

Leeds City Region Enterprise Partnership
Leeds City Region Green Infrastructure
Strategy 2017 - 2036
Version Final | 29 March 2018

Acknowledgements

This Strategy has been guided and supported by members of the Leeds City Region Green Economy Panel Green infrastructure Project Board. The Combined Authority are grateful to the Yorkshire West Local Nature Partnership and its secretariat who provided valuable inputs and support, and to all of the many stakeholders across the City Region who fed in views and contributions. Special thanks go to Sarah Lund (Yorkshire Water) and Rory Canavan (Arup) for help with stakeholder engagement and to all those who have helped play co-ordinating or convening roles in the process.

The strategy was written by Les Newby (Les Newby Associates) with support from Nicky Denison (Wordfern Ltd), independent consultants and writers on economic development, society and the environment.

Executive Summary

The Leeds City Region has huge potential to make quality green infrastructure one of its defining characteristics. Doing so will help the economy to prosper, enable people to enjoy a great quality of life, and further enhance and utilise natural capital. This Strategy's vision is to expand green infrastructure so that:

Everybody in the Leeds City Region is within easy reach of an outstanding and well used network of green infrastructure that reduces flood risks and supports health, the economy, the environment and a superb quality of life.

This Green Infrastructure Strategy (the Strategy) will drive the delivery of this vision and support the implementation of the Leeds City Region Local Inclusive Industrial Strategy (LIIS) and its focus on inclusive growth¹. The City Region's approach combines far sighted ambition with the determination to deliver in practice and make a real difference to businesses, people and communities. The test of this will be the delivery of seven headline outcomes. These are:

- Become a UK trailblazer in catchment planning and natural flood management.
- Make quality green infrastructure a defining feature of the way the City Region does development.
- 1,000 miles of green infrastructure rich corridors, including canals, rail, road, and a City Region cycle route network.
- Everybody within easy reach (1km) of an outstanding, diverse, well used green infrastructure network.
- Create a White Rose Forest and increase tree cover by a third.
- Flourishing uplands that manage water, store carbon and support wildlife, with peatlands in good condition trebled to over 50 percent.
- A big rise in green infrastructure based businesses, innovation, jobs and apprenticeships.

The Strategy covers all of Leeds City Region and also makes connections to areas beyond which impact upon it, for instance river catchments. Its development has brought together organisations from all sectors and all parts of the City Region, including businesses, local councils and other public bodies, farmers and land owners, environmental agencies, and voluntary and community groups. Only by the same coalition coming together will it be delivered. Everybody can benefit from green infrastructure, and everybody can help to improve it.

Five interconnected aims spring from this core purpose:

¹ The Strategy also supports the Leeds City Region Strategic Economic Plan (SEP) 2016 – 2036 and its good growth goals in the period prior to the LIIS adoption.

- Quality places (for people and investment)
- Health and wellbeing
- Flood risk reduction
- Wildlife and habitats
- Climate change, air and water quality

The aims intrinsically connect people and the economy to the natural environment (increasingly seen in terms of natural capital), and will reduce social, economic and health inequalities. The Strategy's core purpose of inclusive growth is inherently economic and includes productivity, innovation and output. All five of the aims contribute to these economic goals.

Seven priority areas have been identified where tangible and impactful action can be delivered. All of the priorities are interconnected and each priority will typically deliver multiple benefits and contribute to all five of the Strategy's aims. Success measures and indicators are included within the priorities and a headline deliverable or outcome is identified for each. The priorities cover the breadth of potential activity and provide a clear line of sight from aims to action. Figure 1 illustrates the interconnection between the Strategy's vision, aims and its priorities.

Strong and resolute leadership at the highest level will be vital to delivery, and implementation will be through a detailed Delivery Plan, prepared by June 2018 and including specific responsibilities, resources and timetables for each priority and action. The Delivery Plan will be co-ordinated as an integrated whole and will further detail the success measures outlined in this Strategy to ensure that vision is translated into on the ground reality.

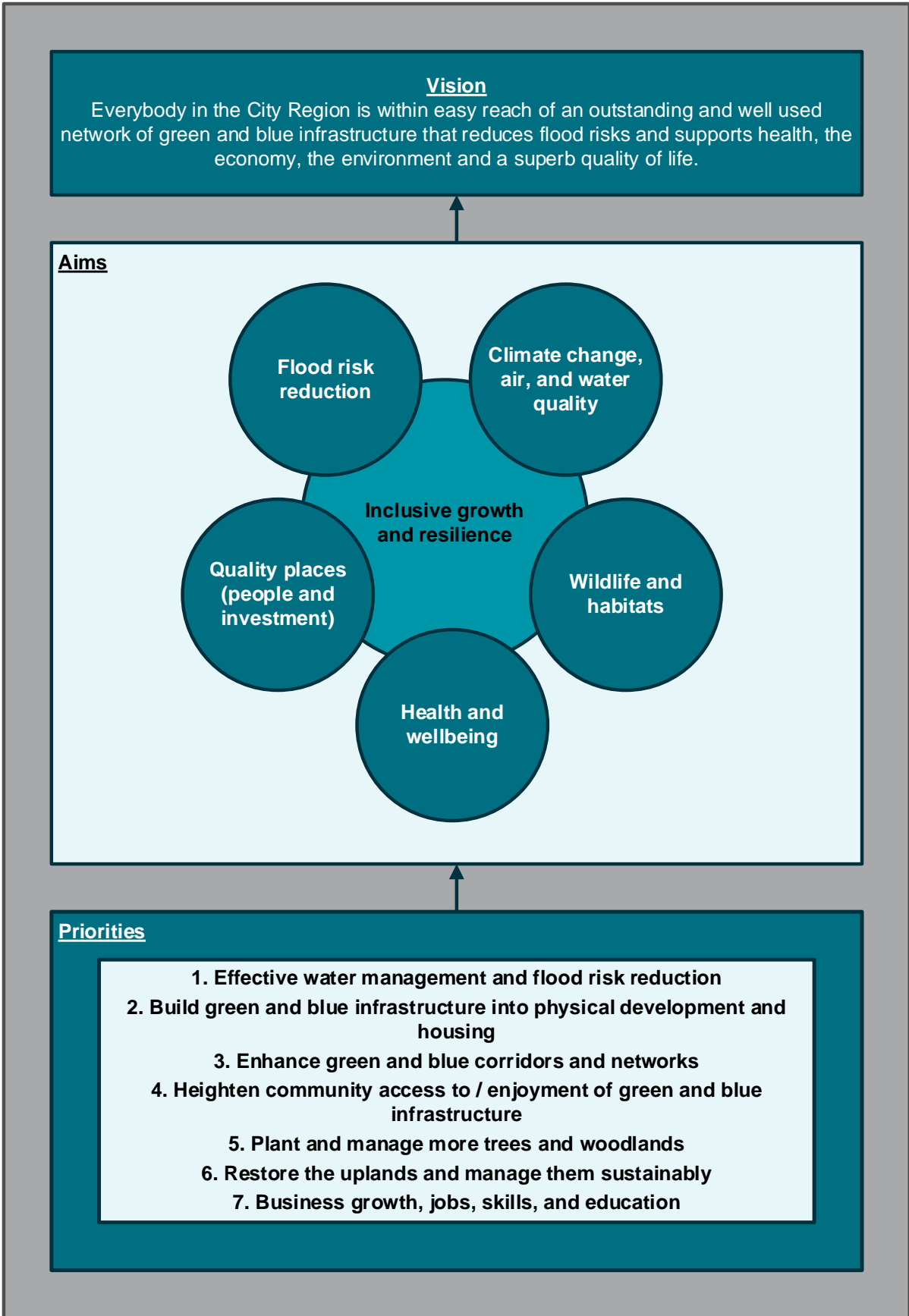


Figure 1. Strategy vision, aims and priorities

1. Vision for green infrastructure

Nowhere in England do outstanding natural environments and big cities come together like in Leeds City Region (Box 1).

Leeds City Region

Is an interconnected economy that brings together a large and diverse geography covering ten local authority areas: Barnsley, Bradford, Calderdale, Craven, Harrogate, Kirklees, Leeds, Selby, Wakefield and York.

Box 1. Leeds City Region definition

Many of the City Region's three million people live in major towns and cities such as Leeds, Bradford, Wakefield and York; others dwell in expansive rural areas. But wherever you live in the City Region you will have access to high quality green infrastructure – not just in the wonderful countryside and special landscapes like the Yorkshire Dales; but in the parks, play areas, woodland, gardens, canals, rivers, paths and cycle routes woven across urban and rural areas.

The benefits of green infrastructure and natural capital go far beyond the intrinsic pleasures of an attractive environment. They include:

- Supporting good mental and physical health e.g. by tackling obesity and diabetes
- Reducing the frequency and severity of floods
- Bringing diverse communities together
- Regenerating areas of need
- Providing a home for wildlife
- Acting on climate change and enriching lives.

Fundamentally, green infrastructure supports a strong and sustainable economy. It enables and adds value to new development, attracts tourism and investment, supports businesses, jobs and training and ensures the resilience of City Region assets and infrastructure. The definition of green infrastructure is set out in Box 2.

Green infrastructure

A network of multifunctional green space, urban and rural, capable of delivering a wide range of environmental and quality of life benefits for local communities. It includes parks, open spaces, playing fields, woodlands, street trees, allotments and gardens, as well as rivers, canals and other water bodies.

(National Planning Policy Framework, DCLG, 2012)

Box 2. Green infrastructure definition

Leeds City Region already stands out for its green infrastructure, including vibrant river corridors, woodlands, high value green infrastructure in urban areas and inspiring open country. Yet much more can be achieved. This Strategy is about how the City Region does that by delivering the vision to expand green infrastructure so that:

Everybody in the Leeds City Region is within easy reach of an outstanding and well used network of green infrastructure that reduces flood risks and supports health, the economy, the environment and a superb quality of life.

This Strategy is integrated with the Leeds City Region Local Inclusive Industrial Strategy (LIIS) and strategic policy framework, and also fits with the Strategic Economic Plan 2016-2036 ahead of the LIIS being finalised. This Strategy and the LIIS share a focus on inclusive growth, combining improvements in economic productivity and output with social inclusion and a quality environment.

The Leeds City Region Enterprise Partnership Board (the LEP Board) have identified four key challenges facing Leeds City Region – areas which are holding back the economy and constraining growth. The Strategy and its long-term outcomes and supporting Delivery Plan will address these core challenges as shown in Table 1.

Four key challenges for the Leeds City Region	How this Strategy will help to tackle these
<p>Widening productivity gap – the City Region is ranked 29 out of 38 Local Enterprise Partnerships (LEPs) on productivity. Evidence shows this is due to underperformance within sectors as opposed to an adverse sector mix</p>	<p>The Strategy supports key drivers of productivity including skills, innovation, investment and enterprise by creating new business and upskilling opportunities. It will enhance the City Region’s attractiveness and profile by raising the quality of developments and town / city centres and enhancing an accessible green infrastructure network. This will act as a magnet for talent and investment, as many businesses stress the challenge of attracting a highly skilled (and productive) workforce whose locational choices are swayed by environmental quality. The Strategy also promotes health and active travel which are proven to support higher productivity.</p>
<p>Low SME investment in research and development and innovation - despite the significant assets in the City Region</p>	<p>The Strategy includes a key strand of action on innovation and will connect green infrastructure expertise in universities and elsewhere to business growth and the development of key projects. This will include links between green infrastructure and areas such as energy, planning, engineering and construction. Innovative solutions – including those developed in higher education / further education, businesses and other sectors - will be important in</p>

	becoming an international leader in this area and delivering world class projects
Living standards have stalled	The Strategy will boost quality of place, leisure and amenity aspects of quality of life and living standards. It will further contribute to economic development, e.g. by encouraging high quality development, reducing flood risk impacts on businesses, and supporting business and jobs growth – which in turn support higher incomes.
Stubborn deprivation	The Strategy includes a specific focus on prioritising green infrastructure access and improvements in areas of deprivation and poor health and can contribute strongly to the Inclusive Growth Corridors concept (including proposals linked to HS2 and other rail routes, highways and active travel). It will create opportunities for work experience, employment and apprenticeships and help those who are unemployed and often facing challenges to secure employment and progression opportunities. It will disproportionately benefit health outcomes in areas of stubborn deprivation by supporting mental health, air quality and physical activity.

Table 1. Strategy relationship with the LIIS

The Strategy covers all of Leeds City Region and also makes connections to areas beyond which impact upon it, for instance catchments outside of the City Region, such as in North Yorkshire, Sheffield City Region and Lancashire that drain into rivers within it.

2. Aims, purpose and partnership

This Strategy brings together organisations and people from all sectors and all parts of the Leeds City Region. Consultation with over 50 stakeholder organisations – including businesses, local councils and other public bodies, health practitioners, farmers and land owners, environmental agencies, and voluntary and community groups has helped to shape its goals and priorities. Only by the same coalition coming together will it be delivered. Everybody can benefit from green infrastructure, and everybody can help to improve it.

The Leeds City Region Enterprise Partnership (the LEP) and West Yorkshire Combined Authority (the Combined Authority) have supported the preparation of this strategy, working closely with the Yorkshire West Local Nature Partnership (LNP) and others. The core purpose of inclusive growth and resilience is at the heart of this Strategy, and five interconnected aims spring from this core purpose whereby the City Region and its people can achieve economic, social and environmental benefits through green infrastructure (Figure 2).



Figure 2. Core purpose and aims of the Strategy

Green infrastructure builds resilience in multiple ways. It helps people, businesses and infrastructure to withstand threats like floods and climate change; it bolsters the City Region’s economic foundation as an attractive place to invest and do business; and it supports healthy urban and rural communities that are active, content and cohesive. In short, it enables the City Region and its people to seize opportunities, mitigate threats and to bounce back from times of adversity.

The five aims support people, good growth and resilience and work as an integrated set:

- **Quality places (for people and investment):** all people to have easy access to quality green space, and to integrate green infrastructure into the urban environment and design of new development as standard to create superb settings for investment. A triple bill of economic opportunity, quality of life and superb urban and rural environments will uplift development values, enhance the City Region's profile, and attract tourism, businesses and the skilled people they need.
- **Flood risk reduction:** reduce the frequency and severity of flooding by using green infrastructure as part of an integrated and catchment wide approach to water management and flood prevention. This includes using sustainable drainage systems and natural flood management (including land management, woodland planting, and other soft measures) to store or slow the flow of water and reduce peak flows in rivers, alongside harder flood defences.
- **Health and wellbeing:** citizens to have good access to green infrastructure to raise levels of physical activity such as walking, running and cycling, helping to reduce obesity and diabetes and improve heart health. We want to take advantage of the way in which green infrastructure can enrich lives by providing calm, natural settings which have been shown to support good mental health, aid recuperation from illness and bring people together to socialise and combat loneliness and isolation.
- **Wildlife and habitats:** the amount and quality of green infrastructure, and the way it is connected and managed, to support wildlife and biodiversity. That includes people's ability to enjoy nature and wildlife where they live, as well as supporting rare or threatened species by protecting or improving key habitats.
- **Climate change, air and water quality:** use green infrastructure to help mitigate and adapt to climate change, for instance through carbon storage and responding to risks from floods, droughts and wildfires in the future. Green infrastructure can also help to reduce noise pollution, improve water and air quality and counter urban heat island effects – providing health benefits in the process.

The aims intrinsically connect people (adults and children) and the economy to the natural environment, and will reduce socio-economic and health inequalities. The economy is not singled out as an aim in its own right because the Strategy's core purpose of resilience and inclusive growth is inherently economic and includes productivity, innovation and output. All five aims contribute to this goal (see Box 3).

Likewise, the Strategy builds upon the role of natural capital e.g. geology, soils, air, water and all living things and the ecosystem services derived from it in yielding a flow of benefits to people.

Quality places: support development, investment, tourism and attract skilled people

Flood risk reduction: protects assets, infrastructure, businesses and communities

Health and wellbeing: supports labour supply and productivity and reduces welfare costs

Wildlife and habitats: opportunities for learning and work in land management and eco-tourism

Climate change, air and water quality: scope for green jobs, new industry and carbon trading

Box 3. How the Strategy's five aims support the economy

3. Delivering the Local Inclusive Industrial Strategy

This Strategy replaces the previous Strategy produced in 2010. It is a strategic document and covers one of the suite of named policy areas (Appendix A) that will drive the implementation of the Local Inclusive Industrial Strategy (LIIS) (and previously the Strategic Economic Plan).

It fits with the vision of Leeds City Region to be a globally recognised economy where good growth delivers high levels of prosperity, jobs and quality of life for everyone (Figure 3).



Figure 3. Strategy compatibility with good growth

This Strategy wholly supports that vision and the closely related inclusive growth agenda. It will be instrumental to delivering quality places and environments and to supporting productivity, innovation, connectivity, good jobs and living standards, and reduced inequality and deprivation.

The Strategy delivers on the strategic action to ‘refresh and deliver the Leeds City Region Green Infrastructure Strategy’ and applies in practice to the message that high quality green infrastructure design will be central to the way in which the City Region plans and shapes places and developments and the corridors that connect them.

This Strategy is also instrumental in delivering two game changing headline initiatives:

- Make climate change adaptation and high quality green infrastructure integral to improving the City Region economy and its Spatial Priority Areas.
- Develop an integrated flood risk reduction programme, incorporating flood defences, green infrastructure and resilient development.

The Strategy supports key economic indicators and success measures (for instance on more jobs, better jobs, zero carbon energy and Spatial Priority Areas) and has mutually supportive links to the suite of other economic / industrial strategy Delivery Plans (Appendix A). For example, there are excellent opportunities to use green infrastructure to support productivity through boosting skills, investment and a healthy workforce, and use it as a focus area for applying businesses and university led innovation to deliver ground-breaking solutions. It can further increase living standards, quality of life, employment and apprenticeship opportunities; and it is part and parcel of the integrated infrastructure that the City Region seeks. Green infrastructure presents an important route to tackling stubborn deprivation, linked to improving health and opportunities in the most disadvantaged communities. More broadly, outstanding green infrastructure can underpin the Leeds City Region’s position as an innovative, forward looking City Region at the heart of the north.

4. Evidence and rationale

Good evidence makes the case for green infrastructure based on economic, environmental and health grounds.

4.1. Health and wellbeing

There is evidence that green infrastructure support physical and mental health:

- Evidence shows that health inequalities are halved in greener areas². If every household in England had more equitable access to good quality green space, then around £2.1 billion in health savings could be achieved by the NHS per annum³.
- People who live within 500 metres of accessible green space are 24 percent more likely to do the 30 minutes of daily physical activity needed to directly reduce the risk of stroke, cardiovascular disease, obesity, some cancer types and type 2 diabetes⁴. Physical inactivity directly contributes to one in six deaths in the UK⁵. The cost of poor health through this inactivity is estimated at £7.4 billion a year⁶.
- One in four children in England spend less than 30 minutes playing outside per week,⁷ with consequences on levels of physical activity and psychological and social development.
- Green infrastructure is key to what the Landscape Institute describe as 'healthy places'. Studies⁸ show that adults who move to greener areas have better mental wellbeing and self-reported happiness than those in less green areas; and that psychosis and depression occurs in higher levels in urbanised areas⁹.

4.2. Investment and economic value

There is evidence that green infrastructure heightens development values, attracts investment and supports jobs:

- The proximity of green infrastructure and open space has a positive effect on the value of residential and commercial property. Estimates of the size of this

² Houses of Parliament (2016) Green Space and Health POSTnote 538

³ Natural Capital Committee (2015) The state of natural capital: protecting and improving natural capital for prosperity and wellbeing

⁴ Houses of Parliament (2016) Green Space and Health POSTnote 538

⁵ Public Health England (2014) Everybody Active, Every Day

⁶ Ibid

⁷ Houses of Parliament (2016) Green Space and Health POSTnote 538

⁸ Alcock. I, et al (2014) Environmental Science and Technology 48(2), 1247-1255

⁹ Houses of Parliament (2016) Green Space and Health POSTnote 538

premium extend up to 19 percent, with the majority falling within the 5 to 10 percent range¹⁰.

- It is estimated that 5 percent of all the jobs in England are in the 'Green Space' sector - in other words those jobs required to develop and maintain green infrastructure such as public parks, nature reserves, and gardens, plus landscape and architectural services¹¹.
- Improvements to landscape quality and security at an industrial estate at Langthwaite Grange, Wakefield, led to a 70 percent reduction in crimes such as vandalism and 16 new businesses moving in - bringing over £12 million of investment and creating 200 new jobs¹².

4.3. Flood risk reduction and water

There is good evidence that sustainable drainage systems are effective and cost-efficient, and increasing (if not yet comprehensive) evidence on the benefits of natural flood risk management.

- Examples of natural flood management techniques have been shown to reduce peak river flow rates and storm flows by between 10% and 30%¹³.
- Planting woodlands across a small catchment (10km²) could reduce flood peaks by an average of 36% for a large flood and 50% for a small flood. Targeted planting along watercourses combined with leaky dams are estimated to reduce flood peaks by 8%-10% for a larger catchment (69km²)¹⁴.
- The DEFRA Future Flood Prevention Inquiry report¹⁵ concluded that: "managing water flows from the top to bottom of river catchments helps to reduce flood risk, in many cases more cost-effectively than simply building flood defences".
- There is compelling evidence on the effectiveness of sustainable drainage systems, which have been a statutory requirement in Scotland since 2005. Defra and DCLG have stated that sustainable drainage systems are generally cheaper to build and that "maintaining them will be cheaper than traditional pipework."¹⁶ Yet fewer than 15 percent of planning applications in flood risk areas in England include sustainable drainage systems measures.

4.4. Climate change mitigation and air quality

¹⁰ Troy, A. and Grove, J. (2008) Property values, parks and crime: A hedonic analysis of Baltimore, MD., *Landscape and Urban Planning*, 87 (3), 223-245.

¹¹ Gore, T. et al (2013) Green Infrastructure's contribution to economic growth: a review - Final Report for Defra and Natural England, CRESR/Sheffield Hallam University

¹² CSI (2008) Creating a Setting for Investment Project Report

¹³ Driver, A. (2016) Multiple benefits of river and wetland restoration – killer facts from projects on the ground

¹⁴ House of Parliament (2011) Natural Flood Management POSTnote 396

¹⁵ House of Commons Environment, Food and Rural Affairs Committee (2016), Future Flood Prevention Report

¹⁶ Defra and DCLG (2014) Delivering Sustainable Drainage Systems

There is evidence that green infrastructure helps to mitigate carbon emissions and improve air quality:

- The UK Climate Change Risk Assessment 2017¹⁷ warns of impacts on public health, infrastructure, business, farming, forestry and the natural environment. It identifies the greatest threats as including large increases in flood risk, high temperatures and heatwaves, shortages in water and substantial risks to UK wildlife and ecosystems.
- Natural habitats store carbon that may otherwise enter the atmosphere. Peatlands are the single most important terrestrial carbon store in the UK, with deep peat (clustered in the City Region in large amounts in the upland areas of the Yorkshire Dales and South Pennines) in particular estimated to offer approximately twenty times the carbon capture capacity of forests¹⁸. Other important terrestrial stores of carbon are woodlands in particular, along with heathlands and grasslands¹⁹.
- Green infrastructure provides regulatory services such as pollution filtration, flood risk reduction and the mitigation of temperature extremes and there is “good evidence that green infrastructure is often a more cost-effective way to meet environmental targets than mechanical solutions”²⁰.
- Public Health England research found that almost 1,400 deaths in Leeds City Region in 2010 could be attributed to air pollution. Trees have a considerable impact on air quality by removing pollutants from the air, including sulphur and nitrous oxides, ozone and particulate matter²¹. Increased active travel and less car use, potentially linked to green infrastructure and urban design, also improves air quality and health.

Overall, there is strong evidence that green infrastructure can bring multi-functional and cost effective benefits. Improving the evidence base will help to further build the business case and to inform action.

4.5. Global good practice

There are inspirational examples of what can be done through green infrastructure right around the world. The case studies here demonstrate what is possible when places make green infrastructure a priority, aim high and think long term. Other global and local examples are included in Sections 5 and 6 that follow.

¹⁷ Committee on Climate Change (2017) UK Climate Change Risk Assessment 2017

¹⁸ Worrall, F., Chapman, P., Holden, J., Evans, C., Artz, R., Smith, P. and Grayson, R. (2010) Peatlands and Climate Change. Report to the IUCN-UK Peatlands Programme, Edinburgh.

¹⁹ Natural England (2012) Carbon storage by habitat. A review of the evidence of the impact of management decisions and condition of carbon stores and sources. Natural England Publications.

²⁰ Gore, T. et al (2013), Green Infrastructure's contribution to economic growth: a review - Final Report for Defra and Natural England, CRESR/Sheffield Hallam University

²¹ Beckett, K., Freer-Smith, P. and Taylor, G. (1998) Urban woodlands: their role in reducing the effects of particulate pollution, *Environmental Pollution*, 99 (3), 347-360.

New York High Line

New York City's High Line was built in 1934 as a 1.45 mile long elevated structure to lift trains carrying freight around the city 30 feet in the air. The last train ran in 1980.

The High Line, once under threat of demolition, is now a public park, managed by the non-profit organization Friends of the High Line under the jurisdiction of the New York City Department of Parks and Recreation. It is landscaped with over 350 species of perennials, grasses, shrubs, vines, and trees; runs over 450 programmes and activities each year; and by July 2014 had attracted over 20 million visitors.

Case Study 1. New York High Line

Milan Bosco Vertical (Vertical Forest)

In 2014, Milan saw the opening of two newly constructed high density residential towers of 80 and 112 meters tall designed to hold a total of 900 trees from three to nine metres in height, along with 11,000 groundcover plants and 5,000 shrubs - the equivalent of a hectare of forest.

As well as helping to tackle pollution and produce oxygen, this living structure provides an urban habitat for wildlife, shades homes from harsh sunlight and offers an ever-changing cityscape for residents as the plants and trees constantly evolve with the seasons.

Case Study 2. Milan Bosco Vertical

Lyon Tree Charter

Greater Lyon's 'Tree Charter' led to tree numbers rocketing from 42,000 in 1990 to 100,000 in 2015 whilst maintenance costs flat-lined. Work stretched from the suburbs to the city and included transformation of major boulevards with trees, bushes and grasses, as well as underground design, such as using former underpasses as water storage areas to support irrigation, flood prevention and water quality.

Progress was closely tied to transport strategy and transition from traffic space to tree space. Benefits include those for place making, profile, water management, wildlife, climate change and health – with more active travel and fewer deaths in heatwaves.

Case Study 3. Lyon Tree Charter

5. Priorities

Seven priority areas for action that will deliver the aims and result in real, on the ground change have been identified. All of the priorities are interconnected and each priority will typically deliver multiple benefits and contribute to all five aims of the Strategy. Success measures and indicators are included within the priorities and a headline deliverable or outcome is identified for each.

The segmentation of the seven priorities is intended to cover the breadth of the activity that is needed whilst breaking it into manageable sections, often related to funding streams and areas of responsibility. This ensures that there is a clear line of sight from aims to action. Figure 4 illustrates the interconnection between the Strategy's vision, aims and its priorities.

The priorities are not intended to be even in terms of their importance, and their relative merits will depend upon whose perspective they are looked at from. While resources, economic drivers and immediate opportunities may lead to initial focus on targeted areas of action, the priorities work best together as a set. They will achieve the greatest impact if they are delivered as such.

A set of Delivery Principles will guide the way in which the priorities are implemented.

- **Ambition, distinctiveness and a long term approach:** aim high and seek to build on City Region assets, roll out existing good practice and develop innovative new approaches that make the City Region stand out as a leader in this field. Solutions will be whole life and long-term, with viability, durability, and maintenance / management needs factored in from the start.
- **Attitudes, culture and value:** engage with people and organisations to promote positive attitudes towards green infrastructure, including in businesses and in communities that visit green space less often. This will include involving them in identifying local priorities and the design of schemes. Connecting children and young people to the environment will be important in embedding their lifelong attachment to the natural environment, while utilising techniques that financially value natural capital and green infrastructure will help to ensure that its benefits are reflected in decision making.
- **Connectivity and networks:** the full value of green infrastructure will only be realised when it is well connected in a network of green and blue corridors and spaces. This is important for flood risk reduction, wildlife and environmental quality, and for cycling and walking networks. Masterplanning and mapping approaches can support this in relation to land use, physical development and assets.

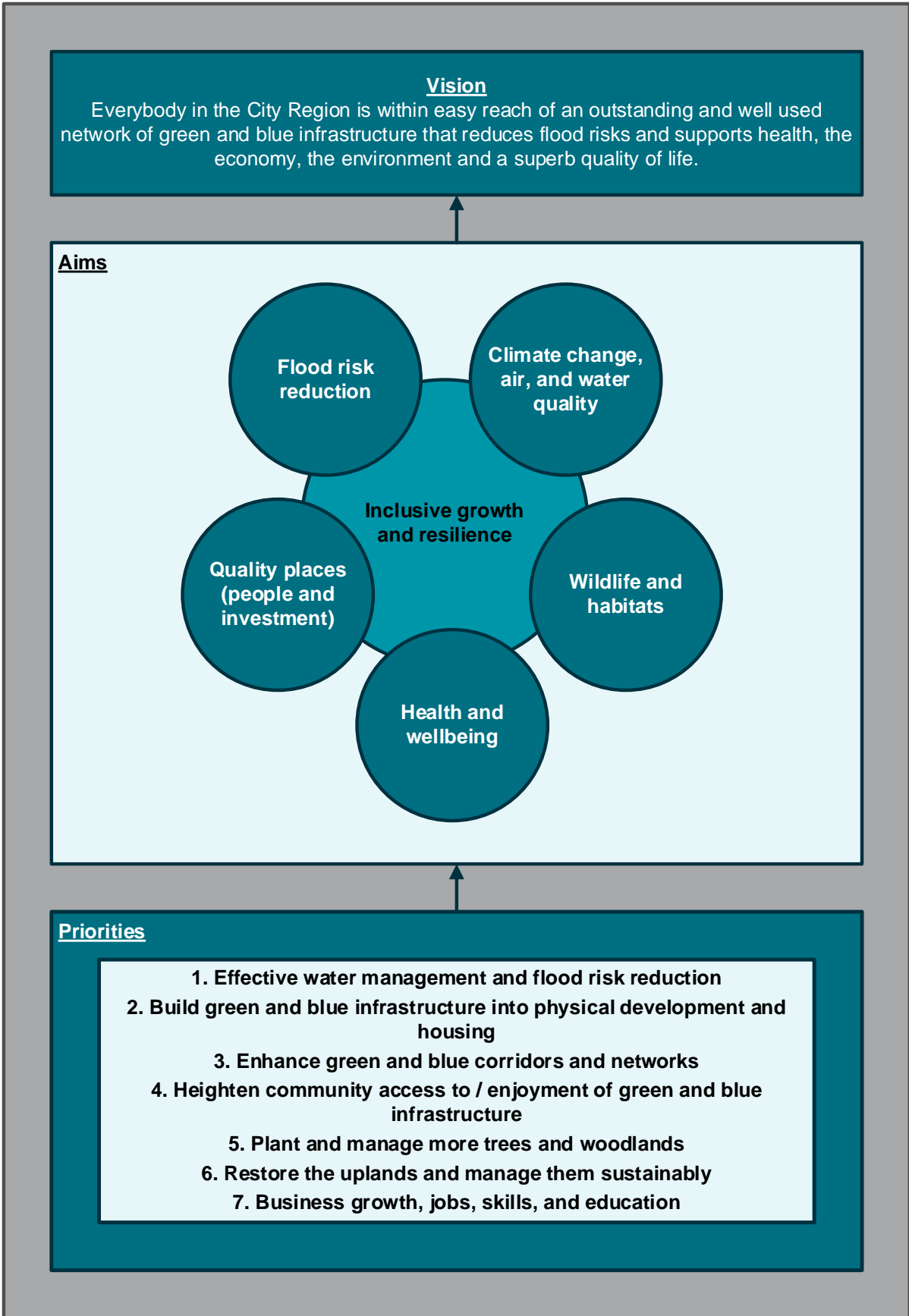


Figure 4. Strategy vision, aims and priorities

- **Multi-functional and integrated:** green infrastructure solutions will deliver multiple benefits, often spanning all of the five aims. They will connect to existing strategies and investment programmes across wide ranging issues, agendas and partnerships, in urban and rural areas. Wherever possible green infrastructure interventions will also support goals such as culture, heritage, education, sustainable transport and clean energy.
- **Collaboration and partnership:** the public, private and voluntary sectors, educational institutions and communities will all contribute where they are most able to, and work together to achieve progress that would not otherwise be possible. Cross-boundary and cross-organisation working will be facilitated to make this a reality.
- **Inclusivity:** Green infrastructure solutions will benefit all citizens, communities and places, in rural and urban areas. It will enhance community cohesion through creating spaces, assets and activities that bring people together. Likewise, ensuring that deprived areas and communities benefit from green infrastructure and have fair access to it will be priority.

Bradford's City Park

Opened in 2012, the creative design of Bradford's award winning 'City Park' combines built heritage, walkways, greenery and a spectacular water feature to powerful effect. At its heart, a large 'mirror pool' entrances visitors with its dancing fountains, mists and lighting. The space is now a popular centrepiece to the city centre that brings people and communities together. It offers space for events, has catalysed investment and positively raised the profile of the city.

Case Study 4. Bradford's City Park

Leeds City Region's distinctive geography comes into play in many of these principles and informs the Strategy and its delivery. The City Region benefits from major cities, large towns, semi-rural areas, villages and open countryside, and there are commuting, trade, resource and visitor flows between these areas. Big city populations are in close proximity to rural and semi-rural areas and outstanding landscapes – perhaps more so than anywhere else in the UK. Given this interconnected geography, the solutions to problems in one area will often involve action somewhere else – for instance urban flood risks may be reduced by action to store or slow the flow of water in rural and upland areas. The Strategy will make sure that all areas benefit, including rural ones and that City Region thinking is based on real connectivity between areas, not the artificial boundary lines between them.

The following sections set out the main strands of action within each priority and key partners that will be involved in each. In addition, a 'convening partner' is identified who will take the lead in bringing partners together to drive action under that priority. Section 6 explains this approach and how the strategy will be implemented through a Delivery Plan. Illustrative performance indicators are also set out for each priority. These are further detailed in Appendix B and in most cases the indicators, along with

relevant baselines and performance targets, will be further developed as part of the Delivery Plan process as specific actions evolve.

All of the priorities are intrinsically interlinked. Actions within each will deliver multiple benefits across many or all of the other priorities. The full range interconnections and benefits from each individual action is not listed for reasons of brevity, but the principle of an integrated, multi-functional approach is implicit throughout and will be maintained in the Delivery Plan.

Realism and monitoring will be critical throughout. Table 19 (in Section 6) details the headline long term outcomes that will be the true test of success, and Appendix B further details potential indicators for each priority and strand of action. The Delivery Plan will further develop and define these indicators as more detailed and specific actions are confirmed.

5.1. Priority 1

The devastating Boxing Day 2015 floods in Leeds, Calderdale and York made the importance of far reaching and sustainable approaches to flood risk only too clear. The extent and severity of flooding was unprecedented, with over 4,000 homes, almost 2,000 businesses and over 100 km² of urban and farm land flooded and an economic cost of over half a billion pounds. Whilst risks will always exist and they cannot wholly eliminate flooding, an integrated approach at whole river catchment scale will help to reduce the risk and severity of floods.

Integrated, efficient and imaginative management of water will be instrumental to making us a resilient City Region that is well supplied with water and well protected from floods. Green infrastructure can play a pivotal role in achieving this, especially when integrated with hard flood defences and wider work on water demand, distribution and quality. Green infrastructure solutions span natural flood management in the landscape (see also Priority 5 on trees / woodland and Priority 6 on restoring the uplands and manage land sustainably) and sustainable drainage systems in urban areas. Together, these help to store and slow the flow of water and can enhance water quality.

Headline: Become a UK trailblazer in catchment planning and natural flood management

Key strands of action		Key partners
A.	Fully incorporate natural flood management within integrated Catchment Management Plans	Environment Agency Yorkshire Water Regional Flood and Coastal Committee
B.	Invest in and implement natural flood management	Environment Agency West Yorkshire Combined Authority Local Authorities Land Owners

Key strands of action		Key partners
C.	Embed sustainable drainage systems into new developments	Local Authorities Yorkshire Water Developers West Yorkshire Combined Authority
D.	Deliver integrated water management solutions that combine water storage, supply and wider green infrastructure benefits	Local Authorities Yorkshire Water
E.	Ensure consistently high water quality	Environment Agency Yorkshire Water

Table 3. Priority 1 key strands of action and partners

5.1.1. Priority 1A

The City Region is part of the Humber River Basin District and four main catchment management areas within that impact upon Leeds City Region:

- Aire and Calder
- Don and Rother
- Swale, Ure, Nidd and Upper Ouse (SUNO)
- Wharfe and Lower Ouse

A Flood Risk Management Plan for the Humber Basin River District that covered these areas was produced in 2015, mainly focused on hard flood defence schemes. Following the 2015 Boxing Day floods, additional Catchment Plans were produced for Calderdale and York. The Calderdale Plan makes a big leap forward by identifying over 35 wide ranging natural flood management measures alongside hard defences and other actions e.g. on household and business resilience, that cover the whole catchment. There is consensus that this integrated approach is the right one and that it should be implemented across the City Region as a priority. Hence there is a strong case for the Environment Agency to make an integrated assessment of the Flood Risk Management Plan and its catchments within the Leeds City Region to ensure natural flood management solutions with multiple benefits for water and biodiversity are fully considered and incorporated, including identification of funding and delivery mechanisms. This integrated approach would then be embedded within the Flood Risk Management Plan when it is next reviewed.

A further action is to take forward the recommendations of the Leeds City Region Flood Review Report, including the proposal to develop a City Region Flood Resilience and Delivery Investment Plan. This would draw together all funding sources to bring forward flood mitigation projects over the next five years and beyond and set out long-term infrastructure resilience needs, including the role of green infrastructure. In doing so it would build upon, link, and address coverage gaps in the Flood Risk Management Plan. This new plan would take forward the

Strategic Economic Plan headline initiative of an Integrated Flood Risk Reduction Programme which includes flood defences, natural flood management, sustainable drainage systems, planning, resilient development, preventative measures in existing business and influencing activity. This integrated approach should consider flood risks from surface water as well as from rivers.

5.1.2. Priority 1B

Because natural flood management measures tend to deliver shared and diffuse benefits and evidence on them is still emerging, it is easy for them to be overshadowed by other flood defence schemes when resources are tight. The Combined Authority will work with the Environment Agency and other partners to explore scope for new funding and project appraisal mechanisms and principles to enable natural flood management measures to progress at the scale required, including through piloting new approaches. This would push the boundaries of what is possible within current regimes but would make the City Region a national leader in this sphere and create business opportunities in rolling out pioneering approaches.

The City Region's ambition to become a trailblazer in this field is further supported by the Combined Authority's success in securing £1.7 million of Growth Deal (Round 3) funding to support natural flood management approaches which will be co-invested with the Environment Agency to maximise impact. Excellent local work, often led by voluntary and community groups, to put natural flood management measures in place and application of university expertise will further support the City Region's ambitions. In particular, the University of Leeds Yorkshire iCASP proposal aims to generate £45 million of transformative impacts in the Yorkshire economy over the next decade through integrated catchment solutions. This will support the City Region's ambitions by enabling it to test and adopt innovative approaches, including landscape measures, improved forecasting and integrated catchment management tools. Effective and sustainable delivery must be based on a planned and whole system approach that prioritises the most effective measures, avoids weak spots and builds in long term maintenance.

5.1.3. Priority 1C

Floods can arise from surface water as well as watercourses, hence it is essential that all design of new development and infrastructure has a neutral or beneficial impact on mitigating flood risks. Alongside good urban planning (see Priority 2), sustainable drainage systems play a vital role in achieving this. Yet they also bring many more benefits, helping to address water pollution, supporting conservation, and reshaping places and communities by replacing hard concrete piping with softer solutions that have wide amenity and biodiversity value.

Leeds City Region, including through all constituent local authorities and the Combined Authority, will explore together with Yorkshire Water and the development community to take a proactive, consistent and ambitious approach to sustainable drainage systems. High standards for City Region expectations on sustainable drainage systems will be set, from initial planning requirements to ongoing maintenance. The Combined Authority will lead work to scope the establishment of an City Region sustainable drainage system plan to set an approach to City Region drainage solutions that all major schemes and developers can work within. Good

practice and shared learning will be applied, and lobbying to ensure the ability to stipulate sustainable drainage solution requirements within planning conditions for new housing and development will be investigated. Options for ongoing maintenance such as to jointly create social enterprise organisations that adopt maintenance responsibilities, funded by commuted sums from developers will be explored. This model also offers potential for local job creation, training and work experience.

5.1.4. Priority 1D

Climate change projections suggest more extreme weather patterns, with an increased likelihood of both periods of drought and intense rainfall. Hence the ability to cope with both excesses and shortages of water will be critical to future resilience. Led by local authorities and open to proposals from others such as the voluntary sector and Yorkshire Water, the City Region will look to identify targeted opportunities for large-scale schemes that offer multiple benefits, for example water storage capacity during floods, water supply capabilities, biodiversity benefits, and recreational and amenity value. The priority will look to prioritise the schemes with the greatest potential benefits and deliverability and look to deliver a small number of sizeable, high value schemes.

5.1.5. Priority 1E

Green infrastructure can help to improve the environmental quality of raw water (from which drinking water originates) and water courses by filtering out pollutants, while protecting the environment from discharges of waste water can enhance river water quality.

There have been substantial improvements to water quality in many rivers and canals over recent decades and there is scope to further build on this achievement. Action would involve reducing a range of diffuse and point source pollution (led by the Environment Agency), habitat improvements and addressing frequently operating combined sewer overflows, with a strategic shift towards separation of storm and foul water (led by Yorkshire Water). City Region partners will track the impact of Brexit on river water quality legislation and act where possible and necessary to support a legislative framework that protects and enhances water quality.

Upper Aire Project

Examples of practical action with multiple benefits include the Upper Aire Project led by the Yorkshire Wildlife Trust working with the Environment Agency. This will work with land-managers and farmers to slow the flow from hill-top rain to valley bottom cities and towns and improve water quality in the River Aire.

Case Study 5. Upper Aire Project

5.1.6. Partners and delivery

The overall convening partners to drive delivery planning for this area of work are the Environment Agency working with Yorkshire Water. Other partners include the Combined Authority, local authorities, land owners, the Regional Flood and Coastal

Committee, universities and the voluntary and community sector. The actions that individuals / families and businesses take about their own homes and business premises also have an impact and will be factored in to our approach. Delivery will include collaboration with relevant areas outside of Leeds City Region, for instance those with upland catchments that drain into rivers flowing through Leeds City Region.

Delivery of this Strategy will connect with and influence other plans and funding streams that cover flood resilience and water management. These include the Environment Agency’s catchment based Flood Risk Management Plan / Assessments and the proposed City Region Flood Resilience and Delivery Investment Plan, which are effectively the lead strategies on flood risk in the City Region. Key investment programmes include those led by the Environment Agency and by Yorkshire Water and Growth Deal resources secured by the Combined Authority.

Other improvements can be implemented through influencing and the planning system, such as on sustainable drainage systems, where local authorities have a key role (linked to planning and Priority 2). A challenge is to secure resources for projects that deliver shared benefits for many parties – for instance protecting transport, energy and utilities infrastructure, businesses and major developments from flooding (see Section 6 on Delivery). Action under other priorities in this Strategy e.g. on woodland, uplands and physical development, will also help to deliver goals on reducing flood risk. Connections with neighbouring areas will include links to flood risk reduction in other Local Nature Partnership (LNP) areas and in North Yorkshire Growth Towns.

The shape of success	
What’ll be seen	What’ll be measured
<ul style="list-style-type: none"> • Businesses, communities, infrastructure and homes that flood less often and less severely • Attractive landscape features that support wildlife and reduce floods • Cleaner, more naturalistic rivers and canals 	<ul style="list-style-type: none"> • Reductions in peak river flows achieved through natural flood management measures • Residential and non-residential properties at risk / high risk of flooding • Percent of new developments that incorporate sustainable drainage systems • Length of river with improved water quality, habitat and ecology

Table 4. Priority 1 success measures

5.2. Priority 2

Alongside maintaining and enhancing existing green infrastructure, the City Region ambition is to fully embed green infrastructure into the multi-billion pound pipeline of planned new construction across Leeds City Region. The value of green infrastructure should be fully recognised so that it becomes intrinsic to development from the outset; something that is a must have not a nice to have. Ambitious and robust planning, and working together across developments and boundaries will create vibrant, healthy and inspiring places where people want to live, work and invest.

Headline: Make quality green infrastructure a defining feature of the way the City Region does development

Key strands of action		Key partners
A.	Make the business case for green infrastructure to support investment	West Yorkshire Combined Authority
B.	Develop strong and consistent planning policies to embed high quality green infrastructure into new development	Local Authorities West Yorkshire Combined Authority
C.	Create flagship green infrastructure schemes in town and city centres and high profile new developments	Local Authorities West Yorkshire Combined Authority Major Land / Estate Owners Private Sector Developers
D.	Retrofit green infrastructure into existing housing and promote citizen action	Housing Associations ALMOs Local Authorities

Table 5. Priority 2 key actions and success measures

5.2.1. Priority 2A

Green infrastructure can be proactively harnessed to differentiate developments and drive their performance, value and viability. There are good examples of this happening and but there needs to be many more. Demystifying green infrastructure and making clear the business case for it will be key and the Combined Authority will lead work to do this. It will pull together evidence, modelling toolkits and best practice examples and signpost developers to advice and guidance on applying green infrastructure principles and practices. The Combined Authority will make green infrastructure a core criterion in investment appraisals and decision making processes, and embed it into work on place-making and positioning the City Region as an investment location.

Leeds South Bank – City Transformation

Redeveloping the South Bank will double the size of Leeds city centre, creating 35,000 jobs and 4,000 homes. Excellent green infrastructure is pivotal to plans. It will help to reconnect the South Bank to the city centre; unlock the potential of the River Aire and create a distinctive destination for investment, living and leisure. A new city park, safe and attractive footpaths and environments, and innovative flood protection measures will support active travel, reduce traffic, improve air quality and provide a great space for leisure and social activities.

Case Study 6. Leeds South Bank

5.2.2. Priority 2B

The planning system has a vital role to play in delivering City Region ambitions for green infrastructure. Local authorities within the City Region have or are passing policies on green infrastructure, and there are some excellent examples of strong policies to protect existing high quality green infrastructure and to incorporate green infrastructure into new developments as standard. However, not all areas have such strong policies, and some are wary that setting exacting standards could deter development. The Combined Authority will encourage local authorities to collaborate and share good practice on planning policies for green infrastructure in order to develop a robust, consistent and ambitious planning framework. This will provide developers with clarity about what is required and ensure a level playing field whereby quality green infrastructure is a must do that is integrated into all new development. This will link to Green Streets® design (see Priority 3) and sustainable drainage systems policy (see Priority 1). It will be driven through Local Plans and Supplementary Planning Documents and be detailed in documents such as masterplans and design guides.

5.2.3. Priority 2C

Outstanding green infrastructure will be a defining feature of the most important and iconic developments in Leeds City Region. Proactively masterplanning and putting in place green infrastructure from the outset can put down a marker for the design standards and quality of development, increase its desirability and value, and enhance perceptions of local places and the City Region. This approach will be particularly important in town and city centres (as is demonstrated through Leeds South Bank development proposals) and in other SEP Spatial Priority Areas e.g. Enterprise Zones. Local Authorities will play a lead role through masterplanning and ensuring that partners are clear about the ambition for green infrastructure and their role in delivering it. The Combined Authority will assist the process by seeking resources if funding gaps undermine the viability of exemplar green infrastructure within targeted schemes.

Throughout, the aim will be to create experience led destinations that attract people – and hence developers. Local authorities can for example use a green infrastructure led approach to address the changing nature of town / city centres, where a declining retail sector leaves vacant space that could be repurposed through green infrastructure solutions and freeing up space occupied by traffic. Creating attractive,

often car-free public spaces with trees, greenery and water features can reinvigorate centres and widen their appeal. In the process, that can improve air quality, create pedestrian and cycle friendly environments and attract further high quality commercial development. This does not solely mean pursuing high cost measures that require expensive and long-term maintenance arrangements – it can be integrated into planned developments and also involve broader and low cost approaches such as securing more natural and wildflower areas.

Global Good Practice: Singapore

As part of its city in a garden vision Singapore has pioneered radical green infrastructure design to address its challenges as a densely populated city with scarce water but susceptibility to flooding. It has combined an abundance of green roofs, parks and trees with smart water management (two thirds of city surfaces capture rain water) and stunning green infrastructure based architecture that has created new leisure and commercial destinations.

Case Study 7. Singapore

5.2.4. Priority 2D

As well as influencing new housing developments through Priority 2B, opportunities to improve green infrastructure within the existing built environment will be explored. Social housing and (other) housing that local authorities have influence over provides a good starting point for this. This will include working with housing associations on retrofitting solutions through maintenance programmes or upgrades. Additionally there is potential for local authorities and their partners e.g. voluntary and community sector, Yorkshire Water, to enable action by citizens and communities. For example this could involve promoting water butts, composters, permeable surfaces and raised beds in homes and gardens, potentially linked to other sustainable improvements such as solar energy and insulation and area based programmes such as Better Homes Yorkshire. Engagement with major estate owners such as the NHS, local authorities, universities and colleges will also be important.

5.2.5. Partners and delivery

Local government will be the overall convening partner for action under this priority given its role in local planning, housing and development. Each local authority will embed green infrastructure in planning policy and drive green infrastructure in town / city centres and flagship developments in their areas. They will ensure integration with sustainable drainage system policy (see Priority 1) and local transport schemes, coordinate dialogue with the investor / development community and broker relationships with stakeholders to pool action and resources to achieve mutually beneficial outcomes.

The Combined Authority will co-ordinate or kick-start action where needed, for example by facilitating local authority collaboration to agree consistent green infrastructure principles and planning policies and to help spot opportunities to join up across boundaries to extend the City Region's green infrastructure network. It will

also look to develop funding mechanisms to support incorporation of exemplar green infrastructure in flagship schemes, including those linked to Community Infrastructure Levy (CIL) and Section 106 obligations. This will include the potential for shared or pooled solutions (see Section 6 on Delivery). Other partners include businesses / developers, housing associations, Homes England, the NHS and the voluntary and community sector; whilst other funding opportunities include the utilisation of European resources (and match funding) to support green infrastructure in line with the ESIF Strategy.

The shape of success	
What'll be seen	What'll be measured
<ul style="list-style-type: none"> Inspirational green infrastructure in big new developments and woven into town and city centres High quality green infrastructure as standard in development Increased green infrastructure in existing housing stock e.g. water butts, greenery, permeable surfaces 	<ul style="list-style-type: none"> Increased investment in green infrastructure measures as a proportion of overall investment Increased high quality urban green space Perceptions of the City Region as an investment location Number of flagship green infrastructure rich developments

Table 6. Priority 2 success measures

5.3. Priority 3

The City Region vision is for a network of green infrastructure rich routes and corridors that combine beauty and functionality and which radiate out from and link our towns, cities and rural areas. Well used and close to communities, these routes will include major roads, railway, river and canal corridors as well as cycle routes and footpaths. They will encompass busy transport corridors and places to get away from it all. Quality green infrastructure across these routes will be instrumental in shaping perceptions of the City Region, promoting sustainable travel and physical activity, providing for clean air, improving infrastructure resilience and reducing flood risks.

Headline: 1,000 miles of green infrastructure rich corridors, including canals, rail road, and a City Region cycle route network.

Key strands of action		Key partners
A.	Extend Green Streets to more routes and stations	West Yorkshire Combined Authority Local Authorities
B.	Build green infrastructure into rail corridors including a HS2 green infrastructure corridor	West Yorkshire Combined Authority HS2 Ltd

Key strands of action		Key partners
		Network Rail
C.	Enhance river, canals and wildlife corridors	Canal and River Trust Catchment Partnerships Rivers Trusts Environment Agency
D.	Create a green infrastructure rich City Region-wide cycle route network	West Yorkshire Combined Authority Local Authorities

Table 7. Priority 3 key actions and partners

5.3.1. Priority 3A

The Green Streets®²² initiative has set new benchmarks in integrating green infrastructure into new and improved roads funded by the West Yorkshire Plus Transport Fund. This includes building in features such as trees and greenery, meadow verges and permeable surfaces at the design stage. Green Streets® principles will be extended to more routes, including retrofitting green infrastructure into the Key Routes Network (which carries more than a half of all traffic) when roads are maintained or upgraded. The Combined Authority will also work with Highways England around their roads and schemes, such as for Lofthouse Interchange.

Green Streets® ideas will be applied to cycle routes and park and ride stations and an Eco Stations programme will be developed. This will turn bus and rail stations into attractive gateways that enhance the City Region's profile and combine green infrastructure with features such as solar energy, permeable surfaces and secure and dry cycle parking. Longer term, the Combined Authority will explore potential to apply Green Streets® principles to other development (see Priority 2) and will collaborate with partners to achieve this.

Global Good Practice: Singapore

Wakefield is using investment in flagship regeneration and road improvements to enhance green infrastructure. Examples include development of 2,500 new homes at City Fields and construction of the Eastern Relief Road. Both have been designed with green space in mind: along with ecological improvement, a network of cycleways and footpaths gives access to two kilometres of canal and river that run through the area. The result is a better connected site with less traffic, cleaner air and better conditions for pedestrians and cyclists.

Case Study 8. Wakefield Eastern Relief Road / City Fields

²² Green Streets® is a registered trade mark of the Community Forest Trust (Registered in England no. 3598556. Registered charity no. 1072706)

5.3.2. Priority 3B

There is great potential to make key rail routes multi-functional green infrastructure corridors which boost asset resilience and support wildlife, leisure and active travel. The HS2 route is a prime opportunity. Creating a wide, high quality and woodland rich green infrastructure corridor around it would buffer noise and visual impacts, provide a recreational resource and enhance its local acceptability. Other opportunities include incorporating green infrastructure into rail route upgrades e.g. electrification, and the Northern Powerhouse rail corridor. These ideas are at an early stage and a first step will be to identify those best placed to drive them forward on behalf of the City Region (likely to include the Combined Authority, Leeds City Council, Environment Agency, White Rose Forest and Yorkshire Wildlife Trust), to work up an outline vision and build relationships and proposals with HS2 Ltd and Network Rail.

5.3.3. Priority 3C

The City Region's canals and rivers connect towns, cities and the countryside and often embody the idea of multifunctional green infrastructure through providing a leisure resource, valuable habitats and high value settings for investment. But there is potential to do more. For canals, short to medium term priorities will include towpath upgrades to facilitate greater use by walkers and cyclists (including innovative lighting solutions), activities to heighten connections with local communities, introducing fish passes as part of flood alleviation works, and implementing the coast to coast canoe trail that includes the Leeds-Liverpool canal and Aire and Calder navigation. Longer term potential includes a marina in Leeds, heat transfer and hydro energy schemes, and waterfront development linked to canal restoration.

For rivers, opportunities include renaturalisation linked to flood risk management and habitat enhancement, improvements to public access and water quality, delivering the Natural Aire proposals and a river stewardship approach that involves communities in managing river vegetation, habitats, access and improvements. The Invasive Species Forum, a partnership programme led by the Yorkshire Wildlife Trust and the Environment Agency will continue to survey and systematically remove invasive species from the river systems of West Yorkshire. Ultimately, improving river and wetland environments to the point where emblematic species such as beavers can be reintroduced would be symbolic of the quality and habitat improvements we aspire to long term.

Green infrastructure is vital to wildlife, and both the whole green infrastructure network of places and spaces (see Priority 4), and the corridors and networks that link them are important. This strategy will support projects that safeguard, improve and create a matrix of well-designed habitats that help wildlife, including pollinators (notably bees), recognising the natural capital benefits they bring.

5.3.4. Priority 3D

Events such as the Tour de France and the forthcoming UCI World Road Championships have built a real enthusiasm for cycling in Yorkshire. Projects such as City Connect are improving cycle facilities, and there are stretches of cycle route /

greenways in most towns and cities. The City Region vision is to build on this by creating a network of high quality, well maintained, green infrastructure rich cycleways that connect all of the major towns and cities in Leeds City Region, segregated from traffic and predominantly off-road. This would combine functionality and directness where possible, with a safe and attractive environment and enable more leisure cycling and commuting journeys. It would enhance health and wellbeing and reduce congestion, air pollution and carbon emissions by taking cars off the road.

Initial estimates based on the distances between the main towns and cities in Leeds City Region suggest this would mean a network of around 400 miles of routes, including existing cycle routes, towpath upgrades and appropriate routes identified in Local Cycling and Walking Infrastructure Plans, as well as new routes to fill any key gaps. The first steps towards this will be to agree this vision as part of the West Yorkshire Transport Strategy (in liaison also with Leeds City Region local authorities outside of West Yorkshire) to secure resources for delivery and to create a plan for the network. Consideration also needs to be given on how the network can best connect with wider cycle route networks in the north, for instance the Sustrans route network.

5.3.5. Partners and delivery

The Combined Authority will be the overall convening partner for transport related elements of this priority, building on its success in applying Green Streets® principles, and further incorporating green infrastructure into transport planning and strategy and the implementation of the West Yorkshire Plus Transport Fund. The key principle will be to integrate and increase the emphasis on green infrastructure and cycle routes in existing transport programmes, and to influence Network Rail and HS2 to do likewise. The Canal and Rivers Trust, Environment Agency, and Rivers Trusts and Partnerships will have key roles in their areas of interest and in developing multi-benefit projects. They will work with wider partners to secure resources from the private and public sectors and trust / grant funds, and work with communities and volunteers to deliver local projects. Connections with neighbouring areas will include those based on shared river, canal and transport corridors and will look to use green infrastructure as a positive asset that supports cross boundary solutions and development.

The shape of success	
What'll be seen	What'll be measured
<ul style="list-style-type: none"> • Softer, greener road environments with more trees, meadow verges and greenery • A green infrastructure cycle route network connecting all major towns and cities 	<ul style="list-style-type: none"> • Miles of green infrastructure rich corridors – roads / cycle routes / rail / rivers / canals / strategic footpaths • Levels of walking and cycling (number and percent of journeys), including on green infrastructure rich routes

The shape of success	
<ul style="list-style-type: none"> • An attractive HS2 green infrastructure corridor • Enhanced river and canal environments 	<ul style="list-style-type: none"> • Number of bus / train stations that become eco-stations • Miles / hectares of enhanced river / canal / wildlife corridors e.g. improved habitats or access • Wildlife based measures e.g. abundance of key species and pollinators

Table 8. Priority 3 success measures

5.4. Priority 4

Access to quality environments and multi-functional green infrastructure supports physical health and mental wellbeing. It enables people to incorporate time outdoors and physical activity into their everyday lives, with big impacts on heart health and prevention of obesity and diabetes. It also makes a positive contribution to wider determinants of health and wellbeing, for instance by providing settings for people to socialise and interact, to grow food, to learn and play, to connect with nature and to enjoy sport. Our vision is to maintain and enhance an extensive, high quality, diverse and multi-functional green infrastructure network that can be accessed and enjoyed by all and which makes a major contribution to health, equalities and wellbeing.

Headline: Everybody within easy reach of an outstanding, diverse and well used green infrastructure network that supports full and healthy lives

Key strands of action		Key partners
A.	Identify, protect and enhance a high quality green infrastructure network	Local Authorities West Yorkshire Combined Authority
B.	Address gaps in access to green infrastructure, especially in areas of poor health and deprivation	Local Authorities
C.	Promote physical activity that utilises green infrastructure	Local Authorities Health Bodies
D.	Connect children, young people and schools to green infrastructure	Local Authorities Schools
E.	Enhance green infrastructure in recuperative settings to aid wellbeing and recovery	NHS

Table 9. Priority 4 key actions and partners

5.4.1. Priority 4A

The starting point is to identify and protect existing high quality green infrastructure. The Combined Authority will work with local authorities and other partners to map green infrastructure assets, from large scale offers such as designated areas and country parks to smaller green spaces and watercourses that matter to local communities. Mapping different types of green infrastructure will enable the City Region to protect and utilise key assets and to plan how to extend, better connect or upgrade the green infrastructure network – for instance new woodland, country parks, nature reserves, improved towpaths, cycle routes and footpaths, areas to grow food, and conversion of disused assets such as quarries into multi-functional spaces that support leisure and tourism. Decisions on protecting and upgrading local green infrastructure assets will reflect the target of everybody having access to good green infrastructure within approximately 1 km of their home.

Planning of GBI in developments (see Priority 2) will be aligned with health and air quality objectives, underpinned by Health Impact Assessments in local planning. Working with anchor institutions such as hospitals, universities and councils will open up green infrastructure assets and ensure that they are accessible and connected. Local action to encourage use of parks and green spaces will compliment this and could include creative, low energy lighting to enhance attractiveness and security, fitness equipment and activities, links to cycle routes and phone apps to highlight and promote places to go and activities. The green infrastructure network will include habitats for wildlife and spaces for people whatever their interests – including for example, quiet enjoyment, socialising, play, picnics, dog walking, angling and boating as well as more intensely active sports and recreation.

5.4.2. Priority 4B

There is great opportunity to enhance the health of our poorest communities by improving local green infrastructure. Local authorities and public health teams will lead work, backed up by robust data, to identify where gaps in green infrastructure exist. High priority will be placed on developing localised solutions in those places where poor green infrastructure provision, quality, or accessibility correlate with poor physical and mental health. A focus on promoting usage, changing attitudes and behaviours and establishing spaces that are safe, well maintained and that encourage people from different communities to interact must sit alongside this; as will ideas around community gardens and food growing, active lifestyles and supporting families in imaginative and active play. It will also integrate with age and dementia friendly action; and build community capacity to steward green infrastructure assets. This will draw upon and influence multiple stakeholders including in primary care, housing, and the voluntary and community and public transport sectors to ensure whole system approaches. Action will support and potentially be part of the Inclusive Growth Corridors concept, and linked to Priority 3 on transport corridors and Priority 7 on business growth, jobs and skills.

Community Green Space, Halifax

The Park Ward Neighbourhood Forum, in an area of Halifax that needs more open space and improved health, wants to transform a disused tip into a thriving green asset as part of its Neighbourhood Plan. The idea came from the community and would enhance woodland, create nature walks, a natural play area, walking and cycling routes and a cricket pitch. The new space would help communities to integrate through outdoor activity and improve young people's health. Groundwork UK are helping to work up an application to fund the first phase of the work.

Case Study 9. Community Green Space, Halifax

5.4.3. Priority 4C

Excellent urban design that incorporates high quality green infrastructure can boost levels of physical activity and support people to make healthy choices. In this way, green infrastructure provides a fantastic, and in many cases free, intervention to prevent and treat poor health.

Action to drive active travel in all communities will include schemes such as the Combined Authority led Go Walk and Go Cycle and the City Region cycle network (see Priority 3). This will help to improve air quality through reduced car use and to reduce health impacts from pollution. Other interventions will be based on local need, including for example supporting physical activity in local parks; health walks; and working with health care practitioners on green prescribing e.g. to encourage people to exercise outdoors. Nationally, Public Health England's Healthy People, Healthy Places programme and Change for Life campaign and social movements such as Park Run will play a role, as will projects such as the new coast to coast canal canoe trail.

Pathways to Health, Selby

Led by North Yorkshire County Council with Selby District Council the NHS and voluntary groups, seven pathways to health walks have been created in Selby. These support health by helping people to get out and about locally to take exercise. The branded, waymarked walks range from one to nine miles so that everyone can use them, and maps and guided health walks are available. Expected benefits include reduced risk of major illnesses and improved mental health and wellbeing.

Case Study 10. Pathways to Health, Selby

5.4.4. Priority 4D

Education in outdoor settings can have a positive influence on learning and behaviour and help to establish lifelong patterns of exercise and outdoor activity that support long term mental and physical health. Hence work should be undertaken with schools to build strong connections between young people and their natural environments. This should cover a range of action from forest schools and exposure

to new habitats and activities, to the daily mile running challenge, to local playing field strategies, school allotments and food growing projects. It will include helping children, young people and their families to travel to school in green infrastructure rich environments on foot or by bike, and projects that link urban and rural areas such as farm educational access sites.

5.4.5. Priority 4E

Green infrastructure can make a significant contribution to recovery and recuperation, in particular helping people to cope with and recover from medical procedures and mental fatigue, stress and anxiety, and to treat conditions such as ADHD, depression and dementia. Hence green infrastructure in and around recuperative settings such as hospitals and care homes can be valuable in treatment, with activities such as gardening and food growing helping to enable a sense of achievement and empowerment, and facilitating social interaction. Work with health and social care providers should be explored to open up green space to combine the therapeutic impact of contact with nature with traditional treatments.

5.4.6. Partners and delivery

Local government will be the convening partner for this priority because of its responsibilities for local environments, planning policy and public health (working with Health and Wellbeing Boards), and action will be in the context of tight resource constraints and growing social care pressures. Successful delivery will require responses to the unique needs and opportunities of diverse communities and on the ground relationships with schools, housing and health providers, voluntary and community groups and citizens, including in terms of taking responsibility for many community green infrastructure assets. Pennine Prospects can play a valuable role given its lead role on health for LNPs.

Public Health England will help to facilitate action, sharing best practice and establishing the knowledge base and data resource that will help to pinpoint interventions and track progress on health outcomes. NHS organisations will be key partners, notably via delivery of NHS England’s Five Year Forward View through localised Sustainability and Transformation Plans, and also as major employers, estate owners and commissioners. The health sector may gain long term health outcome and financial benefits by investing in local green infrastructure and the community groups / organisations that support it. The Combined Authority and local authorities will work together on active and sustainable travel.

The shape of success	
What’ll be seen	What’ll be measured
<ul style="list-style-type: none"> Easier access to green spaces and canal / river paths, especially in areas with poor health 	<ul style="list-style-type: none"> Progress towards all households being within approximately 1 km of high quality green infrastructure

The shape of success	
<ul style="list-style-type: none"> • More people actively enjoying parks and open spaces for exercise and leisure • More green infrastructure in and around schools, hospitals and care settings 	<ul style="list-style-type: none"> • Number of people accessing green space • Percent of people using outdoor space for exercise / health • Percent of physically inactive adults and children • Healthy life expectancy (levels / inequalities)

Table 10. Priority 4 success measures

5.5. Priority 5

Trees and woodland add value in an abundance of ways. People instinctively enjoy tree rich environments, and mental health and wellbeing is enriched as a result. House prices, liveability and development values are higher where there are street trees and greenery. Woods and forests provide enormous recreational opportunities. And trees help to reduce flood risk, provide a store of carbon, a home for wildlife, and a source of biomass energy and employment opportunities.

There is a lack of current, reliable data for tree canopy cover in Leeds City Region, but based on 2000 data and national trends since, it is likely to be around 7 percent including street trees and woodland, compared to England average woodland cover of 10 percent in 2015. The Strategy aims to close this gap and gain the host of benefits outlined above by doing so. This will be about good management of existing trees as well as new woodland, and in line with the UK Forestry Standard, the principle of right tree, right place should run through everything. Action under this priority will be especially closely integrated with Priority 6 on the uplands.

Headline: Create a White Rose Forest and increase tree cover by more than a third.

Key strands of action		Key partners
A.	Develop a White Rose Forest Plan	White Rose Forest Partnership Yorkshire Water
B.	Plant and manage large-scale, high value new woodlands	
C.	Integrate tree planting and woodland across this Strategy	

Table 11. Priority 5 key actions and partners

5.5.1. Priority 5A

The White Rose Forest Partnership will prepare a plan in 2018 to guide the ambition of increasing tree cover by more than a third by 2036 (expected to be around 10

percent), with at least 3 million trees planted by 2026 - one for every person in the City Region. A robust survey (such as an i-tree eco survey) will be used to provide baseline data and the plan will include management of existing trees and planting new ones to create a resilient forest environment stretching from City Region cities to the upland cloughs. It will set goals for new urban and rural tree cover, and define delivery mechanisms for this – including the involvement of communities, children and volunteers in tree planting. The City Region’s woodlands (collectively the ‘White Rose Forest’) will be at the heart of the Northern Forest proposed in the Government’s 25 year Environment Plan, and presented as such. The City Region is ideally positioned to help deliver the Northern Forest and to draw down relevant funding to do so.

Scammonden Water – A Gateway Site

Improved green infrastructure has transformed Scammonden Water, a little used reservoir site in Pennine Kirklees by the M62, into a major recreational asset. Enabled by Yorkshire Water investment and other funding partners, a new circular path has opened the site to the public. Woodland, scrub, heath and wetland habitats have been released from grazing and revitalised, and are now linked by 35,000 new trees planted by the community.

Case Study 11. Scammonden Water

5.5.2. Priority 5B

The best opportunities for sizeable new areas of woodland that combine strategic value e.g. for natural flood management and recreation and practical opportunities for delivery i.e. enabled by resource and land owner consent will be explored. Woodland for Water areas in and around Rapid Response Catchments will be a priority in this respect, and the White Rose Forest partnership’s strategic collaboration with Yorkshire Water provides a successful model for working with land owners across the City Region.

The Strategy definition of forest is an area dominated by trees but not exclusively woodland. As a result the vision is for a forest habitat network that also comprises areas of heath, scrub, bog and wetlands, rivers and grassland. The design of a major new woodland and heathland at Wessenden Valley will act as a trial of this new approach, and the Strategy will seek to create a pipeline of similar projects to come forward across the duration of this Strategy.

5.5.3. Priority 5C

The White Rose Forest Partnership will liaise with lead bodies and partnerships delivering action across this Strategy to help them integrate increased and well designed and managed tree cover into their programmes. That includes trees along transport corridors, in new developments and Spatial Priority Areas and within natural flood management approaches, as well as using the economic opportunity from biomass energy and employment and training in tree related professions. Multi-benefit projects, riparian habitat and bank stabilisation improvements, and links with water friendly farming - all through tree planting will be developed.

5.5.4. Partners and delivery

The White Rose Forest Partnership is not a delivery body itself but brings together most of the main partners with an interest in and ability to improve forestry and woodland in the City Region. This includes the Forestry Commission, Natural England, voluntary groups and nearly all local authorities. Membership is likely to be widened further during 2018 through a new joint venture agreement. As such it is ideally placed to be the overall convening partner for this priority and will plan and prioritise initiatives, secure resources for projects, instigate them and monitor progress.

The White Rose Forest Plan will be produced with local authority support and become the delivery plan for this priority. Resources for projects are expected to come from private sector sponsors, independent trusts e.g. the Woodland Trust and DEFRA agencies e.g. through the woodlands elements of countryside stewardship. Voluntary and community sector groups and volunteers are also a great asset for tree planting and help local people to connect with the landscape and trees.

The shape of success	
What'll be seen	What'll be measured
<ul style="list-style-type: none"> • Lots more trees and woodland – in towns, along transport routes and in rural areas • A good variety of healthy trees and a greater proportion of native trees • 	<ul style="list-style-type: none"> • 3 million more trees by 2026 • Tree canopy cover – increase by a third, to an illustrative target of 10 percent by 2036 • Woodland carbon capture

Table 12. Priority 5 success measures

5.6. Priority 6

Pennine moors are one of the defining features of Leeds City Region. They are a tremendous natural resource which, when well managed, reduce flood risks, supply drinking water, store carbon and provide a haven for rare birdlife. Historically, large tracts of our uplands have been denuded and degraded through neglect, pollution, wildfires and overgrazing / inappropriate land management practices (sometimes promoted by historical government policies). Over recent years progress has been made in correcting this and this Strategy will look to build on this further by restoring and managing the uplands in an integrated way that builds natural capital and combines top condition peatland, heath, woodland and other habitats and allows farmers and landowners to make a sustainable living. Additionally, sustainable and successful land management and agriculture across the City Region – in the uplands and beyond – will both utilise and contribute to quality green infrastructure.

Headline: Flourishing uplands that manage water, store carbon and support wildlife – with the proportion of peatlands in good condition trebled to over 50 percent.

Key strands of action		Key partners
A.	Restore peatlands as part of integrated upland management	Yorkshire Peat Partnership Moors for the Future DEFRA Land Managers / Owners
B.	Promote sustainable agriculture and countryside stewardship	Natural England Land Managers / Owners

Table 13. Priority 6 key actions and partners

5.6.1. Priority 6A

The moors and uplands of the City Region are a precious resource and many are designated as such – for instance the Yorkshire Dales, the Nidderdale Area of Outstanding Natural Beauty and the South Pennine Moors Special Protection Area. Through this Strategy work to restore and sustainably manage our uplands so that they are in good condition and their value is maximised, including for public enjoyment will be explored. This will include areas of carefully designed woodland (linked to the White Rose Forest Plan - see Priority 5), well managed heather and a major programme of peat restoration, building on the work of the Yorkshire Peat Partnership and Moors for the Future.

Peatlands provide far greater carbon storage, natural flood management and biodiversity benefits when in good condition, and should be combined with sustainable agri-business and amenity value, for instance through footpath improvements and attractive landscapes. By 2036 the Strategy seeks to have trebled the proportion of blanked bog peatlands in good (favourable and recovering) condition from around 16 percent now to over 50 percent.

5.6.2. Priority 6B

The way the land is farmed and managed has a huge impact on its value as green infrastructure. Currently, many stakeholders feel that agricultural subsidies do not work as well as they could do for Leeds City Region. Likewise, the Countryside Stewardship scheme may not have the full financial scale and support mechanisms needed to deliver the large scale change in land management required to support integrated water quality, biodiversity, flood prevention, food and farm sustainability goals. To improve this position the Strategy advocates working in partnership with farmers and landowners to design and put in place measures to draw full and multi-functional benefits from the land – including water management, public access, wildlife and pollinator corridors. Measures will be tailored to individual settings and planned with famers and landowners, including compensation for financial loss or

payments to proactively manage the land in sustainable ways – for instance to create and maintain natural flood management features.

Partners will seek to influence future agricultural and countryside stewardship regimes to support a sustainable approach. This could include exploring the potential for a devolved post-Brexit system that supports farmers, especially those in greatest need, as well as the interests of wider City Region stakeholders and green infrastructure. The aim would be to develop incentives and mechanisms that support farms to deliver public good through practices which support wildlife and provide ecosystem services such as improving water quality, downstream flood resilience, climate regulation and landscape, recreational and amenity value

Stirley Community Farm

Yorkshire Wildlife Trust’s Stirley Community Farm near Huddersfield is a working model of how wildlife-friendly farming methods can benefit the landscape, involve the community and support a sustainable farm business. Since taking on the farm in 2011, the Trust have developed a food training garden, planted an orchard, established a beef shorthorn herd, introduced bee hives and provided agricultural and conservation training to young people.

Case Study 12. Stirley Community Farm

5.6.3. Partners and delivery

Natural England will be the convening partner for this priority, working with Yorkshire Peat Partnership (which brings together organisations involved in peat restoration). The Yorkshire Dales National Park Authority will also have a key role and Moors for the Future will deliver innovative moorland management approaches across the South Pennine Moors.

Engagement with land owners, farmers and bodies such as the NFU will be key to bringing together ideas and support across upland farming communities, while the experience and incentives brought in by Natural England and the Forestry Commission on woodland, agriculture and countryside stewardship will be important in maximising landscape scale changes. Organisations such as Yorkshire Wildlife Trust, Pennine Prospects and White Rose Forest Partnership will add further value through their expertise and grass roots networks. Lobbying will be through the Combined Authority where helpful, particularly that to influence Government and devolution proposals. The Strategy will join up action with neighbouring areas wherever helpful, for instance through the York, North Yorkshire and East Riding LEP, Northern Upland Chain, South Yorkshire and South Pennines Local Nature Partnerships.

The shape of success	
What’ll be seen	What’ll be measured

The shape of success	
<ul style="list-style-type: none"> • Healthy upland combining restored peatlands, heather, woodlands and wildlife • Farmers and landowners supporting wildlife and natural flood management, as well as business growth and education 	<ul style="list-style-type: none"> • Percent of peatlands / Yorkshire Blanket Bog in good (favourable and recovering) condition • Improvement in water quality • Carbon sequestration in peat and woodland

Table 14. Priority 6 success measures

5.7. Priority 7

Economic opportunity flows through every aspect of green infrastructure. This priority is about exploiting these opportunities as they arise in the delivery of Priorities 1-6, as well as wider potential to connect green infrastructure to innovation, education and growth.

Headline: A big rise in green infrastructure based businesses, innovation, jobs and apprenticeships.

Key strands of action		Key partners
A.	Help green infrastructure based businesses to prosper	West Yorkshire Combined Authority
B.	Create work experience, employment and apprenticeship opportunities based on green infrastructure	All Implementation Leads (Priority 1-6) Further Education Colleges Training Providers
C.	Connect green infrastructure to innovation, education and skills	West Yorkshire Combined Authority Universities Colleges Private Sector
D.	Make great green and blue infrastructure central to City Region promotion, profile and tourism	Welcome to Yorkshire West Yorkshire Combined Authority Local Authorities

Table 15. Priority 7 key actions and partners

5.7.1. Priority 7A

The Strategy will look to create and exploit opportunities for business growth across green infrastructure activity, for instance in forestry, land management, energy, water management, construction, transport, conservation and tourism. Improving green

infrastructure will also create growth opportunities in key sectors such as engineering. The Combined Authority and partners will work to help local businesses to take full advantage of the potential, for instance through awareness of contract opportunities, skills development and connections to innovation.

Leeds Enterprise Zone – A63 planting and apprenticeship opportunity

Leeds City Council commissioned Groundwork Yorkshire to design a green infrastructure project to enhance the landscape of the new Leeds Enterprise Zone. The scheme involved planting trees, bulbs and wildflowers along an arterial road (A63) and linked to a new Park and Ride facility. Project planning enabled apprentices in the Council's parks department to deliver much of the work, and the partnership element helped to lever in additional government resources.

Case Study 13. Leeds Enterprise Zone

5.7.2. Priority 7B

There is much potential for jobs growth in green infrastructure based industries, ranging from entry level and low skilled roles to highly technical and skilled positions, for instance in design and engineering. There are also great opportunities for socially valuable work experience and volunteering which support inclusive growth by creating routes into paid employment, including for those facing unemployment, poverty and other challenges. Delivery partners will exploit these through the design of schemes and workforce planning, for instance to create apprenticeships, trainee and work experience posts.

Application of Leeds City Region's good growth procurement policies will further create local opportunities in the delivery of large scale, commissioned projects. More widely, the Combined Authority and partners will consider potential for green infrastructure based intermediate labour market (ILM) type projects - that provide experience doing a real and socially productive job as a route into long term work - should opportunities arise.

5.7.3. Priority 7C

Local authorities and educational bodies will promote and widen opportunities to connect green infrastructure to education and learning (see also Priority 4) and use this to build employability and transferable skills as well as technical ones – which include the need to train and recruit drainage engineers to replace those approaching retirement. The Strategy will look to connect green infrastructure expertise in universities and elsewhere to business growth and the development of key projects, including links between green infrastructure and other areas such as renewable energy, planning, engineering and construction. Innovative solutions – including those developed in universities and businesses in the City Region - will be important in becoming an international leader in this area, growing the sector and delivering world class projects.

5.7.4. Priority 7D

Magnificent countryside; vibrant, greened towns and cities; and wonderful opportunities for walking, cycling and outdoor recreation can enhance the City Region’s credentials as a magnet for tourism and its profile as an attractive place to work, invest and do businesses. Promotion through Welcome to Yorkshire and other routes, and events such as the Tour de France and Tour de Yorkshire have already capitalised on this potential. Further enhancing our green infrastructure will provide the substance that local, City Region and Yorkshire wide marketing can build on in the future.

5.7.5. Partners and delivery

The Combined Authority will be the overall convening partner for this priority given its lead role on the Leeds City Region economy. Most delivery will be about utilising and influencing processes and investment streams rather than new resources. For instance, the Combined Authority will promote business growth, employment and skills opportunities in the sector by building on existing initiatives such as the Skills Service, Apprenticeship Hubs and Business Growth Hub. However, all partners who deliver on green infrastructure are likely to create opportunities, so the task of connecting them to local people and businesses is a shared one.

Universities will be a key partner on the innovation agenda and will be linked into existing Combined Authority action and LIIS goals to promote innovation to business. Profile raising work will be achieved through using green infrastructure assets as selling points in promotional activity by Welcome to Yorkshire and local partners. The best short-term potential for a possible green infrastructure based ILM project will be through ESIF resources or private sector sponsorship; longer term any new post-Brexit regeneration programmes may offer potential.

The shape of success	
What’ll be seen	What’ll be measured
<ul style="list-style-type: none"> • Tourism and investment campaigns that make wonderful green infrastructure a selling point • More people making a living from the landscape and delivering green infrastructure 	<ul style="list-style-type: none"> • Output and growth of green infrastructure based sectors • Number of people employed in green infrastructure based jobs and apprenticeships

Table 16. Priority 7 success measures

6. Delivery

This Strategy sets overall policy and direction on green infrastructure and provides a clear line of sight towards action. In particular it describes key strands of action and lead responsibilities for each of the seven priorities. This section outlines how these will be taken forward through a more detailed Delivery Plan, the programme management and governance associated with that, and the suite of delivery mechanisms that will be used, including investment streams, the role of planning, evidence / specialist capacity, and the importance of citizen and community action.

6.1. Delivery Plan and programme management

A detailed Delivery Plan sets out specific actions, responsibilities, resources, timetables and success measures for each priority and the key strands of action within them. The Delivery Plan is an integrated whole and brings together separate mini-plans covering each of the Strategy's seven priorities.

It is proposed that the Combined Authority oversee the production and implementation of the Delivery Plan as part of an ongoing programme management approach. Convening partners were appointed to lead the production of the mini-plan for each priority, with their role being to bring together relevant stakeholders and ensure that specific actions and responsibilities are agreed (rather than to deliver everything themselves). An oversight committee including NGOs and green infrastructure organisations would further add value through a challenge role. The convening partners for each priority are set out below, and it will be for the organisations concerned and the relevant governance structures to decide if and how that role is taken forward in the future.

Priority	Key partners
Overall responsibility	West Yorkshire Combined Authority
Priority 1	Environment Agency Yorkshire Water
Priority 2	Leeds City Council
Priority 3	West Yorkshire Combined Authority
Priority 4	Calderdale MBC
Priority 5	White Rose Forest Partnership
Priority 6	Natural England Yorkshire Peat Partnership
Priority 7	West Yorkshire Combined Authority

Table 17. Delivery Plan responsibilities and convening partners

The Strategy requires strong leadership to ensure delivery. Reflecting this, it is owned at the most senior level by the West Yorkshire Combined Authority Board and the Leeds City Region Enterprise Partnership Board. The Green Economy Panel will take on an overview responsibility for the Strategy and the Delivery Plan on behalf of these Boards. This role will include leading and championing the work, oversight of progress, and holding partners to account in relation to agreed responsibilities (including those of convening partners in relation to the mini-plans they lead). The Yorkshire West Local Nature Partnership will play a supporting role in championing green infrastructure and this Strategy, and connecting wider partners to it, including other LEPs and LNPs covering areas outside of West Yorkshire that cover part of Leeds City Region or have an interrelationship with it.

6.2. Delivery mechanisms and investment streams

Green infrastructure tends not to be a budget heading in its own right. Instead, it is something that is delivered as part of an array of different work areas and funding streams, through influencing mechanisms, and through changing the way in which things are done. Ultimately inclusion of green infrastructure goals and solutions must become a core component of everything we deliver. To move towards that point and deliver green infrastructure in the meantime, five main types of delivery mechanism have been identified.

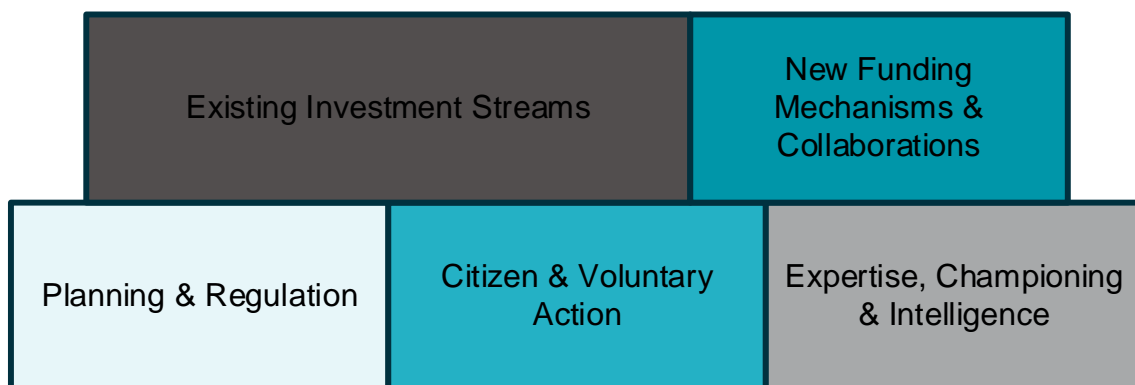


Figure 5. Delivery mechanisms

The different mechanisms will play complementary roles but will not be of equal weight. In particular, influencing existing funds and investment streams will be of prime importance.

6.2.1. Existing investment streams

Making best use of existing (and in some cases declining) resources will be vital. Table 18 lists bodies with resources, roles and investment streams that could help to implement green infrastructure if it is mainstreamed into how and what they deliver. Some investment streams are already doing; for others this will be a new dimension and collaboration, influence and making the case will be necessary to drive progress. Given the reality of limited resources, there will need to be prioritisation on the actions and projects that are feasible and deliver the best return, both at City Region and local level.

The list is not intended to be comprehensive nor to detail all of the sometimes complex funds within each organisation or the position in relation to each - that level of detail is beyond the scope of this Strategy. Instead it illustrates the wide range of funding and investment that can be utilised or influenced and the key partners involved. Engagement with these partners, and brokerage of dialogue between them, will be vital as part of the detailed delivery planning work that will follow.

There are other organisations that do not deliver themselves, but instead have a powerful role in steering and enabling action. For instance, it is vital for the regulators of utility companies e.g. OFWAT, to support and enable Yorkshire Water investment in green infrastructure. Likewise, other bodies' direct funding – for instance the Office of Rail and Road determines Network Rail's outputs; DCLG determines Homes England priorities; DEFRA plays an instrumental role in directing the work of the Environment Agency, Natural England and Forestry Commission and through its agencies will be key to determining future agricultural funding and land stewardship regimes.

Public	Private, voluntary, other
Combined Authority and local authority transport funding	Developers and investors – core investments
Combined Authority – Growth Deal funding	Developer contributions – S106/CIL, etc.
Environment Agency (and Government) flood risk defence/management funds and programme of environmental projects (e.g. on water quality)	Yorkshire Water
EU ESIF Funds	Other utilities - telecoms, gas, electricity
Local authority – economic development, housing, land, property, physical development and places	Farmers and private land owners
Local authority – parks/recreation/conservation	3 rd sector landowners, e.g. RSPB, National Trust
Local authority – public health	Housing associations
Homes England	Education institutions – land and property
Public Health England – intelligence and promotion of physical activity	Schools, colleges and HE – education and skills
Sport England - physical activity	Universities/HE – research and innovation

Public	Private, voluntary, other
NHS/hospital trusts/CCGs – assets, Sustainability and Transformation Plans, commissioning	EU LIFE Funding (MoorLIFE 2020)
DEFRA - agricultural support funding and countryside stewardship	Private sector sponsorship
Forestry Commission projects	Canal and River Trust
Natural England – landscape, biodiversity, access	Local voluntary and community groups
Welcome to Yorkshire	Woodland Trust
Highways Agency	Heritage Lottery Funds
HS2 Ltd	Independent Trust Funds/grants
Network Rail	Catchment Partnerships and Rivers Trusts

Table 18. Organisations with relevant roles, resources and investment streams

The impact of Brexit on funding and delivery will be important but is as yet unclear. One direct impact will be the loss of ESIF funding that can support elements of work on green infrastructure and flood resilience, sometimes linked to climate change. However, the Government has committed to underwriting funding for projects which are contracted prior to leaving the EU. Other funding streams that may be affected include those supporting social inclusion and physical development. It is unclear whether national government or other partners will invest in these areas in subsequent years to wholly or partially make up for the loss of EU funding. Brexit will also bring about change in other important areas such as agricultural subsidies, and there are likely to be changes to manage as well as new opportunities in this respect. Other new policy areas that will impact include the Government's new Industrial Strategy, which this Strategy supports through aligning with its five foundations (people, places, ideas, business environment, and infrastructure) and by contributing to the Clean Growth Grand Challenge in particular. Green infrastructure could potentially also support and be a key part of the development of any future regeneration programmes such as the UK Shared Prosperity Fund.

6.2.2. New funding mechanisms and collaboration

One difficulty in securing resources for green infrastructure is that some of the benefits e.g. uplands restoration and natural flood management – tend to be shared and diffuse. That can mean that individual organisations do not feel it is their responsibility to invest as others who are not paying in will benefit too. When multiple organisations are in this position, the inevitable consequence is that nobody invests and nobody benefits. One potential mechanism to address this would be a pooled green infrastructure investment fund of some sort, to which a range of organisations

could pay in a very small percentage of their investment streams. This fund could then be used to invest in solutions that create shared benefits for many organisations and areas that will outstrip the scale of their individual contributions.

It is likely that flood risk reduction through natural flood management (including woodland and peat restoration projects) and potentially retrofitting of sustainable drainage systems would be a sensible focus for this work. That is because flood risk poses a financial risk or cost to many organisations, including utility, transport and infrastructure companies, and that these would expect to see benefits as a result, potentially including reduced insurance costs. Furthermore, there may be potential to use commitments to natural flood management by a body such as the Environment Agency or a portion of Combined Authority Growth Funds dedicated to natural flood management, to provide a core resource that helps to lever in other contributions.

Exploring the potential for a fund of this type would need detailed feasibility and planning work to identify the organisations, sums, legal mechanisms, governance, structures and focus areas involved. Therefore a decision will be needed about whether the potential of a green infrastructure investment fund is strong and realistic enough to warrant initial investment in this feasibility and set up work.

A further opportunity would be to establish a Combined Authority supported pilot fund to test and deliver innovative local green infrastructure projects that deliver multiple benefits, including economic resilience. An example would be to use green infrastructure solutions in urban areas with high air pollution and significant flood risks to mitigate both of these problems and improve landscape, amenity value and active travel.

More widely, there is potential for better collaboration between businesses and other organisations, including for data sharing and joint investments. One example is where multiple companies have infrastructure in proximity, and where a joint approach to shared flood risks that threaten them (improving green infrastructure in the process) would be more cost-effective than individual action for all concerned. Ultimately it will be down to organisations to take forward this potential themselves. However the governance and championing of green infrastructure, in particular by the Combined Authority, local authorities and bodies such as the Environment Agency, can help to create the awareness and ethos that makes this more likely. Those organisations are also well positioned to broker the dialogue and relationships that are needed to align activity and resources and to make things happen.

Wombwell Flood Storage Scheme

This environmental and flood alleviation project in the Dearne Valley has procured a 44 acre arable field at the centre of three existing nature reserves, of which around half will be used to create a new wetland. This will reduce flood risk by reconnecting the dyke to its floodplain, establish new habitats, and improve community access to nature. The work is led by a local environmental charity, and brings together Barnsley Council, the Environment Agency, Yorkshire Wildlife Trust and RSPB, drawing on a mix of funding, including from the Heritage Lottery Fund.

Case Study 14. Wombwell Flood Storage Scheme

6.2.3. Planning and regulation

The planning system can exert traction on new development, in particular through strategic land use planning and by setting expected standards for green infrastructure within developments (see Priority 2 of this Strategy). In addition, the planning system can secure developer contributions e.g. through section 106 agreements and the Community Infrastructure Levy. It will be important to ensure that the priorities for these include green infrastructure where additional elements are required over and above the incorporation of green infrastructure into the fabric of the development. Setting high expectations through planning guidelines and policies will also have wider influence, for instance in helping to drive green infrastructure within the house building programmes of bodies such as Homes England.

6.2.4. Expertise, championing and intelligence

It is important for green infrastructure to be championed at City Region level and within local areas, integrated within governance structures. These will include leadership roles on green infrastructure for the Green Economy Panel in collaboration with the Yorkshire West LNP, and there have been benefits from a structure whereby a member of the City Region's Directors of Development group chairs the Yorkshire West LNP and champions green infrastructure, backed by officer expertise. Arrangements for the future will be confirmed during 2018. Local authorities are best placed to lead within individual areas and it will be helpful for them to designate and formalise senior lead roles on green infrastructure at member and officer level. Other large organisations could also designate lead green infrastructure roles internally, for instance in NHS organisations e.g. hospital trusts, universities, utility companies and the housing sector.

A key barrier to more and better green infrastructure is a lack of the technical capacity and expertise to drive it forward, for instance to identify key green infrastructure projects and to assist with incorporation of green infrastructure within development schemes. Where additional capacity and expertise has been built, such as in relation to the adoption of Green Streets principles in transport projects, this has been of great benefit. Because this is a specialised area, and given the context of tight local government finances, it is unlikely that such specialist capacity can be established within each local authority. Hence the best approach is likely to involve appointment of such expertise within or working to the Combined Authority, which would help to provide an officer champion for green infrastructure across areas of activity, to support future bids, and to assist with the design of key schemes across local areas.

Improved mapping and intelligence will be intrinsic to driving and tracking delivery. Good evidence helps to make the business case and to direct resources to the most effective actions. Ways forward include embedding green infrastructure within local and City Region research and intelligence work and teams, and collaborating with the higher education (HE) sector to improve the evidence in areas such as valuation of green infrastructure and understanding of the effectiveness of natural flood management measures.

Better valuation of green infrastructure and natural capital will be an area of focus as it is key to making the business case and guiding win-win solutions. The Strategy will

look to learn from and share the findings of innovative pilot studies locally (and further afield) and connect with HE expertise in and beyond the City Region, for instance valuation research connected to the Canal and River Trust.

Mapping will be helpful in communicating this Strategy, including existing assets and proposals for improvements. It will also be valuable in planning and prioritising detailed action. This will include identifying hotspots where there are multiple capacities that could be consolidated upon, and local level mapping, for instance to identify neighbourhoods that suffer deprivation, poor health outcomes and poor access to green infrastructure. This could be used to identify priority local projects to improve the quality and perceived safety of existing green infrastructure or access to it and / or to create new green infrastructure assets.

Valuation: Keighley Moor Restoration

Erosion of degraded peat leads to discoloured raw water – and capital and energy intensive processes to remove the colour and ensure high quality drinking water. Yorkshire Water and Natural England ran a pilot project on Keighley Moor to value a sustainable approach based on catchment solutions and moorland restoration. It found that £1 of investment led to £3 of societal benefits when carbon sequestration, water quality and biodiversity were included. This is now shaping Yorkshire Water's planned programme of upland catchment management.

Case Study 15. Keighley Moor Restoration

6.2.5. Citizen and voluntary action

The actions of individuals and communities can play a large part in powering change. This is partly about individuals making lifestyle choices, such as to enjoy local parks, cycle routes or woodlands and to encourage their friends and families to do likewise. It can also be at household level, where individual decisions about the features of homes and gardens can collectively add up to big impacts. Or it can be as part of groups and communities, where volunteering and action by local groups gets things done and builds local ownership that helps to keep green infrastructure well respected, maintained and used.

Citizens and groups are already active and making a difference in this respect across the City Region, for instance in tree planting and conservation projects, catchment partnerships and rivers trusts, or in friends of groups looking after local parks and other treasured environments. Encouraging and enabling more people to get involved and active helps to win hearts and minds, to bring people together across communities, and to make a practical difference that people can feel proud of.

Communities will be involved in identifying and helping to design and shape the schemes that affect them to help widen participation, build support and to ensure that solutions meet people's needs.

Incredible Edible Todmorden

Is a community venture that grows local food to share. It has planted and cared for vegetable and herb beds and fruit trees all over the town, providing food for anyone who wants to pick it. It runs cooking demos, organises festivals and encourages people to shop local, and works with other groups to build a stronger, kinder community. As a Community Benefit Society it has no paid staff, buildings or public funding and embodies 'radical community building in action.' Its success has sparked local spin off projects including 'the Incredible Farm' and the 'Incredible Aquagarden' that engage young people in food growing, as well as a growing international network

Case Study 16. Incredible Edible Todmorden

Global Good Practice: Via Verde in Mexico City

Citizens in Mexico City are taking innovative action to improve air quality, tackle pollution and 'green' their city. The Via Verde project is creating 'vertical gardens' by planting on 700 columns that suspend the city's road ringway - equivalent to 40,000 m² of new planting. It aims to produce enough oxygen for more than 25,000 citizens, in addition to filtering 27,000 tons of harmful gases and processing 10,000 kg of heavy metals per year. The gardens will be maintained by an automated irrigation system using rain captured from the surface of the road above.

Case Study 17. Via Verde in Mexico City

6.2.6. Communication

Good communication will be essential for this strategy to gain the traction it needs in order to deliver its ambitions. That includes communicating to raise awareness of its priorities; being clear on the role individuals and organisations can and must play; forging new partnership and links needed for delivery; and winning support for solutions and making the case for them within decision making processes. It will also be key in terms of shaping individual behaviours, for example on how people use, enjoy and perceive green infrastructure. Local partnerships and community groups and events will play an important role in this through awareness raising activities. At all times green infrastructure must be communicated in a way that clearly articulates its benefits for people, communities and the economy, avoiding jargon wherever possible so as to resonate with the intended audience.

6.2.7. Monitoring, review and the valuation of green infrastructure and natural capital

The strategy is a living document that will evolve as new challenges, opportunities and circumstances arise, including macro level changes such as Brexit, devolution, industrial strategy and the response to climate change. Its delivery and impact will be managed and monitored on an ongoing basis with annual stock takes of progress on

each strand of action, and more fundamental review of the strategy as and when appropriate, tied into development of the Local Inclusive Industrial Strategy and emerging policy framework.

Wherever possible we will explore and apply techniques to value natural, social and economic capital associated with green infrastructure and to factor those into decision making²³. Project and programme appraisal (or ‘assurance’) mechanisms must also incorporate green infrastructure, including those used by organisations such as the Combined Authority / LEP, local authorities, the Environment Agency, the Homes England and transport organisations. The importance and practicalities of such techniques will also be communicated to the private sector and developers (see Priority 2).

Metrics for individual priorities and strands of action will be considered within the Delivery Plan. However, in order to collate a longlist of possibilities, Annex 2 lists the quantitative indicators noted within each priority and provides notes on potential monitoring approaches and data sources. It is important that all monitoring reflects quality as well as quantity, and takes account of inclusivity, equalities and multi-functional benefits.

Whilst detailed metrics, including target setting, will need further development once specific actions, locations and baseline data are clear, it is important to have a high level view of what success will look like. Table 19 does that for the headlines associated with each priority and communicates what success will look like in meeting our long term ambitions.

Priority	Headline	Outcomes
1.	Become a UK trailblazer in catchment planning and natural flood management	<ul style="list-style-type: none"> • Integrated catchment plans for all river catchments that affect the City Region covering all relevant measures (natural flood management, flood defences, planning, resilient design, etc.). • Step change increase in investment in natural flood management, guided by good intelligence and a strategic approach. • Recognised as most advanced part of the UK in this field. • Significant and consistent reduction in property flood risk.
2.	Make quality green infrastructure a defining feature of the way we do development	<ul style="list-style-type: none"> • Local plans and associated planning documents / processes ensure that good quality green infrastructure is incorporated into all development – with robust enforcement and visible results.

²³ For a discussion of this approach see: Newby, L (2014), Integrated capitals, better outcomes – the three capitals model and the role of valuation, in *Out of the Blue*, Arup, Leeds

Priority	Headline	Outcomes
		<ul style="list-style-type: none"> Exemplar flagship green infrastructure schemes in place on the largest town and city centres (in each local authority area) and in many other SPAs – with positive local impact (e.g. on use, values).
3.	1,000 miles of green infrastructure rich corridors, including canals, rail, road, and a City Region cycle route network	<ul style="list-style-type: none"> Over 1,000 miles of green infrastructure rich corridors target is based on: <ul style="list-style-type: none"> 450+ miles of roads that embody Green Streets principles (based on all new / improved West Yorkshire Transport Fund roads, 50 percent plus of the West Yorkshire Key Routes Network, plus additional action in North Yorkshire County Council area highways) Over 50 miles of green infrastructure rich rail corridor (including HS2 route) Enhancements to the City Region's 100 miles of canals 400 miles of green infrastructure rich, high quality and mainly off road / segregated cycle route network connecting all of the City Region's most sizeable towns and cities (c400+ miles²⁴) Improved footpaths and main river corridors (NB – these are not included in the 1,000 mile target because of the scale of those assets – total river length is over 2,000 miles)
4.	Everybody in easy reach (1km) of an outstanding, diverse, well used green infrastructure network	<ul style="list-style-type: none"> 99 percent plus of homes within approximately 1km of good quality green infrastructure (safe, attractive, large enough for play / exercise / quiet enjoyment – either corridors or green / blue spaces)
5.	Create a 'White Rose Forest' and increase tree cover by more than a third	<ul style="list-style-type: none"> 3 million trees planted (right tree, right place, well managed) Tree cover to reach 10 percent or more (illustrative target) A designated White Rose Forest

²⁴ Expected to include unbroken and reasonably direct links between places such as Leeds, Bradford, Wakefield, Huddersfield, Halifax, York, Harrogate, Barnsley, Dewsbury, Castleford, Keighley, Selby, Skipton, Otley and Todmorden.

Priority	Headline	Outcomes
6.	Flourishing uplands that manage water, store carbon and support wildlife	<ul style="list-style-type: none"> Treble the proportion of Yorkshire Blanket Bog peatlands in good (favourable and recovering) condition to 50 percent plus by 2036
7.	A big rise in green infrastructure based businesses, innovation, jobs and apprenticeships	<ul style="list-style-type: none"> Growth in green infrastructure based businesses, jobs and apprenticeships that outstrips average City Region growth rates.

Table 19. Assessing the achievement of headline outcomes for each priority

Appendix 1: Relationship with the Local Inclusive Industrial Strategy (and Strategic Economic Plan Delivery Plans)

The LEP Board have identified four key challenges facing Leeds City Region – areas which are holding back the economy and constraining growth. The Green Infrastructure Strategy and its long term outcomes and supporting Delivery Plan will address these core challenges as shown in the table below.

Four key challenges for the City Region	Contribution from the Strategy
Widening productivity gap – Leeds City Region is ranked 29 out of 38 LEPs on productivity. Evidence shows this is due to underperformance within sectors as opposed to an adverse sector mix	The Strategy supports key drivers of productivity including skills, innovation, investment and enterprise by creating new business and upskilling opportunities. It will enhance the City Region’s attractiveness and profile by raising the quality of developments and town / city centres and enhancing an accessible green infrastructure network. This will act as a magnet for talent and investment, as many businesses stress the challenge of attracting a highly skilled (and productive) workforce whose locational choices are swayed by environmental quality. The Strategy also promotes health and active travel which are proven to support higher productivity.
Low SME investment in R&D and innovation – despite the significant assets in the City Region	The Strategy includes a key strand of action on innovation and will connect green infrastructure expertise in universities and elsewhere to business growth and the development of key projects. This will include links between green infrastructure and areas such as energy, planning, engineering and construction. Innovative solutions – including those developed in HE, businesses and other sectors - will be important in becoming an international leader in this area and delivering world class projects.
Living standard have stalled	The Strategy will boost quality of place, leisure and amenity aspects of quality of life and living standards. It will further contribute to economic development, e.g. by encouraging high quality development, reducing flood risk impacts on businesses, and supporting business and jobs growth – which in turn support higher incomes.
Stubborn deprivation	The strategy includes a specific focus on prioritising green infrastructure access and improvements in areas of deprivation and poor health and can contribute strongly to the Inclusive Growth Corridors

	<p>concept (including proposals linked to HS2 and other rail routes, highways and active travel). It will create opportunities for work experience, employment and apprenticeships and help those who are unemployed and often facing challenges to secure employment and progression opportunities. It will disproportionately benefit health outcomes in areas of stubborn deprivation by supporting mental health, air quality and physical activity.</p>
--	--

Relationship to other Delivery Plans

SEP Delivery Plan area	Strategy contribution to the Delivery Plan	Delivery Plan contribution to Strategy
Business, Innovation and Growth	Supports growth and innovation in sectors including engineering, land management and energy and boosts the visitor economy	Provides support to green infrastructure businesses to help them to innovate, prosper and grow
International Business	Contributes to investment propositions through quality and resilient locations that attract business and skilled people	Creates demand for excellent business locations; attracts investment in green infrastructure businesses and trade opportunities
Digital	Part of a package of aligned infrastructure improvements in City Region Spatial Priority Areas	Improves overall infrastructure position and provides specialist digital skills required in green infrastructure businesses e.g. data analytics to spot and plan opportunities
Employment and Skills	Provides opportunities for employment and skills development from entry level and apprenticeships to advanced, technical and higher level	Provides skilled people needed to deliver green infrastructure and to drive green infrastructure business competitiveness and productivity
Zero Carbon Energy	Provides opportunities to integrate renewable energy and energy efficient solutions with new green infrastructure,	Integrate green infrastructure into clean energy infrastructure (e.g. district heating) and in

	supports low / zero carbon transport	electric vehicles infrastructure
Integrated Infrastructure	Drives best practice green infrastructure solutions that will be intrinsic to spatial planning and Spatial Priority Areas – creating aligned and future-proofed investment and infrastructure	High quality green infrastructure integrated into design and delivery of Spatial Priority Areas from the outset and normalised as a key element of infrastructure
Housing and Regeneration	Supports quality, sustainability and resilience in development, raises values	Include explicit policies, action and mechanisms to design and deliver green infrastructure within housing and regeneration, including flagship Spatial Priority Area schemes
Transport (Strategy and suite of plans)	Improves quality of transport routes as multi-functional green infrastructure corridors with improved asset resilience. Heightens new infrastructure acceptability, supports active travel and sustainable transport	Drive planning and delivery of a green infrastructure rich cycle route network, extension of Green Streets approach (e.g. to key routes network), ‘eco-stations’ and support an HS2 green infrastructure corridor
Integrated Flood Risk Reduction	Promotes the role of green infrastructure as a part of integrated, catchment wide investments to mitigate flood risk and improve economic resilience	Catchment based partnership and alignment of resources on flood risk reduction and mitigation

The strategy will directly support the SEP headline indicator on CO₂ emissions (through carbon sequestration and storage) and indirectly support the other four Headline Indicators on growth and productivity, employment, skills and earnings. It will also make a major contribution to the SEP goal of “tracking progress against wider, equally important goals...such as innovation, quality of life, quality of place, environment and culture”.

Appendix 2: Quantitative Indicators – definition, development and target setting

The following table pulls together quantitative success measures across the Strategy, grouped around its seven priorities. Targets are included where it has been possible to set them. The monitoring approach / data column states whether measurement is through an existing indicator (and the data source if so) or whether a tailored approach will be required, for instance a study or evaluation, or collation of information by relevant organisations, such as on implementation of green infrastructure approaches or investment in them.

The table is intended as a foundation and menu for indicator development, which will be further considered and developed as Delivery Plans are taken forward. It is not expected that all indicators will be adopted (this long list will need to be shortened considerably) and the final selection of success measures will depend on the practicality, cost, relevance and importance of indicators.

	Success Measures	Monitoring Approach	Notes
1.	Reductions in peak river flows achieved through natural flood management measures	Tailored – project or study based	Link to iCASP proposal
	Residential and non-residential properties at risk / high risk of flooding	Standard indicator – National Flood Risk Assessment data	Consider in future Delivery Plan development. Will also reflect wider flood measures
	Percent of new development incorporating sustainable drainage systems	Tailored – local authorities to collate	Target will be 100 percent of relevant development as defined in the Delivery Plan
	Length of river with improved water quality	Standard indicator – Environment Agency data	Consider in future Delivery Plan development. Also assumes no deterioration in other lengths of river
2.	Investment in green infrastructure as a percentage of overall investment (in physical development)	Tailored – Combined Authority / local authorities to collate	Consider in future Delivery Plan development

	Success Measures	Monitoring Approach	Notes
	Increased high quality urban green space	Tailored - hectares meeting a quality standard to be determined	Consider in future Delivery Plan development
	Number of flagship green infrastructure rich developments	Tailored – count / log major schemes	Define schemes in Delivery Plan, e.g. those in town /city centres and Spatial Priority Areas
	Perceptions of the Leeds City Region as an investment location	Tailored – survey or qualitative information from potential investors	Link to Combined Authority /LEP/ Welcome to Yorkshire work on inward investment and profile
3.	Miles of green infrastructure rich corridors – roads / cycle routes / rail / rivers / canals / strategic footpaths	Tailored – data from Combined Authority, Environment Agency, Canal and River Trust on extent of green infrastructure corridors	Headline outcome is 1,000+ miles green infrastructure rich network (excluding rivers and footpaths). Refine in future Delivery Plan development.
	Levels of walking and cycling (number and percent of journeys), including on green infrastructure rich routes	Standard indicator – transport data from Combined Authority and local authorities	Target to be linked to any set within West Yorkshire Transport Strategy
	No of bus / train stations becoming ‘eco-stations’	Tailored – Combined Authority to count / log stations meeting eco-station criteria	Eco-station characteristics and plan to deliver defined in Delivery Plan and Transport Strategy / plans
	Miles / hectares of enhanced river / canal corridors (e.g. improved habitats or access)	Tailored – log improvements as they are delivered	Delivery Plan to include targeted improvements and monitoring detail
4.	Percent of all households within approx. 1km of high quality green infrastructure	Tailored – to be measured by Combined Authority or local authorities using GIS	Headline outcome. Onward Delivery Plan development to define quality, quality and

	Success Measures	Monitoring Approach	Notes
			access criteria – target is 100 percent long term.
	Percent of people using outdoor space for exercise / health reasons	Standard indicator - data for unitary and upper tier councils available through Public Health Outcomes Framework	Consider in future Delivery Plan development, to be led by public health partners. Change will reflect wider factors too.
	Percent of physically inactive adults and children	Standard indicator- data on adults through Public Health Outcomes Framework, adult / child data through Public Health England	Consider in future Delivery Plan development, led by public health partners. Change will reflect wider factors too.
	Higher levels of cycling and walking	Standard indicator - available through Public Health England	Linked also to measure under Priority 3 and Transport Strategy
	Number of people accessing green space	Tailored – would require survey work	Population lifestyle survey or site specific survey
	Healthy life expectancy and inequalities	Standard indicator – available through Public Health Outcomes Framework	Will mainly reflect other factors but useful contextual information and enables tracking of inequalities
5.	3 million more trees by 2026	Tailored – through tracking of planting activity	Consider in future Delivery Plan development
	Woodland carbon capture	Tailored – via Woodland Carbon Code	Consider in future Delivery Plan development
	Tree canopy cover - increase by more than a third, to an illustrative target of 10 per cent by 2036	Tailored - requires i-tree survey for baseline and to measure progress	City Region tree cover figure was approx. 65 percent of that in England in 2000. Target aims to close this gap and will be refined in the Delivery Plan

	Success Measures	Monitoring Approach	Notes
6.	Percent of peatlands / Yorkshire blanket bog in favourable and recovering condition	Tailored – Yorkshire Wildlife Trust have survey based data	Target of 50 percent good condition (favourable and recovering) by 2036 (cf 16 percent in 2016)
	Improvement in water quality	Standard / Tailored – combination of data, including from Yorkshire Water	Consider in future Delivery Plan development
	Carbon sequestration in peat and woodland	Tailored – calculated based on area and detail of tree planting and peat restored	Would require calculation based on area and type of peat restoration and tree planting activity
7.	Output and growth of green infrastructure based sectors	Tailored – would require evaluation or definition / tracking of sub-sectors as not a standard classification	Consider in future Delivery Plan development
	Number of people employed in green infrastructure based jobs and apprenticeships	Tailored – as above and / or via tracking of green infrastructure project delivery	Consider in future Delivery Plan development