standards for GI provision and identifies areas of deficiency where new development is expected to make a contribution towards environmental restoration*
  - e. *sets out requirements for SUDS in (re)development and consultation with the Environment Agency*
2. GI Masterplans and Development Briefs for new development and regeneration areas
3. GI design guidance for smaller developments not subject to masterplans
4. GI Standards for quantity, quality and accessibility of open spaces within urban areas
  - a. *for renewal schemes in existing urban areas*
  - b. *for urban extensions and major brownfield schemes*
5. New buildings to meet BREEAM standards; specifically incorporating Ecology and Land Use credits
6. Providing enablers to assist development management teams and developers to plan GI during development, and thereby increase GI skills
7. Harvest and combine development-related contributions and structural GI funds to tackle strategic GI projects e.g. new cycleways, community woodlands on brownfield sites, new public realm schemes
8. Engage Utility and Streetworks Companies in tree protection and planting schemes, especially in areas known to act as surface water flowpaths
9. Green Streets and Urban Tree Planting programmes
10. Engage with major local landowners and developers, town centre managers to promote carbon-offset schemes and sponsorship for urban GI initiatives.
11. Encourage communities to devise and implement open space and heritage conservation plans (e.g. Conservation Area Plans, Parish Plans, School Grounds Plans, Environmental Action Plans for social housing areas) and provide continuing support
12. Enable social networking for Tree Wardens / Friends Groups / Urban allotment keepers

13. Publish data on local greenspaces and tree cover to stimulate community activism
14. Acknowledge good practice in new development and community action e.g. through publicity and awards
15. Work with landowners and others to de-culvert/de-canalise watercourses and to provide flood storage in greenspaces and farmland in and upstream of flood-prone settlements
16. Continue with remediation schemes that convert undevelopable brownfield sites into community assets, especially in areas where waste and chemical works still affect water quality, biodiversity and amenity.

***Who could be involved in settlement-focussed initiatives?***

- Angling and River Trusts
- British Trust for Conservation Volunteers
- CABE Space
- Community Groups/Friends of Groups
- Countryside Council for Wales
- Developers
- Environment Agency
- Forestry Commission and Community Forests
- Green space managers
- Groundwork Trusts
- Interest Groups (such as anglers, natural history societies)
- Local Authorities
- Local Health Authorities
- Local Service Boards (Wales)
- Local Strategic Partnerships (England)
- Media
- National Health Service
- Natural England
- Private and public landowners
- Private business
- Registered Social Landlords and other housing providers
- Schools and youth clubs
- Town and Parish Councils
- Universities
- Urban designers
- Waste Disposal Authorities
- Welsh Assembly
- Wildlife Trusts

***Where are the priority areas?***

- Urban Extensions and settlements identified for housing growth
- Major Brownfield Regeneration Schemes
- Housing Renewal areas
- Existing housing areas in areas of health deprivation

- Areas vulnerable to the urban 'heat island' effect
- Transport corridors and interchanges
- Town centres
- Derelict and despoiled land
- Urban Waterfronts
- Urban flood zones and surface water flowpaths
- Amenity green space within housing areas
- Areas with potential as natural green space close to housing such as river valleys
- Neighbourhood parks
- New development and regeneration areas
- Linear access routes such as canals and disused railways
- Brownfield Sites close to housing areas
- Schools, hospitals, church grounds, memorial gardens
- Vacant land
- Areas with high levels of coronary, respiratory and mental health problems
- Open land upstream and downstream of settlements prone to flooding
- Settlements along the River Dee
- Green space adjacent to watercourses
- Culverted/canalised watercourses within existing green space
- Brownfield sites, especially former waste or chemical works sites
- Business parks
- Gateways and Corridors
- Industrial Estates and Business Parks
- Other Employment Sites
- Shopping and Commercial Centres

## 4.2 Land and Water Management Initiatives

### *Why?*

These initiatives focus on the management of uplands and lowland river valley networks. They are concerned with:

- Securing and enhancing the ecosystem services provided by these landscapes
- Enabling the proliferation of wildlife
- Preserving and enhancing areas of landscape and cultural quality
- Adapting to and mitigating against climate change
- Supporting land based enterprises as they manage the natural environment
- Supporting the existing River Basin Management Plan for the River Dee

Each river catchment is a natural, physical and geographic landscape unit. A catchment includes urban, rural, estuarine and coastal landscapes. Catchment management involves an integrated approach to biodiversity, water quality, soil conservation, flood risk, recreational access, tourism and land productivity. The river networks are natural corridors used by wildlife, so restoring their integrity is vital for the proliferation of our wildlife.

All land uses affect catchment quality, whether this is development, industry, transport or agriculture. In light of the challenges of climate and demographic change we need to adapt our practices to protect the “ecosystem services” provided by the natural environment.

Hotter, drier summers require that we maximise the ability of the landscape to store rainfall, in the upland moors and as ground water in aquifers. Intense rainfall, especially after dry weather, can erode exposed soils, depleting its stability and productivity. Increased abstraction to maintain crop production and domestic water use could lower water levels in streams and rivers, leaving biodiversity, aesthetic and recreational functions compromised.

Our upland areas are also important as carbon-sinks. They also have important areas for wildlife and inspiring landscapes, valued for their tranquillity. As populations increase and recreation choices become more outdoor orientated we will need to improve access and continue to protect these cherished environments.

Past management such as over-grazing and over-drainage has affected the current ability of uplands to store rainfall and has reduced nationally important habitats.

The different number of land-uses and land-owners means that dialogue and common objectives are required to manage effectively at the landscape scale. We need to work with landowners to manage catchments for those that directly rely upon it for income and those who rely on catchment-scale ecosystem services.

We propose integrated environmental management of uplands and lowland river valley networks to achieve a step-change for biodiversity, catchment protection, landscape enhancement, public access; always bearing in mind that these are working landscapes. We must support land-based enterprises to be profitable and re-invest in the management of the natural assets that sustain their business.

## 4.2.1 Lowland River Valley Networks

### *What can we do?*

As part of an integrated management framework, promote the following actions:

1. Create washlands, wetlands and wet woodland along watercourses
2. Engage with farmers to adopt less intensive/damaging practices such as over-grazing to reduce soil loss and organic/non-organic pollution of watercourses and reduce rainfall run-off
3. Encourage landowners to contract into Woodland Grants and Farm Environment Schemes to improve habitat connectivity and allow the restoration of hedgerows, planting of woodland and new hedgerow and habitat creation/restoration; specifically on land adjacent to the river corridors
4. Facilitate start-up of businesses based in the natural environment
5. Restore heavily modified watercourses to their natural floodplains and remove redundant artificial structures as part of the North West River Basin Management Plan (Water Framework Directive)
6. Encourage inter-agency working to identify shared priorities and potential mutually beneficial projects and programmes

#### Case Study: The On-Trent Project- River Trent

The On-Trent Project is a partnership involving a wide range of public, statutory, voluntary and commercial organisations. The vision for the partnership is “A Trent landscape rich in wildlife habitats, landscape and historic features for the benefit of all, both now and in the future”. The project covers a large geographic area, united by the River Trent from Stoke-on-Trent to the Humber Estuary. It is a diverse project seeking to maximise the benefits of cross-border partnerships at a catchment scale. The organisations involved in On-Trent work together and co-ordinate their activity in order to share information, raise awareness, influence policy, engage local communities and promote practical projects. Its involvement in the SPARC (Strategic Partnerships in River Corridors) is a prime example of this. Strategic Partnerships in Rivers Corridors Project 2009

## 4.2.2 Upland Landscapes

### *What can we do?*

As part of an integrated management framework, promote the following actions:

1. Restore upland bogs and reverse over-drainage to reduce sediment loads, increase rainfall holding capacity and carbon-storage.
2. Work with land managers to adopt appropriate grazing and burning regimes in line with best practice (such as Countryside Council for Wales’ ‘Upland Framework’ and Natural England’s ‘Vital Uplands’)
3. Plant woodland and scrub in cloughs and gullies to trap sediments

4. Minimise the impact of increasing public access through improving the surface conditions of the main public access routes in upland areas to reduce off-path access which leads to increased erosion and compaction

### ***Where are the priority areas?***

Integrated Environmental Management at a landscape-scale is an ambitious proposal, but is fully in line with emerging thinking about ecosystem services and catchment management.

The highest priority is the Dee catchment; given the value of the river and its estuary for wildlife and cultural heritage, coupled with its value as a drinking water and recreation resource.

Other priorities are suggested in the PBRS and Key Diagrams, notably Figures 3.2, 3.4, 3.5 and 3.6 (Visitor Economy, Quality of Place, Climatic Resilience and Biodiversity). These include

- The Clwydian range, including Pontcysyllte World Heritage Site and Halkyn Mountain
- The Peak Park, Bollin Valley and fringe countryside
- The Cheshire sandstone landscape
- The Rivers Weaver and Dane valleys
- The Clwyd Valley

Figure 4.1 shows the broad location of these proposed Integrated Environmental Management Areas

### **4.2.3 How can we deliver land and water management initiatives?**

In delivering land and water initiatives a number of different funding and organisational mechanisms will need to be employed. Key to the delivery is working together to deliver shared objectives:

1. Sustain and enhance existing stakeholder forums for the priority areas which will;
  - a. Be supported by local authorities and government agencies
  - b. Have a clear set of defined and agreed goals
  - c. Identify ecological networks of biodiversity core sites and opportunity sites, and promote the conservation of the network through development policy and land-use planning and funding streams
  - d. Consider all aspects of catchment management, and take an equal approach to addressing societal need, environmental improvement and economic prosperity
  - e. Encourage community participation in the management and planning of the Integrated Environmental Management Frameworks
2. Combine existing funding mechanisms to create a targeted fund, e.g.;
  - a. Woodland Grant Schemes
  - b. Farm Environment Schemes

- c. Rural Development Programme for England LEADER Groups
  - d. Rural Development Plan for Wales
  - e. Flood defence funds
  - f. Highways Authorities (Rights of Way Improvement Plans)
  - g. Charitable funds (e.g. RSPB, National Trust, RSPCA, John Muir Trust)
  - h. Government's Tree-Planting Programme
3. Local authorities can assist by;
- a. Liaising with landowners and the forum in the development and implementation of ROWIP's
  - b. Ensuring planning policy does not stifle environment-based business opportunities
  - c. Supporting the forum members with grant applications and advice on planning matters

#### Case Study: Landscape-scale Conservation – South Essex Marshes

In south Essex, on the north bank of the River Thames, a wide range of local partners has worked together to restore an area covering 10km<sup>2</sup> to wetland habitats, created from a mix of grazing marsh, arable farmland and restored landfill sites. Restoring this area has involved working with regeneration agencies, local authorities, landowners and businesses and extensive consultations with local communities and statutory agencies. For example, in partnership with the Environment Agency, the RSPB is working to create compensatory habitats identified in the Thames Estuary 2100 Strategy. The landscape scale of the habitat creation means that the site will make a real contribution to wildlife's adaptation to climate change.

The creation of extensive areas of wet grassland has resulted in increases in water birds including avocet and lapwing, as well as water voles and great-crested newts. Buglife and the RSPB have worked together to create and manage new habitats to restore the fragmented Thames Terrace invertebrate communities. A partnership with the Port of London Authority on the 15,000hectares within their control creates direct connections with terrestrial and marine ecosystems on a truly landscape scale.

Extensive networks of multi-user trails and access improvements have been created, informed by community consultation, ensuring that new facilities are desired and relevant. Developed from a landscape of farming and industry, this wide partnership has created and restored habitats to deliver high quality green space, rich in wildlife and, for the first time accessible to people.

Extract from 'Making Space for Nature- A review of England's Wildlife Sites and Ecological Network' 2010

#### ***Who could be involved?***

- AONB & National Park Authorities
- Country Land & Business Association
- Countryside Council for Wales
- Environment Agency (Wales & England)
- Farming and Wildlife Advisory Group
- Forestry Commission
- Interest Groups (angling, hunting, canoeing)
- Landowners and Land Managers
- Local Authorities
- National Farmers Union

- Natural England
- RSPB, RSPCA, National Trust etc
- Water Companies
- Welsh Assembly

### 4.3 Coast and Estuary Management Initiatives

#### *Why?*

The coast, including the Mersey and Dee estuaries, has many settlements and is home to high quality natural areas, historic and cultural assets and economic/employment centres. Many areas are top visitor destinations.

Nevertheless, the coastline from Frodsham, around Wirral and into Flintshire and Denbighshire has stretches of poor accessibility and degraded landscapes and also has coastal settlements aspiring to a revived tourism economy. This framework can support regeneration of coastal towns, develop better access infrastructure along the coast and enhance the heritage and natural tourism offer.

An example of an area meriting action is the Flintshire Dee coast. Here, transport infrastructure such as the A548 and the coastal railway line has the effect of isolating the coast from inland communities. In addition, previous land uses have left a legacy of derelict or contaminated land and large industrial areas, which reducing the quality of coastal access for residents and visitors.

The Mersey Waterfront Regional Park has demonstrated how a variety of green infrastructure actions can collectively improve access, community participation, biodiversity and tourism; through improvements to the recreational and visitor infrastructure.

The Dee and Mersey estuaries are high value natural assets whose ecosystems sustain a variety of economic activities. Actions to enhance estuary habitats need to be combined with actions upstream and inland to ensure that human inputs on rivers do not harm estuarine ecology.

Green infrastructure and land management actions can help to ensure that water quality in the area's rivers is not degraded by polluted runoff from settlements and diffuse pollution from land management is avoided.

In managing for wildlife in our rivers and in the estuaries, we are also helping to ensure sustainable and healthy sea fisheries.

Coastal biodiversity hotspots have become visitor destinations, helping to support local businesses and economies. Places such as the Ribble Coast and Wetlands Regional Park use the natural capital of the coast to their advantage as a commercial attraction, with the brand being used to market food and drink enterprises.

Several areas are vulnerable to tidal flooding. These are areas with high economic value (development and agriculture), but future budgetary pressures may make it difficult to sustain investment in all the engineered flood defences. The Dee Catchment Flood Management Plan (2010)<sup>26</sup> suggests that a Tidal Dee Flood Plan will be developed. This might include actions such as realignment of defences to

<sup>26</sup> <http://publications.environment-agency.gov.uk/pdf/GEWA0110BRKO-e-e.pdf>

increase washland flood storage, while simultaneously creating biodiverse areas of visitor interest.

We consider there are two broad coastal green infrastructure initiatives:

- An accessible and high-quality coast
- Enhancing vital estuary ecosystems

### 4.3.1 An accessible and high-quality coastline

#### *What can we do?*

1. Create a coastal path from Frodsham to Rhyl (accepting that in areas with major industry, access may be restricted to “windows to the waterfront”)
2. Connect inland recreational routes to those along the coast, specifically those passing through coastal communities
3. Promote heritage and natural assets along the coast as destinations and access hubs. Publicise the natural tourism value of the coast e.g. signage along transport corridors.
4. Protect settlement gaps, access routes, navigation and boat-launching areas, viewpoints, heritage, natural and cultural assets in planning policy
5. Approach land owners to assess the potential for improved access on privately owned land
6. Adopt locally-distinctive approach to branding, signage and interpretation, encouraging businesses to market food, drink and leisure activities with a coastal brand.

### 4.3.2 Enhancing vital estuary ecosystems

#### *What can we do?*

1. Protect natural breaks between developed areas
2. Restore UK Biodiversity Action Plan priority estuary habitats where they have previously been modified by agriculture, drainage, infrastructure or flood defence.
3. Investigate managed realignment as a approach to improving natural habitat
4. Clean-up campaigns for creeks and rivers entering the estuaries
5. Reclaim coastal derelict and contaminated land to increase water quality, wildlife and amenity value
6. Install signage and interpretation at key ‘natural’ destinations
7. Support community groups with an interest in the coast’s natural heritage in their plans to improve its condition
8. Work with landowners and private businesses to realise the potential of coastal land to provide improved natural habitat conditions and landscape and ecological connectivity

### **Where are the priority areas?**

These actions are valid for all coastal areas, but the following situations should be prioritised;

- Rivers, stream and creek corridors feeding into the estuaries
- Access routes and gaps in the network along the coast
- Brownfield land, especially former waste or chemical works sites
- Farmland within the tidal floodplain
- Existing natural, heritage and visitor assets and hubs
- New development and regeneration areas

Figure 4.1 shows several coastal areas included in Action Plan Areas. Given the highest priority of the Dee estuary, we suggest that it should be regarded as an Integrated Environmental Management Area, also shown at Figure 4.1.

### **4.3.3 How could we deliver coastal and estuary initiatives?**

A number of different delivery mechanisms, a more detailed analysis of which can be found in chapter 5. Listed below are the headline mechanisms:

1. Planning Policy which;
  - a. Defines, maps and protects existing GI assets and functions, including access routes, navigation and boat-launching areas, viewpoints, heritage, natural and cultural sites.
  - b. Defines, maps and protects gaps between coastal development
  - c. Identifies areas of contaminated and despoiled land for restoration
  - d. Sets out requirements for improvement of strategic and sustainable access routes in new development
  - e. Sets standards for green infrastructure provision and identifies areas of deficiency where new development is expected to make a contribution towards environmental restoration
2. A strategic Coastal Access masterplan which;
  - a. Guides development and regeneration design
  - b. Identifies priority areas for funding and support from developer contributions
  - c. Ensures consistent approaches to signage and interpretation
3. A Coastal Group for the Dee Estuary which;
  - a. Brings together the various actors, stakeholders, land owners and users of the coastal area
  - b. Provides a forum for the discussion of coastal management and green infrastructure protection and enhancement

#### **Case Study: The Wash Estuary**

The Wash Estuary Strategy Group has been actively involved in developing Lincolnshire's Community Strategy and the Local Area Agreement. These recognise the Fens and The Wash as a unique environment and include targets relating to the local coastal communities, for example, for improvements in biodiversity and access to open and green spaces. Improvement in green infrastructure was an agreed target in the first Lincolnshire Local Area Agreement.

This empowered the Wash Estuary Strategy Group to request further resources from a range of partners for a Green Infrastructure Master Plan for The Wash and its hinterlands. This area is surrounded by growth points but has not received any resources to plan for potential impacts. Partner organisations, who all have competing priorities were more willing to provide more resources for the green infrastructure planning because it directly contributed to a target within the Local Area Agreement. The completed plan will help identify existing networks and gaps in green infrastructure; provide an evidence base for Local Development Frameworks; and act as a catalyst to enable further resources to be captured to deliver change on the ground – directly delivering the policies in the Wash Estuary Management Plan.

Through engaging with the Local Area Agreement process, the Strategy Group's annual core budget from the original seven partner organisations is now £35,000 a year and this has doubled the funding and full-time staff available to work on green infrastructure.

Extract from 'A strategy for promoting an integrated approach to the management of coastal areas in England' Defra 2008

### ***Who could be involved?***

- British Association for Shooting and Conservation
- British Trust for Ornithology
- CADW, English Heritage
- Campaign for the Protection of Rural Wales.
- Cheshire and Wirral Ornithological Society.
- Cheshire Wildlife Trust.
- Chester and District Ornithological Society.
- Community Groups
- Country Land and Business Association
- Countryside Council for Wales
- Dee Estuary Voluntary Wardens.
- Dee Wildfowlers and Wetland Management Club.
- Deeside Naturalists Society.
- Environment Agencies
- Local access fora
- Local Authorities, Strategic Partnerships and Service Boards
- Marine Conservation Society.
- Merseyside Naturalists Association.
- National Farmers Union
- Natural England
- Network Rail
- North East Wales Wildlife.
- North Wales Wildlife Trust.
- Parish and Town Councils
- Private and Public Landowners
- Ramblers Association
- RSPB
- Sustrans
- The Mersey Partnership
- Town and parish councils
- User groups (angling, sailing, bird-watching)
- WAG (inc Wales Tourist Board element)
- Wildfowl and Wetlands Trust.

## Community and Business Participation

### Why?

This framework and its action plans will need support from the communities it is intended to benefit. Community engagement with, and action for, their local natural environment is key to its future quality, its ability to deliver public benefit, and the only practical way that the “million” small actions necessary to create, manage and enhance local green infrastructure can happen.

The coalition government wishes to open up public assets and services to communities and social enterprises<sup>27</sup>. This gives an opportunity for communities to lead environmental activity and develop green apprenticeships and volunteering.

Limited public-sector funding for the natural environment also increases the need for community management of open spaces, which in turn stems from increased responsibility for neighbourhood environmental quality. This is not a negative concept - engagement with environmental action can play a core role in area regeneration, health improvement, social cohesion and personal development.

Local Strategic Partnerships and Community Partnerships will have a prime responsibility to promote and enable civil society and make important decisions about budgets of district-wide significance.

Thus, at an Authority-wide scale, it is vital that senior GI managers engage with budget-holders in other areas (housing, healthcare, education, community safety, flood defence), as well as with major businesses and landowners. This will enable the GI managers to develop partnership programmes that tap into area-wide programmes and funding streams that seek to join-up services and benefits<sup>28</sup>

Case Study: Liverpool City Council has a “Greening the City” initiative which supports community groups. Using approximately £75,000 of its capital funds, it invited proposals from groups who needed help to implement schemes of high local value. Over 30 groups expressed interest and, using transparent selection criteria brokered by the Mersey Forest, two major schemes were supported with capital funds and four other groups have been given assistance with business-planning and fundraising.

At a neighbourhood scale, green infrastructure advocates are needed in local partnerships. As it is not effective for paid green infrastructure professionals to attend all neighbourhood partnerships, it is necessary to raise awareness amongst community representatives of the importance of GI and provide examples of good practice so that they can develop neighbourhood-scale GI projects.

Case Study: Cheshire East Council has seven Local Area Partnerships which will increasingly take responsibility for management of Council open space budgets. Pro-active and well-informed members of LAPs will be able to match Council budgets with other funds (e.g. healthcare funds, private charities) to make good use of the area’s open spaces.

We propose three, overlapping, framework-level initiatives:

- Enabling community leadership and individual responsibility in environmental activity
- Supporting social enterprise and green apprenticeships
- Enabling business participation in environmental activity

<sup>27</sup> Building a Stronger Civil Society: A strategy for voluntary and community groups, charities and social enterprises (2010) HM Govt

<sup>28</sup> Such as the Total Place approach – see <http://www.localleadership.gov.uk/totalplace>

## ***What can we do?***

**Community leadership and individual responsibility** includes:

1. Volunteer management/adoption of local parks, greens, nature reserves and tree wardening schemes
2. Land owned by charitable trusts to enable public access and/or environmental management
3. GI practitioners to deliver training communities about climate change adaptation ([www.ginw.co.uk/climatechangetraining](http://www.ginw.co.uk/climatechangetraining))
4. Open space plans championed by community partnerships and civic societies e.g. Parish Plans, Conservation Area Plans
5. Community associations which use open spaces as a venue (e.g. allotment societies, sports clubs)
6. Communities buying “community assets” under the coalition government’s emerging proposals for civil society
7. National Citizenship Service schemes for young people
8. Schools adopting environmental action plans for their grounds e.g. Forest Schools
9. Individual Behaviour is also highly relevant to delivering GI. This could include personal environmental commitments such as wildlife gardening, occasional volunteering, charitable donations and opening private land for permissive access.

### **Case Study: Islington Open Space Events Policy**

In recognition of the community value of organised events on local green spaces, Islington Council has set out clear and simple guidance for the use of community spaces for events. Community and charity based events are not charged for the use of a space, reducing overheads and opening up the space to a wider range of community based events. The council is also able to provide event equipment should it be required

**Social Enterprises delivering public services** while using the natural environment include:

10. Health improvement programmes e.g. walks, green gyms, therapy, NHS Forest
11. Green apprenticeships and training in environmental or land-based skills
12. Community payback schemes, managed by probationary service providers
13. Community contracting schemes for management of parks and open spaces

### **Case Study: New Century Family Garden – Openshaw East Manchester**

This site was a small green enclosed by terraced housing that was drying out and suffering from problems such as fly-tipping, dog-fouling, joy-riding and dangerous surfacing. As a result of a community-led project to regenerate the area, the site now has mild steel gates at the alleyway entrances, which tackle crime and improve community safety. Drainage has also been improved, with ornamental pots, flowers and climbers creating an area, which is fully maintained by the residents. Funding for the project was secured through the New Deal for Communities and the private housing sector. GreenSpace 2010

**Business participation** includes:

14. Sponsorship of environmental projects
15. Carbon-offset funds
16. Corporate responsibility activity – donation of funds or staff time to environmental projects
17. Management of corporate grounds (e.g. hospitals, schools, colleges, businesses)
18. Business Improvement Districts, where groups of interested businesses contribute towards management of shared spaces

### **Where are the priority areas?**

Community and business participation is needed across the whole framework area. Each of the Action Plan Areas (see figure 4.1) will need to use appropriate means of engaging with their communities and businesses, so we suggest that, if possible, the LSP (England) or the LSB (Wales) be asked to champion the Action Plan Areas.

#### **4.4.1 How can we deliver community and business initiatives?**

We recommend the following measures for the GI Steering Group and partner organisations to sustain and stimulate community / business participation:

1. Monitor and respond to emerging Government initiatives to empower communities, open up services and promote local community funds
2. Set up a 'Community Environmental Network': a peer-to-peer support network to help individuals and community groups to access resources for environmental projects. This could also provide a network for volunteer groups to access training to maintain interest and skill levels. This would be a virtual network such as "Project Dirt" in London<sup>29</sup> or the East Midlands Green Infrastructure Network.<sup>30</sup>
3. Publish local environmental and greenspace data on-line. Experience suggests that, the more information people have about their local area, the more likely they are to become involved in its conservation.
4. Increase skills of greenspace managers to help them effectively engage with community groups and enable community events to take place with as little red-tape as practical
5. At the Local Authority level, examine options for "Total Place" type activity using the natural environment as a setting for delivery of public services, especially in healthcare, rehabilitation, sports and education.
6. Engage with business owners and managers to raise funds, offering opportunities for sponsorship and carbon-offsetting, staff development and corporate environmental days. Promote good business practice through awards and publicity.
7. Promote individual actions e.g. through publicity and facilitating simple ways to donate to local environmental funds when purchasing goods and services.
8. Promote Green Flag Parks as centres of environmental excellence
9. Promote awards schemes that recognise excellence in community environmental action, engaging business sponsorship

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<sup>29</sup> See [www.projectdirt.com](http://www.projectdirt.com)

<sup>30</sup> See [www.emgin.co.uk](http://www.emgin.co.uk)

10. Maintain volunteer programmes within Council Parks and Countryside Services

***Who could be involved?***

- British Trust for Conservation Volunteers
- Countryside Council for Wales
- Environment Agency
- Groundwork Trusts
- Interest groups and societies (allotment, natural history, heritage)
- Local Area partnerships and community groups
- Local Authorities
- Local Service Boards (Wales)
- Local Strategic Partnerships (England)
- Mersey Forest
- National Trust
- Natural England
- NHS
- Parish and town councils
- Private and Public Landowners
- Schools and other Educational Institutions
- Welsh Assembly
- Wildlife Trusts
- Woodland Trust

## Natural and Visitor Economy Initiatives

### *Why?*

North East Wales, Cheshire and the Wirral have numerous tourism and visitor assets. These range from the landscape scale such as the canal network, the Peak Park, the Clwydian Range; to individual sites of interest such as the Boat Museum at Ellesmere Port.

The natural environment supports the visitor economy. Diversification of rural businesses is broadening the visitor economy, providing alternative destinations, new experiences and local produce.

Access networks play a major part of the visitor and tourism offer. This includes canals, promoted paths, the national cycle network and the public rights of way network. These connect visitor destinations, and they themselves are popular destinations. Our access network is not complete, but by bridging gaps in the networks, we can enhance the visitor offer and provide sustainable transport solutions for local communities.

Climate change, increased summer temperatures, housing growth in the area and the economic downturn may all increase domestic tourism. This may have positive benefits by widening the range of rural businesses and jobs. It will also place increased pressure on environmental resources. Upland environments are particularly sensitive to climate change and visitor pressure, so measures will need to be taken to ensure that they remain functional, in terms of the ecosystem services they provide and their landscape value.

The increased awareness of “localism” offers land-based businesses the opportunity to develop new markets. The proximity of affluent urban centres should benefit businesses offering woodfuel, crafts, locally-branded food and drink, conferencing, outdoor events, sports etc.

Improving awareness of natural heritage and cultural assets can help safeguard them for future generations. The case study from Sweden took this approach, and in the spirit of multifunctional green infrastructure, widened the function of a water catchment into a tourist catchment.

### Case Study: Emåförbundet - Emån River Basin, Sweden

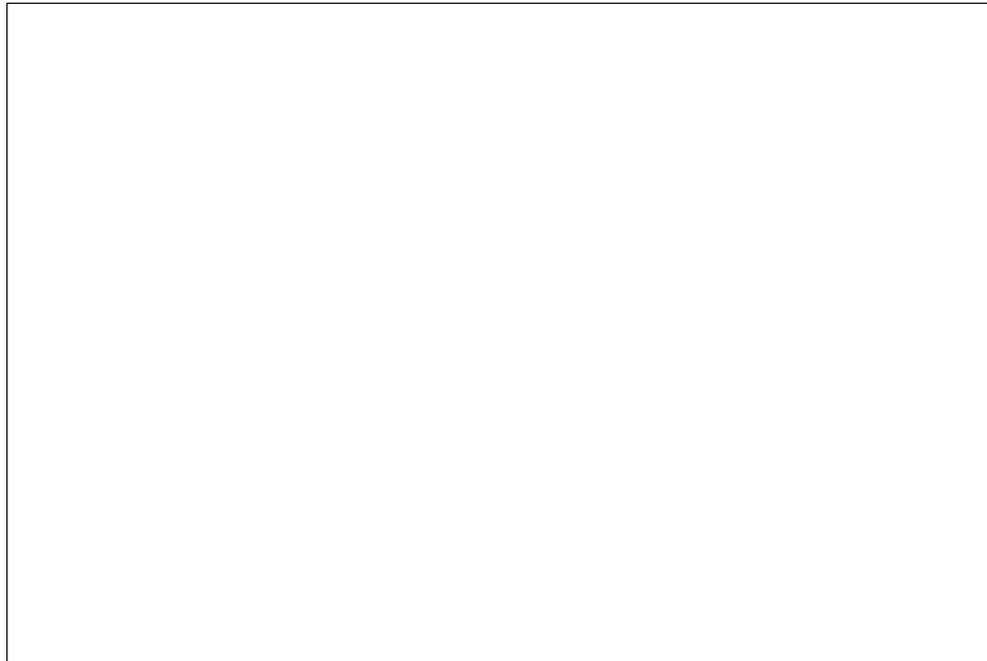
In the 1990's the municipalities, Regional Administrative Boards and NGO's in the Emån catchment created a forum for discussion and joint actions to address problems in the catchment area and to ensure a sustainable future for the river basin, thus Emåförbundet was created. In 2002 Emåförbundet embarked on a project to create a living network between the river basin's many assets, including natural (14 nature reserves totalling 716ha) and tourism assets. Its members include museums, tourism entrepreneurs and local history groups; it now has 27 members.

By creating a network of tourism and visitor assets and businesses, smaller (less resourced) businesses were able to market themselves as part of the wider offer. By working together they have been able to widen their client base and support each other.

Emåförbundet has 8 working groups each with a different focus such as nature, pollutants, agriculture and fisheries. No project is taken forward without the support and agreement of

the organisation's many stakeholders. Emåförbundet has a set of agreed goals that guide its projects;

- More employment in tourism
- Increased numbers of visitors to the area
- Better possibilities for developing new business enterprises in farming and forestry
- Easier access to lakes, rivers, nature and to places of historic and cultural interest
- Increased awareness of the values in the Emån region
- Better co-ordination between different enterprises and stakeholders within the watershed
- Increased interaction between different stakeholders to find a strategy for how the natural resources can be exploited from a holistic and sustainable perspective
- Better water quality within the Emån catchment area. Pollution should not restrict the use of the water resource for drinking water production, fishing, bathing, industrial purposes etc
- Better environment for Salmon and Trout
- The high values that exist within the watershed shall be preserved and developed. Natural species shall remain in sustainable populations



Emån River Basin Tourism Map illustrating assets and networks  
Source: ENMaR – European Network of Municipalities and Rivers (2007)

### ***What can we do?***

1. Raise awareness of how the natural environment adds value to the local economy
2. Support development that supports rural and visitor economies, subject to environmental protection policy.
3. Support natural economy enterprises, particularly in the proposed 'Integrated Environmental Management Areas' and alongside the canal network.

4. Identify and promote a strategic access network consisting of long-distance routes, promoted paths, canal network, SUSTRANS trails and key local green commuting routes.
5. Create new routes, where needed to fill gaps in the strategic access network
6. Make an inventory of existing and potential visitor assets and access networks, including natural and heritage destinations. Liaise with businesses, and heritage groups such as CADW and English Heritage, National Trust to establish where there is potential for improvement in terms of connections to the tourism-support infrastructure; and implement an action plan to address these.
7. Identify key wildlife 'hotspots', and assess their vulnerability to visitor pressure and climate change and ensure that measures are taken to preserve their biodiversity value
8. Engage with local enterprise partnerships to develop markets for local produce and tourism
9. Enable businesses to access funds for green apprenticeships through assistance with paperwork and placements

#### ***Where are the priority areas?***

The priority areas are shown in key diagrams, particularly Figures 3.1 (prosperity), 3.2 (visitor economy) and 3.4 (quality of place). Figure 4.1 identifies several Action Plan Areas where visitor economy businesses should be promoted and where gaps in the strategic access network could be addressed. Figure 4.1 also identifies the proposed "Integrated Environmental Management Areas" where landscape and biodiversity assets should be enhanced, working with landowners and farmers.

#### ***Who could be involved?***

- Business Partnerships
- CADW
- English Heritage
- Forestry Commission
- Highways Authorities
- Interest Groups (Walking, Heritage, Sports)
- LEADER Groups
- Local Authorities
- Local Enterprise Partnerships
- Local Service Boards (Wales)
- Local Strategic Partnerships (England)
- Mersey Forest
- The Mersey Partnership
- National Trust
- Parish and Town Councils
- Private Businesses
- Public and Private Landowners
- Sustrans
- Network Rail

- Water Companies
- Wildlife Trusts
- Welsh Assembly

#### **4.5.1 How can we deliver natural and visitor economy initiatives?**

1. Planning Policy which;
  - a. Is aligned with tourism and rural development strategies
  - b. Specifically references green infrastructure
  - c. Identifies green infrastructure networks and assets on proposals maps
  - d. Promotes rural business development and green enterprises
2. Create local outdoor visitor fora that;
  - a. Provide a discussion platform
  - b. Give advice for new businesses
  - c. Allow sharing of ideas and experience
  - d. Maximise exposure for smaller businesses
  - e. Publicises green/outdoor/wildlife tourism
3. Marketing and promotion of localism in purchasing decisions made by public bodies (e.g. sourcing of woodfuel, food, conferencing).
4. Implement a Strategic Access Network Action Plan, to identify and address gaps, including long-distance routes, as well as important local green commuting routes. This should be aligned with Rights of Way Improvement Plans (ROWIP's) and Tourism Strategies to prioritise improvements to access networks close to visitor attractions and tourism 'hotspots'

## Action Plan Areas

Several areas are identified, through research and consultation, as priorities for green infrastructure action:

- Some areas **need** green infrastructure to address environmental deficiencies and improve quality of life and place
- Some areas already have a healthy and accessible natural environment which offers **opportunity** to sustain strong communities and viable enterprises.
- Some areas are likely to experience rapid **transformation** and new development; offering an opportunity to plan for a robust green infrastructure and reverse past environmental damage.
- Some areas have **potential** to become strategically important – in other words, they have a reasonable quantity and quality of assets, and by virtue of their location, could provide many more public benefits if managed appropriately.

Figure 4.1 shows suggested Action Plan Areas where focused plans for action are needed to deal with a range of issues related to key settlement-based needs and the need for cross-border cooperation to enhance and maintain core strategic green infrastructure assets such as the canal and key river corridors. Table 4.2 summarises each Action Plan Area, listing the lead authority and the appropriate types of green infrastructure initiative. Each Action Plan Area will require leadership, partnership working, targeting of funds and policy promotion. In most cases it is appropriate for the Action Plan Areas to be led by the relevant Local Strategic Partnership or Local Service Board. In some cases, Action Plan Areas might be led by bodies with a cross-boundary or thematic remit (e.g. the Environment Agency, the Mersey Forest, the Clwydian Range AONB Board, the Mersey Dee Alliance).

We recognise that several of these Action Plan Areas already have green infrastructure activity and most have community groups already engaged in environmental management. By highlighting these areas in this Framework, we hope to recognise the importance of the work already being carried out and enable existing activity to continue and develop.

For areas outside the Action Plans, there is still a need for green infrastructure activity in priority areas – for example the actions proposed in the “Greening the Built Environment” section apply to most urban areas. The actions proposed in the “Lowland River valley network” section apply to all floodplains and valley farmland.

To support the delivery of green infrastructure across the framework area, three additional thematic Action Plans are proposed:

- Producing a **GI Manual** to guide planners and developers on techniques to incorporate green infrastructure in new development and urban regeneration schemes
- Establishment of a **Community and Business Environment Network** – a peer-to-peer support network to enable community groups to access online resources, training events, local environmental quality data and share best practice.
- A **Strategic Access Network Action Plan**, to identify and address gaps, including long-distance routes, as well as important local green commuting routes.

These thematic Action Plans could be implemented across the framework in order to benefit from economies of scale and to share best-practice.

## Integrated Environmental Management Areas

There are a series of strategic heritage and natural assets stretching across North East Wales, Wirral and Cheshire, from the Clwydian Range to the Peak District, linked by networks of canal and river corridors and clusters of heritage attractions. Cross-boundary and cross-sector co-operation with management, enhancement and marketing of these assets will boost their functionality and maximise the ecosystem services they provide. A step change in delivery of landscape scale biodiversity enhancement and ecological networks in these areas will deliver a richer and healthier landscape fabric and a quality setting for our towns and villages.

In the discussion of land, water and coastal initiatives, it was recognised that integrated “catchment-focussed” or “landscape-scale” environmental management is needed in these areas; over and beyond the largely settlement-focussed Action Plan Areas. In summary, we propose Integrated Environmental Management Areas, covering:

- The Dee Catchment
- The Clwydian Range, extending to Pontcysyllte and Halkyn Mountain
- The Dee Estuary
- The Clwyd valley
- The Cheshire Sandstone landscape
- The Cheshire Peak and Bollin valley countryside
- The Weaver and Dane river valleys

These Integrated Environmental Management Areas are broad zones where an integrated approach to land management should seek to support the delivery of the GI framework through landscape and biodiversity actions. These are shown on Figure 4.1 (insert) and illustrated in greater detail in Figure 4.2 and listed in Table 4.2. Figure 4.2 also recognises the existing Gowy and Mersey Washlands Project – a major Living Landscape Project that is a partnership between the Environment Agency and Cheshire Wildlife Trust.

This is a reasonably well-established practice – for example Natural England operates a targeting scheme for Higher-level stewardship payments. Another example is in the National Parks where there is much integration of landscape, biodiversity, soil conservation and access objectives in the way land is managed.

We propose the Dee Catchment is the highest priority for integrated management. It is already a well-regulated catchment in terms of water supply; it has development plans for many key assets along the river’s course; it has areas where its uplands are subject to special agri-environment funding; it has Conservation Objectives for its SAC reaches, etc. It also has in place a River Basin Management Plan.

The proposal is to investigate and then implement a scheme whereby there is even greater pooling and targeting of funds for catchment-friendly land management, together with support for landowners and enterprises operating in the natural economy.

If exact boundaries are to be placed on the scope and extent of these IEMA’s then we propose that emerging techniques which map habitat networks and landscape character (e.g. EcoNet, LandMap) be used.



**Table 4.2: Action Planning**

AREA	Lead Authority	Settlement-focussed initiatives				Land & Water Initiatives		Coastal Initiatives		Community-oriented initiatives	Natural & Visitor Economy Initiatives
		Greening the Built Environment	Safe, Healthy & Accessible Natural Environments	Urban River & Water Management	Greening Economic Centres	Lowland River Corridors	Upland Landscapes	Coastal Habitats	Coastal Access		
<b>ACTION PLAN AREAS</b>											
D1 - Denbighshire Coast	DCC	√	√		√			√	√	√	√
D2 - Bodelwyddyn & St Asaph Housing Growth	DCC	√	√	√	√					√	√
F1 - Flintshire Coastal Towns	FCC	√	√		√			√	√	√	√
F2 - Halkyn Mountain and Deeside river valleys	FCC					√	√			√	√
WX1 - Llangollen, Ruabon & Pontcysyllte World Heritage Site	WCBC	√	√	√	√	√	√			√	√
WX2 - Wrexham Green Network and links to Pontcysyllte	WCBC	√	√	√	√	√				√	√
CW1 - Chester City Centre & River Dee Park	CWAC	√	√	√	√					√	√
CW2 - Ellesmere Port & Chester business & housing renewal areas	CWAC	√	√		√					√	
CW3 - Ellesmere Port to Mouth of the Weaver inc Goway River	CWAC		√		√	√		√	√	√	√
CW4 - Northwich and lower Weaver valley	CWAC	√	√	√	√	√				√	√
W1 - Wirral Coastal Park and Wirral Way	WBC		√					√	√	√	√

**Table 4.2: Action Planning**

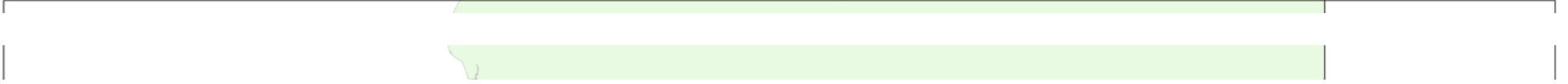
AREA	Lead Authority	Settlement-focussed initiatives				Land & Water Initiatives		Coastal Initiatives		Community-oriented initiatives	Natural & Visitor Economy Initiatives
		Greening the Built Environment	Safe, Healthy & Accessible Natural Environments	Urban River & Water Management	Greening Economic Centres	Lowland River Corridors	Upland Landscapes	Coastal Habitats	Coastal Access		
W2 - Birkenhead & Wallasey housing renewal areas, including Wirral Waters	WBC	√	√	√	√					√	
W3 - Mersey Shore (Ellesmere Port to Seacombe)	WBC/ CWAC		√						√	√	√
CE1 - Crewe – town centre regeneration and urban extension	CE	√	√	√	√	√				√	√
CE2 - South Macclesfield urban extension	CE	√	√	√		√				√	
CE3 – Sandbach, Congleton, Alsager and Middlewich area	CE	√	√	√		√				√	
A - The canal network and waterfront focus areas in market towns and villages: Chester Ellesmere Port Frodsham Acton Bridge Northwich Winsford Middlewich Sandbach Barbridge Audlem Congleton Macclesfield Pontcysyllte	CE/ CWAC/ WCBC	√	√	√	√	√				√	√

**Table 4.2: Action Planning**

AREA	Lead Authority	Settlement-focussed initiatives				Land & Water Initiatives		Coastal Initiatives		Community-oriented initiatives	Natural & Visitor Economy Initiatives
		Greening the Built Environment	Safe, Healthy & Accessible Natural Environments	Urban River & Water Management	Greening Economic Centres	Lowland River Corridors	Upland Landscapes	Coastal Habitats	Coastal Access		
B - River Dee corridor (Queensferry to Llangollen)	FCC/CW AC/WCBC	√	√	√	√	√			√	√	√
<b>INTEGRATED ENVIRONMENTAL MANAGEMENT AREAS</b>											
Middle Dee Catchment	DCC/WC BC/FCC/CWAC		√	√		√	√			√	√
Lower Dee Catchment & Estuary	FCC/CW AC/WBC			√	√	√		√	√	√	√
Clwyd Valley, Ruthin & Denbigh	DCC					√				√	√
Clwydian Range, including Pontcysyllte and Halkyn Mountain	F/DCC/W CBC					√	√			√	√
Cheshire Sandstone Landscape	CWAC					√	√			√	√
Weaver and Dane river valley networks	CE/CWAC		√	√		√				√	√
Cheshire Peak and River Bollin farmlands	CE					√	√			√	√
<b>THEMATIC ACTION PLANS</b>											
Green Infrastructure Manual	MDA/CE	√	√	√	√						
Community & Business Environment Network	MDA/CE		√		√					√	√

**Table 4.2: Action Planning**

AREA	Lead Authority	Settlement-focussed initiatives				Land & Water Initiatives		Coastal Initiatives		Community-oriented initiatives	Natural & Visitor Economy Initiatives
		Greening the Built Environment	Safe, Healthy & Accessible Natural Environments	Urban River & Water Management	Greening Economic Centres	Lowland River Corridors	Upland Landscapes	Coastal Habitats	Coastal Access		
Strategic Access Network	MDA/CE		√		√	√		√		√	



## 5. Delivery and Co-ordination

For the successful implementation of GI initiatives, we need to use and refine various delivery mechanisms. In chapter 4, we have listed how we can deliver different types of GI initiative. At the time of writing in late 2010, changes are expected for the planning system, the role of communities in neighbourhood management, the overall level of public-sector funding for environmental management and the flexibility that Local Authorities will have to allocate spending on capital programmes.

The narrative below makes some recommendations for the area's GI Steering Group and partners about how delivery mechanisms could be applied or refined in the forthcoming years.

We focus on:

1. Promoting Green Infrastructure in Policy
2. Development-Related funding and implementation
3. Integrating Environmental Management funding
4. Leadership and co-ordination by the GI Steering Group

### Promoting Green Infrastructure in Policy

#### *Local Planning Policy*

The development of Local Development Frameworks/Plans and subsequent Supplementary Planning Guidance/Documents gives us the opportunity to embed green infrastructure firmly within planning policy. Policy needs to promote green infrastructure and point towards guidance and standards for different aspects of GI.

Policy should reflect national guidance as well as the aims and initiatives set out in this Framework. Public benefit and the need for multifunctional green space in rural and urban environments should be stressed as should GI's role in mitigating and adapting to climate change. We suggest that development plan documents should specifically support and endorse this green infrastructure framework; as well as promoting cross boundary action and cooperation.

Explicit reference to the GI framework in adopted documents will provide strong evidence when applying to governmental and voluntary sector funding sources. It will also give Action Plan Areas more credence when approaching developers for contributions to green infrastructure investment.

The Action Plan Areas should be explicitly represented within planning policy, probably in Supplementary Planning Documents/Guidance. The nature of SPD/G's gives the flexibility needed to guide and control delivery across a broad range of development locations, footprints and types.

A robust GI policy will justify refusal of development which does not deliver high standards of green infrastructure on plot. In situations where the Local Authority agrees with a developer that on-plot delivery of GI is impossible, the GI policy will enable a compensatory contribution to be made towards GI creation or enhancement elsewhere. Below is an **example** of how green infrastructure could be included within Local Development policy;

The green infrastructure network will be protected, enhanced and expanded to enhance quality of life, increase sustainability, reduce the impacts of climate change and improve health and well being, across the following over-arching objectives;

1. *Networks of open spaces, natural corridors, access routes and watercourses will be enhanced and created to;*
  - o Protect the setting of landscape, heritage and natural (biodiversity and geodiversity) assets
  - o Reverse habitat fragmentation
  - o Provide recreational opportunities for new and existing communities
  - o Provide open breaks between neighbouring residential areas and business developments
2. *The network of existing access routes will be improved and expanded to allow sustainable commuting, including;*
  - o Shared surface to reduce vehicle speeds
  - o Providing safe, attractive and well-signed walking and cycling routes between residential areas, employment centres, green spaces and the wider countryside
3. *Local landscape and heritage features should*
  - o Be retained as focal points for new neighbourhoods
  - o Have their historic nature protected
  - o Act as attractive green and open spaces where communities can come together
4. *To alleviate the effects of climate change;*
  - o Measures such as Sustainable Drainage Systems and street trees must be included in new developments and should be 'retro' fitted into developments within the existing built environment
  - o Green spaces will provide a flood storage/management function (where appropriate)
5. *All new development will;*
  - o Be set within a well designed, attractive, green setting
  - o Provide a variety of spaces to meet the needs of people and nature
  - o Provide safe opportunities for sustainable transport
6. *Key strategic and cross-border interventions include;*
  - o Urban river corridors
  - o Connections to the coast
  - o Landscape-scale management initiatives
  - o Strategic Access Network
  - o Integrated Environmental Management Areas
7. *Key projects include; e.g.*
  - o XYZ

Adapted from Stafford Green Infrastructure Strategy (TEP 2009)

Policy words will require the application and enforcement of policy through passionate, tenacious and diplomatic advocacy amongst planning officers, councillors and the public. This may require training for people who will seek out every opportunity to ensure that new development and infrastructure incorporates GI.

The graphic overleaf illustrates a menu of options for embedding green infrastructure into planning policy and decision-making.

Core Strategy	<ul style="list-style-type: none"> <li>o Defines and promotes GI concept for the area, referring to sub-regional strategies and national planning context</li> <li>o Illustrates broad areas of GI priority in the framework area</li> <li>o Commits to considering GI during planning decisions, describing how this will be done, and evidence base to be used</li> <li>o Includes a reference to GI functions and assets in the area in over-arching “sustainable development” policy</li> </ul>	Green Infrastructure Implementation
Development Plan Documents	<ul style="list-style-type: none"> <li>o Allocates and maps sites, initiative areas, corridors which collectively make up a Green Network (at an appropriate level of detail)</li> <li>o Identifies and maps areas of GI deficiency; probably on a functional basis e.g. ANGST deficiency, rivers of low quality, impermeable catchments, areas of fragmented biodiversity.</li> <li>o Identifies relevant strategies and plans which will inform planning decisions e.g., local greenspace strategies, biodiversity plans, landscape character assessments</li> <li>o Includes development-related policy for all GI functions relevant to the framework area. This could be achieved through policies on biodiversity, landscape, open space, heritage etc (rather than as bespoke GI policy)</li> <li>o Refers to SPD/SPG for detailed guidance on how developers and planners can assess GI and design for its enhancement</li> </ul>	
Supplementary Planning Documents/Guidance	<ul style="list-style-type: none"> <li>o Provide guidance on which design and sustainability codes are to be used for different types and locations of development</li> <li>o Provide guidance on how to assess the impact of development on GI, and how to (re)build GI in conjunction with development proposals</li> <li>o Provide guidance to developers on how to present the GI assessment in supporting statements.</li> <li>o Describe how planning conditions can be used for GI, and details how financial contributions (by obligation or tariff) for green infrastructure provision and management will be calculated</li> </ul>	
Supporting Statements	<ul style="list-style-type: none"> <li>o Produced by developers to demonstrate how they have considered green infrastructure, their impact on it, and their proposals to (re)build it in the area affected by their proposal. This could be presented through the medium of established design and access statements, supporting planning or sustainability statements, or a bespoke “Environmental Standards Statement”</li> </ul>	
Design & Sustainability Codes	<ul style="list-style-type: none"> <li>o Produced at national/regional level by external specialist bodies, or may be locally written and adopted</li> <li>o Set standards and guidelines for layout, design quality, biodiversity impact offsetting, sustainable drainage etc</li> <li>o Planning conditions can require compliance with all or part of codes and ensure design meets guideline standards</li> </ul>	
Environmental Impact Assessment	<ul style="list-style-type: none"> <li>o EIA considers development impacts on a set of topics required by statute (human beings, flora and fauna, air, water, soil, landscape, material assets and the cultural heritage; and interactions between these). The EIA process seeks to optimise design and minimise effects. By thorough scoping and holistic EIA, better outcomes for green infrastructure associated with the locale in which the development occurs can be achieved. Guidance to developers and planners on how to achieve favourable GI outcomes through the EIA process is needed.</li> </ul>	
Habitat Regulations Assessment	<ul style="list-style-type: none"> <li>o Habitats Regulations require planners to consider development effects on the Natura 2000 network of European nature conservation sites and the species therein. Guidance to developers and planners on how and when contributions to creating and maintaining the Green Network (which includes Natura 2000 sites) can offset negative effects is needed</li> </ul>	

### Embedding Green Infrastructure into Local Development Documents and Planning Decisions

### ***Other local and cross-boundary policy***

The GI Framework including the Action Plan Areas should be promoted in other policy documents concerned with matters that fall outside the remit of the town and country planning system:

- Sustainable Community Strategies;
- Community Partnership Plans;
- Corporate Investment Plans of public-sector bodies (e.g. flood defence plans);
- Local Transport Plans;
- Rights of Way Improvement Plans;
- Catchment Management Plans;
- Local Enterprise Partnership Plans;
- Parish and Conservation Area Plans;
- Surface Water Management Plans;
- Health Improvement Plans
- Infrastructure Delivery Plans associated with housing growth areas

The task of promoting GI in such documents may be best co-ordinated by the GI Steering Group. This will provide consistency and avoid duplication of effort. For example, the Mersey Forest team provides an advisory and advocacy service to its partner Local Authorities which enables input to such documents.

### ***National Policy***

The coalition government's consultation document regarding the natural environment in England<sup>31</sup> suggests that it will adjust terminology away from "green infrastructure" to "healthy natural environments", but there is still strong support for landscape-scale activity to reverse environmental degradation and re-connect natural networks. There is strong support for community action.

Planning legislation and guidance relevant to England will be issued in 2011. Many of the Planning Policy Statements issued by the former government contained references to the need to protect and sustain a healthy natural environment and/or green infrastructure. It is not yet clear if, and how many of these will be altered.

In Wales, policy for the natural environment is a matter for the devolved administration, so there is less likely to be significant change to the national framework.

The GI Steering Group should monitor national policy developments in 2011; and collectively lobby for strong policy and legislative controls to protect and enhance GI.

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<sup>31</sup> Making Space for Nature: A review of England's Wildlife Sites and Ecological Network, (2010), Report to Defra, Lawton, J.H., Brotherton, P. N. M., Brown, V. K., Elphick, C., Fitter, A. H., Forshaw, J., Haddow, R. W., Hilborne, S., Leafe, R. N., Mace, G. M., Southgate, M. P., Sutherland, W. J., Tew, T. E., Varley, J., & Wynne, G. R.

## Development-Related Funding and Implementation

Green infrastructure can be delivered through development (whether new development or renewal). The following techniques are possible:

- Design Guidance
- Masterplans and Development Briefs
- Green Infrastructure Standards
- Developer contributions
- Community Infrastructure tariffs
- Minerals & Waste development
- Strategic Environmental Infrastructure Levies and Funds
- Conservation Banking

### ***Design Guidance, Masterplans & Development Briefs***

There is a vital role for design guidance and standard-setting. An emerging body of documents can be referred to when setting standards for quantity, quality and functionality of open spaces and sustainable water management within development. The Technical Appendix lists some examples.

For example, Local Authorities within the National Forest have adopted a developer guide which sets standards and contribution rates for different types and scales of development.

Masterplans and development briefs require consideration of GI in and around the development, including links to the surrounding neighbourhoods and the strategic GI network. Masterplans have some drawbacks as they are typically costly and detailed, written with a strong emphasis on urban design, including green infrastructure. They are usually produced for major or mixed-use or town-centre developments where significant investment demands the use of masterplanning.

We consider there is a need for “plain-language” GI masterplanning and design guidance, appropriate to smaller or simpler developments. Thus one of the proposed Action Plans is to produce template GI Guidance for new developments.

We also consider there is a need for skills development in GI masterplanning, amongst architects, urban designers and local authority planners who jointly develop and enforce masterplans and development briefs. This is included within the scope of the proposed Action Plan for GI Guidance.

### ***Green Infrastructure Standards***

Local authorities could use a “Green Test” or checklist for developers to demonstrate how their scheme will contribute towards authority-wide green infrastructure standards. The checklist needs to be strong enough to protect and enhance existing assets and address local deficiencies, yet should not act as a barrier to development.

An example of a checklist is set out overleaf;

*Enhancements to existing and creation of new open spaces, green corridors and watercourses will actively;*

- Protect landscape, heritage and natural (biodiversity and geodiversity) assets
- Reverse fragmentation

*Improvements to and expansion of the network of existing access routes will;*

- Link residential areas, employment centres and the wider countryside
- Provide safe, managed and well-signed option for walking and cycling
- Ensure that residents live within 300m of a safe and accessible green space

*New Housing Development will;*

- Retain natural, landscape and heritage features
- Provide high quality, accessible green space and open spaces where communities can come together
- Include measures to alleviate the effects of climate change and extreme weather

*New employment areas, office developments and retail developments will;*

- Retain natural, landscape and heritage features
- Be well designed within a high quality green setting
- Include measures to alleviate the effects of climate change and extreme weather
- Include provision for sustainable transport

Adapted from Stafford Green Infrastructure Strategy (TEP 2009)

The BRE's recent "Communities Standard" aims to raise sustainability standards of new development. It requires individual buildings to meet "Very Good" BREEAM standards, and in addition it requires consideration of how the development contributes to good urban design, green infrastructure, climatic adaptation and community development. Although targeted at major mixed developments, we consider it could be used as a resource from which local design standards can be derived.

In addition a broad steering group that promotes the value of green infrastructure have prepared a valuation framework for assessing the potential economic and wider returns from investment in green infrastructure and environmental improvements (see link below).

[www.greeninfrastructurenw.co.uk/html/index.php?page=projects&GreenInfrastructureEvaluationToolkit](http://www.greeninfrastructurenw.co.uk/html/index.php?page=projects&GreenInfrastructureEvaluationToolkit)

### ***Developer Contributions***

Section 106 contributions can fund green infrastructure outside the development boundary. However, developers are not legally obliged to contribute towards addressing prevailing GI deficits except insofar as these are exacerbated by the development. Alternative funding may be needed to address prevailing deficiencies e.g. from Community Infrastructure Tariffs (if these are introduced).

The amount of money that might be raised for GI through Community Infrastructure Tariffs is being considered in various UK urban areas. For example, in Greater Manchester, the Environment Agency has modelled the cost of environmental infrastructure to respond to projected housing growth. Their model includes waste, sewerage, water supply and green infrastructure. However such models are still in early stages and have not yet been robustly tested through inquiry or legal challenge.

Local authorities can use Supplementary Planning Documents/Guidance to establish green infrastructure provision as a beneficiary of funds from Section 106 and Community Infrastructure Tariffs. Actions that can be supported by these funds should be focussed on the initiatives and Action Plan Areas identified in chapter 4.

#### Tameside Council Developer Contributions SPD

Tameside Council has produced a Developer Contributions Supplementary Planning Document (SPD). This aims to introduce a more streamlined and accountable system of local tariffs for provision of new and improved greenspace, education facilities and highways in conjunction with an approved Section 106 Agreement regime. It will allow the Council to effectively mitigate for detrimental impact on the Borough's existing infrastructure, facilities and services from development by providing a capital budget for implementation of a prioritised programme of works in these services.

#### ***Minerals & Waste Planning***

Schemes involving mineral extraction and waste management often provide opportunities to negotiate after-uses which contribute to GI, and funding streams to contribute to local environmental projects during the period of operation of the facility. As many long-term minerals and waste operations require periodic review of planning conditions, there is an opportunity to seek local GI enhancements that were not envisaged at the time of consent.

#### ***Strategic Funds for Environmental Infrastructure***

Another funding stream may emerge in the form of a Strategic Fund for Environmental Infrastructure. Elsewhere, a strategic fund is being considered in the Leeds City Region, as a subset of an advanced development fund. There, the fund is anticipated to involve a mix of private and public sector funds, perhaps enhanced by tax-breaks available for certain types and zones of development.

The Atlantic Gateway is a private-sector led proposal to create a “delivery vehicle” for regeneration of the Liverpool and Manchester City Regions and North Cheshire. This proposal includes the possibility of a Community Environmental Fund to be resourced from a voluntary levy on development. The major promoter (Peel Holdings) has offered to pump-prime such a fund.

This sort of fund could be pooled with other funds for environmental infrastructure – e.g. flood defence funds, community infrastructure tariffs, s106 contributions; aiming to create a larger fund for strategic and cross-boundary projects that are difficult to fund within existing administrative protocols.

The Atlantic Gateway fund will be piloted in 2011, subject to Government approval of the Atlantic Gateway “vehicle”, so it is recommended that the Steering Group opens preliminary discussions with Peel, via the Mersey Forest or Environment Agency, as to how the fund could be increased and applied in the Framework area.

### **Conservation Banking**

The concept of conservation-banking is well established in North America and is being promoted in Britain. Also known as biodiversity-offsetting, it provides developers with a mechanism to pay “credits” based on unavoidable physical loss of biodiversity assets as a result of development. The cost of delivering a conservation scheme remote from the development site is met from these credits. The types of conservation scheme typically mirror the green infrastructure investment anticipated in this framework. Conservation-banking includes the possibility of cross-boundary offsetting.

It is reasonably likely that conservation-banking will become a viable mechanism to fund green infrastructure in the UK, subject to adjustment of UK planning and financial regulations. If so, the Framework area is of sufficient geographical scale to sustain such a funding mechanism. Local authorities will need to collaborate with each other, local partners and UK government to develop a conservation bank, perhaps in conjunction with a Strategic Fund for Green Infrastructure.

### **Integrating environmental management funds**

Central government and European funding goes into farm stewardship and woodland creation and management schemes in Wales and England; currently administered by Forestry Commission, Countryside Council for Wales and Natural England.

These funds can target management of areas of environmental quality, through enhanced schemes such as Higher-Level Stewardship or Community Woodland Supplement.

The current funding schemes will be reviewed due to changes to the way European funds under the Common Agricultural Policy are disbursed after 2013.

The Government’s comprehensive spending review of 2010 notes that environmental stewardship funds will be reduced by 1/3 from 2010/11 levels and will continue be available to all farmers, which suggests that options for targeting may be limited. However, the CSR also suggests that the Government will promote targeting of funds to areas of environmental priority.

Landowners invest their own time and money into environmental stewardship and creation of GI assets for commercial and personal return. Private companies also invest in woodland planting to meet obligations regarding carbon-offsetting or corporate responsibility.

Management of urban and country parks and rights-of-way is the core work of our local authorities, parish councils, wildlife trusts, benevolent landowners and the Forestry Commission.

Significant public and private sector funding goes into water management and flood defences delivered through the Environment Agency and the water companies in the area (Welsh Water, Dee Valley Water and United Utilities). The water industry is collectively examining how it can reduce its cost of surface water management using

SuDS. For example Welsh Water is looking at 175 priority catchments and developing model schemes, some of which use green infrastructure assets.<sup>32</sup>

In addition to the above, other funding sources may be available to farmers, landowners and greenspace managers, e.g.

- Aggregates Levy Sustainability Fund
- Landfill Tax Communities Fund
- Carbon trading credits
- National Lottery funds
- Rights of Way improvement plan funds
- Sustainable Catchment Management funds - available from time to time via water companies to encourage particular land management practices (see case study)

**Case Study: During 2005-2009, United Utilities assisted tenant farmers in their upland water-gathering grounds in Oldham with planting of woodland to improve surface water quality and reduce floodrisk. In total, about 110ha of new native woodland was established, delivering biodiversity and landscape benefits as well as improved hydrology.**

There is growing interest in targeting and pooling woodland and farmland grants to create funding schemes that are commercially attractive to landowners. The National Forest, in the Midlands, is an example. The Forest team operates a Changing Landscapes Scheme, whereby they can pool funds from the sources listed above (plus some central government and charitable funds) and challenge landowners to bid into the pool. This enables the National Forest to offer funds at a unit-rate much higher than standard grant schemes, and guarantee funding under a 10-year contract. This in turn has generated significant uptake from private landowners.

Given the international importance of the River Dee and its estuary to wildlife and cultural heritage, coupled with its value as a resource for drinking water and recreation, there is a strong case that the Dee catchment should be the focus of targeting funds for integrated environmental management. This will require collaboration between Countryside Council for Wales, Natural England, Environment Agency and the relevant water companies with the intention of forming a Catchment Management Fund which pools funding streams and can enter into contract with landowners and managers to deliver catchment-friendly GI schemes.

This framework identifies other Integrated Environmental Management Areas where directing of environmental stewardship funds towards green infrastructure projects would also bring high public benefit (see Table 4.2).

## **Leadership and Co-ordination**

The proposed GI Initiatives will be largely delivered through the development process or through partnerships and businesses that manage land.

At a Local Authority level, individual green infrastructure strategies will identify key assets, networks and priorities for investment. These will be guided by this

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<sup>32</sup> Our Sustainable Future (2010) Welsh Water – available at <http://www.dwrcymru.co.uk/English/library/publications/Our%20Sustainable%20Future/english.pdf>

framework which identifies the most significant priorities.

Just as the natural environment requires management at a range of scales, leadership for green infrastructure activity is needed at various scales.

Leadership at Framework level is required to support strong cross boundary political leadership, sustain investment, robust partnership working and efficient working of the local planning system.

At Local Authority scale, leadership is needed to identify priority areas, work with local businesses, co-ordinate the development process, facilitate joint-working with neighbouring authorities, and promote the role of community groups in managing community assets. For the next few years at least, Local Authorities will inevitably maintain a lead role in management of most open spaces and GI assets, even though community groups will become gradually more active. Local Authorities will remain as the accountable body for strategic green infrastructure funds.

At a neighbourhood scale, leadership is needed to plan local environmental enhancements, prepare funding bids and engage local people.

There are many partnerships with experience of planning and delivering green infrastructure at landscape-scale levels. Some have a wide scope (such as the Mersey Forest), while others have a thematic focus (such as the Clwydian Range AONB Board).

The Mersey Forest partnership is a sub-regional model of successful green infrastructure partnership working. It has a strong track record by working closely with regional and local public agencies and private businesses with a focus on delivering quality green infrastructure. Its experience helps us to clarify the leadership role needed from the Framework's GI Steering Group.

At the cross-boundary level, the GI Steering Group can add value to work carried out at local level by:

- Lobbying and advocating the importance of green infrastructure to politicians and landowners
- Supporting development management teams on masterplans and major planning applications with advice on incorporation of green infrastructure. This could be achieved by Green Infrastructure Design Guidance or by enabling a network of specialists who can provide advice at key stages (similar to CABI Space Enablers or Design Review panels)
- Coordinating high level partnership working between the local authorities, agencies and major land owners and employers;
- Helping to design strategic funds and programmes, such as the Atlantic Gateway Community Environment Fund or the Dee Catchment Integrated Environmental Management Area or the "Conservation Bank"
- Piloting a 'Total Place approach to green infrastructure investment within Local authorities and at neighbourhood scale;
- Supporting the preparation of cross-boundary bids for funding on strategic projects;
- Lobbying for investment in green infrastructure nationally
- Joining with research by Countryside Council for Wales, Natural England and others into best-practice.

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