



Cabinet Report

Report of:	Executive Director of Place
Report to:	Cabinet
Date:	18 September 2013
Subject:	Sheffield Waterways Strategy - Endorsement
Author of Report:	Simon Ogden – 273 4189

Summary:

This report seeks to gain endorsement for the Sheffield Waterways Strategy to promote the regeneration of the 150 miles of Waterways in Sheffield. The Strategy was drawn up on behalf of the Sheffield Waterways Strategy Group, a body which draws together statutory organisations and many of the voluntary, not for profit groups with an interest in waterways across the City.

Reasons for Recommendations:

Whilst there are no direct funding implications it is envisaged that this endorsement of this Strategy will influence and strengthen a range of funding bids for flood defences, walking and cycling routes, waterside regeneration schemes, river restoration, green and open space investments etc

Recommendations:

That Cabinet :-

- a) welcomes the Waterways Strategy and thanks the members of the WS Group for their longstanding commitment and ongoing contribution and involvement
- b) approves the Strategy as a declaration of intent and a guide to partnership

- work which will be referenced as appropriate in future SCC statutory and regeneration plans
- c) authorises the Cabinet Member for Sustainability to sign the City of Rivers Partnership Agreement along with other partners
 - d) endorses in principle the proposal for a biennial State of Sheffield's Rivers Conference, the first to take place in 2013-14
-

Background Papers:

Waterways Strategy Document
Waterways Strategy Five Year Plan Spreadsheet

Category of Report: OPEN

If Closed add – ‘Not for publication because it contains exempt information under Paragraph... of Schedule 12A of the Local Government Act 1972 (as amended).’

* Delete as appropriate

Statutory and Council Policy Checklist

Financial Implications
YES Cleared by:
Legal Implications
NO Cleared by:
Equality of Opportunity Implications
NO Cleared by:
Tackling Health Inequalities Implications
NO
Human rights Implications
YES
Environmental and Sustainability implications
YES
Economic impact
YES
Community safety implications
NO
Human resources implications
NO
Property implications
No
NO
Area(s) affected
Relevant Cabinet Portfolio Leader
Cllr J Scott, Cabinet Member for Environment, Recycling and Streetscene
Relevant Scrutiny Committee if decision called in
Economic and Environmental Wellbeing Scrutiny Committee
Is the item a matter which is reserved for approval by the City Council?
NO
Press release
NO

Report to Cabinet Member for Environment, Recycling and Streetscene

1.0 SUMMARY

- 1.1 The aim is to carry out flood modelling of the Porter Brook and River Sheaf in the City Centre, to ascertain how improved defences, river naturalisation and deculverting interventions on both rivers will impact on flood risk and development opportunity. This information will then form the basis of regeneration work on the Porter Brook and the River Sheaf.

2.0 WHAT DOES THIS MEAN FOR SHEFFIELD PEOPLE

The study will provide flood risk data which will inform the regeneration of these two rivers in the City Centre, which will in turn benefit the people of Sheffield as it is proposed to improve public access to these rivers, as well as improving the existing levels of flood risk.

3.0 OUTCOME AND SUSTAINABILITY

- 3.1 The benefits of the project will arise directly from the data produced by the hydrological flood modelling of the Porter Brook and Sheaf in a number of scenarios, including river bank modifications and naturalisation, deculverting, removal of concrete dry weather channels and naturalisation of the river bed, all of which are sustainable interventions.
- 3.2 This data will be used for regeneration work on and around both rivers, as well as helping owners and developers of land adjacent to the Porter and Sheaf by providing up to date flood risk information.

4.0 BACKGROUND TO THE FLOOD STUDY

- 4.1 The banks of the Lower Porter Brook between St Mary's Square and its confluence with the River Sheaf under the Midland Station have been intensively used by industry for 200 years or more. The river is entirely canalised along this route, and frequently runs through culverted sections, hidden from public view. Much of this length of River is neglected with the banks in a poor state and with no public access through many of the river bank developments and development sites. The River's constrained nature also adds to the flood risk of the area and restricts its potential as a habitat for fish, wildlife and plants.

There are now redevelopment proposals for a number of key sites along the Porter Brook and River Sheaf which give an opportunity to establish a more strategic and comprehensive approach to the treatment of the River and access to it. A strategy for the river, for which the Flood Study will form the basis, will ensure the Porter Brook becomes a publicly accessible, naturalised river, through the use of viewpoints and a riverside walkway with a much improved wildlife habitat and will also clarify the source and scale of flood risk to the area and provide mitigation through the removal

of culverting.

The new Comprehensive Flood Model for Sheffield has recently been completed by ARUP, but they are the first to concede that it does not cover this complex area of culverts and historic goyts in enough detail to inform any interventions.

It is now an opportune time, with considerable development and regeneration interest in the area, to carry out more focussed flood modelling of the Porter Brook and River Sheaf in the City Centre, to ascertain how improved defences, river naturalisation and deculverting work on both rivers will impact on flood risk and development opportunity. This information will then form the basis of flood protection work on the Porter Brook and the River Sheaf.

The study will specifically seek to map the unknown goyts and channels hidden beneath buildings in the Cultural Industries Quarter, and around the station, so that a more informed picture of existing flood risk can be gained for the benefit of regeneration and flood risk mitigation within this area. The study will also focus on the modelling of a series of interventions mentioned below, to ascertain how these might affect flood risk.

4.2 Case 1: Sheffield Station, Sheaf Square and Porter Brook Site

The site comprises the cleared sites of two former office blocks between the Porter Brook and Sheaf Square, the recently built public space in front of Sheffield's principle mainline station.

It is proposed to carry out a multi-functional reprofiling of this section of the Porter Brook to remove redundant and intrusive infrastructure (the EA's debris screens, lifting machinery, skip compound and sub-station), provide a new left bank flood defence to the 1/100 year level, re-naturalise the channel and left bank, and create a new public cycle-footway access to the Station linking to the proposed new Station Cycle Hub.

The Porter Brook at this site is very constrained with a straightened alignment and a predominantly concrete or paved bed incorporating a narrow dry-weather flow channel which leaves an impoverished and unsympathetic river environment in sharp contrast to the upper reaches of the same river which is the principle feature of the Porter Valley river parkway.

Following the clearance of buildings which once lined it the left bank is essentially undefended at this point and the current Flood model for the Porter shows it flooding to a depth of 1.8m in the 1/100 year plus Climate Change event. Flooding would seriously affect both the development sites and also the operation of and access to the Station. The site has now passed into the sole ownership of the Homes and Communities Agency (HCA).

This model will shortly be updated by the new comprehensive hydrological model being finalised by ARUP for the EA and SCC. Information already seen from that study by SCC shows that there is a complex relationship between the Sheaf and Porter flood plains in this area which is exacerbated by the extensive culverting

particularly of the Sheaf downstream of Granville Sq. This needs to be properly understood to evaluate the various opportunities for deculverting, flood defence and other benefits.

At the downstream end of the site the Porter goes into a culvert under the Station where it joins the Sheaf. At this point there is a disused Environment Agency screening gantry and skip compound which partly blocks access and is an eyesore. Next to it is an electricity sub-station which now only supplies power to this gantry. The substation extends out into the station access road and causes a major bottleneck for taxis and others wishing to drop and pick up. The screen is now to be removed by the EA, allowing the substation to be decommissioned.

The Lower Porter Brook from where it passes under the Inner Ring Road to the Station culvert is now the subject of a co-ordinated strategic approach by the City Council and its partners including the Homes and Communities Agency, Network Rail, Environment Agency and Friends of the Lower Porter to deliver a continuous public river walkway, improved flood defence and linked open spaces with improved river and habitat quality. This builds on policy commitments in the Development Framework Core Strategy, the approved City Centre Master Plan and Sheffield Waterways Strategy.

Case 2: River Sheaf De-culverting at confluence with River Don

The River Sheaf joins the Don at Castlegate close to the historic site of Sheffield Castle and the Anglo-Saxon settlement of Sheaf-field.

Virtually the whole of the Sheaf within the City Centre, approximately one kilometre in length, is currently culverted and invisible. It flows under the Railway Station and Ponds Forge Sports Centre as well as new offices and car parks at The Square. None of these sections are likely to be available for major de-culverting for many years, if at all, although there may be opportunities for daylighting short sections.

However a significant opportunity exists at the confluence with the Don where the culvert lies under the former SYPTE building now in the ownership of the Council. The planned relocation of the Castle Markets to a new site will allow clearance of the market site and its redevelopment alongside the site of the former SYPTE building. This clearance could include removal of the culvert slab and the deculverting and reprofiling of a significant section of river including a weir.

Other potential interventions which the study will evaluate include the reprofiling of the Porter and local deculverting between St Mary's Road and Shoreham Street, and the creation of drainage/light shafts between Granville Square and the Station on the Sheaf.

4.3 Financial Implications

The Study will be funded by £50,000 from the Environment Agency's Local Levy Programme. This money is available for the 2013/2014 financial year only. It is intended to procure the work using the YORConsult programme to ensure that, if required in the near future, the funding can be used as match.

The funding from the EA is given with specific terms and conditions that must be met regarding procurement and delivery. These are as follows:

- Grant could be withheld for failure to complete the project.
- Work must be undertaken in accordance with the bid.
- All publicity about the project should contain reference to the funding.
- Variations to the project of over £100k must be reported.
- Work in Progress reports and estimates of grant claims could be requested by the Environment Agency.
- Final accounts for the project must be returned. Any procurement should comply with EU regulation.
- Although there are numerous conditions, there is little reference to the potential for clawback, other than saying that grant may be withheld for non-compliance

We are using YORConsult (already OJEU compliant) in order to comply with their requirements and we are confident that the project has sufficient time to be carried out and finished by the end of March 2014. The contract will be for a fixed price

A signed Environment Agency funding offer has now been received.

The Study is planned to be procured in early August 2013, so that there is sufficient time for a Consultant to carry out the work and present their findings well within this financial year. The project is ready to go to tender as soon as we have the necessary approvals.

4.4 Objectives

Sheffield Station, Sheaf Sq, River Sheaf and Porter Brook	
1	Assess current flood risk on the Porter Brook, associated with blockages and potential deterioration, and the potential advantages and reduction of flood risk that opening up and/or reprofiling will present. As part of the study, the Consultant will survey and map the un-modelled hidden goyts and channels beneath existing buildings in the area, which will inform and update current flood risk information and will provide a more accurate picture of flood risk in the City Centre. Provision of up to date flood risk data will inform future regeneration and flood mitigation efforts in the area.
2	New data from the results of the Flood Study will inform the future re-profiling and re-naturalisation of the Porter Brook. This will serve as a very prominent and publicly accessible demonstration of multi-functional improvement to a watercourse with Flood Protection, Regeneration, Transport and Water Framework Directive outputs.
3	Provision of up to date flood risk data for the Porter Brook in the City Centre, which will assist owners of stalled development sites alongside the Porter.

4	The study will model a series of interventions on the Porter Brook, including deculverting and naturalisation which will affect flood risk in the area. The final report will provide new flood risk data to support these changes.
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River Sheaf De-culverting at confluence with River Don	
1	Assess current flood risks on the River Sheaf, associated with blockages and potential deterioration, of the current culverted sections and the potential advantages and reduction of flood risk that opening up and/or reprofiling will present.
2	The culvert includes a historic weir which, with the culvert roof at this point, forms a significant pinch-point in high water conditions as demonstrated by the hydrological modelling for the Sheaf. Removal or passage of this weir and the effects on flood risk will be evaluated.
3	Removal of a significant pinch-point in the channel between the weir and the culvert soffit at Castle Market which currently can lead to backing up in flood conditions and impacts on key transport and business sites in the Lower Sheaf Valley including the Railway Station, Bus Station and Park Square junction.
4	Improved bankside and channel habitat for fish, birds and aquatic vegetation at this key entry point from the Don, leading particularly to improved fish migration up the Sheaf. Possible limited daylighting at other points on the culverts.
5	The flood risk data gathered during the Study will assist the wider regeneration of the Castlegate and the Cultural Industries Quarter, and Sheffield's main City Centre concentration of waterways.
6	With the removal of the screens and substation, the creation of a new cycle-footway along the Porter between Shoreham St and the Station will considerably improve cycle access in particular and will connect with the proposed new Cycle Hub facility, which is planned to be located in the main station buildings on Platform 1 almost directly opposite.

5.0 ALTERNATIVE OPTIONS CONSIDERED

5.1 De Minimis Option

A 'Do Nothing' option would be to allow redevelopment of the various riverside sites in the study area to go ahead without any proactive measures to provide flood defence or improvement of the waterways (probably quite limited uses), or to leave any such measures to a piecemeal site by site approach.

This would mean that an integrated cycleway/pedestrian walkway would not be created between the Station Cycle hub and the ring road/Staples as the Study provides the basic hydrological data for improving the Porter Brook around the Station and through the CIQ. The provision of a cycleway/walkway would be a priority for the regeneration of this river and sites alongside it.

It would also mean that new open space and cycleway/walkway adjacent to the University Technical College, alongside the Porter Brook at Sidney Street, would not be created, as provision of flood risk data is essential to kick-starting this proposed project.

It would also mean that existing stalled development sites in the Cultural Industries Quarter, on the banks of the Porter Brook, would remain undeveloped, as the Flood Study would be providing new data and proposals for improving flood risk of this river. This new information will assist developers making decisions about their stalled sites in this area. Without this information, these development sites will remain derelict and neglected.

The current offer of £50,000 funding from the Environment Agency's Local Levy Programme for the Study would be withdrawn, and would be diverted to other priority projects in the Region.

6.0 REASONS FOR RECOMMENDATIONS

- 6.1 The study will provide detailed flood risk data for the Porter Brook and River Sheaf as well as data relating to proposed interventions which will naturalise and improve the appearance of these rivers, through deculverting and reprofiling the river banks, as well as improving public access and some open space provision.

In addition, the study is essential as it will provide detailed flood risk information for important riverside regeneration sites, such as the Castle Market site, and the regeneration of sites adjacent to the Porter Brook between the Station and the ring road/Mary Street.

The Study will be fully funded by the Environment Agency's Local Levy Programme 2013/2014.

8.0 RECOMMENDATIONS

- 8.1 That authority is given for the Porter Brook and River Sheaf Flood Study to proceed using the YORConsult framework to procure the contractor.

SCC accepts accountable body status for the funding under the terms and conditions as identified in the funding agreement from the Environment Agency.

Author: J Stratford
Job Title: Development Officer
Date: 12 July 2013

Report of the Director of Regeneration & Development

Sheffield Waterways Strategy - Endorsement

1.0 Purpose of Report

The purpose of this report is to present the Sheffield Waterways Strategy for approval by the Council's Cabinet as a vision for the future and a basis for partnership.

2.0 Background

The Strategy was commissioned by the Sheffield First For Environment Board (SFFEB), a subsidiary of the former Strategic Partnership Sheffield First. The Board delegated this responsibility to the Waterways Strategy Group (WSG), a body which draws together many of the voluntary, not for profit and community groups with an interest in water across the City. These include the Sheffield Wildlife Trust, Groundwork, South Yorkshire Forest, Five Weirs Trust, Upper Don Walk Trust, Canal & Rivers Trust, Yorkshire Water, Trout in the Town as well as the University of Sheffield (Civil Engineering), Environment Agency and the City Council.

An initial report focusing primarily on background information and historical context was prepared by Yellow Book Consultants following the lead consultant being incapacitated by longterm ill health the Strategy was then completed by members of the Group, with support from University of Sheffield.

Although the parent body SFFEB is currently not meeting the WSG continues to be very active and is keen to play its part in implementing the Strategy as are key partners such as The Environment Agency, Canals and Rivers Trust, Groundwork and Sheffield Wildlife Trust.

3.0 What this Means for Sheffield People

Our rivers are one of the features which make Sheffield distinctive and are associated with some of its most attractive places. But they have also frequently been neglected in the past in the interests of industry or economy and much remains to be done. Rivers have improved dramatically in the south and west of the city, becoming a major factor in wellbeing and quality of life, but much less so in the north and east, reflecting many other social and economic indicators.

Climate change and increased flood risks mean that rivers can also be a threat to safety if they are not properly maintained.

So now it makes sense for the economy, environment and community to have well managed, accessible and healthy waterways everywhere in the city. The Strategy puts forward the arguments for why this is so and offers a variety of ways for partners and the people of the city to support and get involved in the further regeneration process.

4. 0 The Strategy

Sheffield has over 150 miles of waterways. They have shaped its landscape, character,

economy yet their visibility and quality vary widely. In the south and west of the city they run through well-loved river parkways such as Endcliffe, Millhouses or Rivelin Valley but as they approach the City Centre and in the north and east they are still too frequently hidden, culverted or neglected although recently this has begun to change.

The Strategy offers examples of good practice from across the UK, Europe and Canada.

It also highlights many examples of excellent practice in the restoration, opening up and regeneration of waterways in Sheffield but points out that these standards have not always been consistently applied, hence the need for a more comprehensive and explicit approach.

The strategy outlines why this has happened and what the people of Sheffield will gain by a more concerted and holistic approach. It highlights the changes in the economy, environment, climate and settlement patterns which make such an approach particularly important at this time.

The strategy complements similar documents prepared in Rotherham and other parts of the Don Catchment.

The strategy identifies eight broad areas of benefit:

- i) People – the city is noted for its history of pro-active environmental voluntary sector groups and the strategy emphasises the importance of involving and working with active citizens to achieve its objectives
- ii) Economy – attractive waterways can make a key contribution to making Sheffield a distinctive and compelling place for business to develop and invest and people to visit, particularly in the City Centre and local centres
- iii) Climate Change Adaptation – it is now essential that we manage the extreme weather patterns so we need well-maintained rivers and streams which can accommodate both flood and drought and are linked to more sustainable drainage systems, upstream water storage and well-managed uplands. Where appropriate harnessing water power for energy
- iv) Promoting Sheffield – the City of Rivers message should complement the image of the city as one of Europe's most green and corrects outdated impressions of industrial grime and dereliction
- v) Heritage, History and Culture – our rivers can tell the story of the city's development, its special industrial heritage and its unique urban forms. These can be highlighted through education, conservation, celebration and events
- vi) Access – we need to complete the already extensive network of waterside walks, parks and public spaces providing both healthy and sustainable travel routes and recreational amenity in an increasingly densely populated city
- vii) Stewardship – to grow and encourage the better care and management of waterways, in the first place in partnership with riparian owners, with communities and

where appropriate with users and volunteers, including the innovative River Stewardship Company model developed by the Waterway Strategy Group

viii) Wildlife and Natural Habitats – to enhance and protect waterways as continuous green wildlife corridors and reserves, improving bird and mammal habitats and fish passage

Together these contribute in particular to the Strategic Outcomes of Competitive City, Great Place to Live and Sustainable City

5.0 Implementation

The Strategy sets out a Five Year Action Plan with 52 individual actions each with a lead agency and partners mainly drawn from the WSG Membership (see Appendix 1). Of these actions ten are already completed, 16 are under way and 20 are in preparation. Only 6 have yet to be commenced.

In order to promote the Action Plan and the wider Strategic recommendations the WSG proposes the following:

- a) Public sign-up of all WSG Partners to the City of Rivers Partnership Agreement
- b) Inclusion of the WSG as a reference point in future regeneration master plans and statutory Local Plans
- c) Support for a biennial 'State of Sheffield's Rivers' conference for partners and citizens to measure progress against the strategy and to consider new projects and initiatives
- d) to review membership of WSG to ensure maximum involvement of local groups and agencies

6.0 Consultation

The consultants carried out extensive interviews with a wide range of stakeholders in preparing the initial strategy. This was subsequently reviewed and updated by the Waterway Strategy Group who have particularly developed the Action Plan. The draft strategy was launched for public comment and feedback at the Down by the Riverside Event at Kelham Island/Nursery St in September 2012 and was further modified following that process.

7.0 Financial Implications

There are no specific new financial implications of the Waterways Strategy although it is fully expected that it will influence and strengthen a range of funding bids for flood defences, walking and cycling routes, waterside regeneration schemes, river restoration, green and open space investments etc. Working in partnership in this strategic way will help draw in additional resources to the city, including invaluable contributions from the Council's partners.

8.0 Sustainability

The Strategy is based firmly on principles of sustainability both in the broad sense of environmental sustainability based on low carbon travel and energy and in the narrower sense of building in sound management and partnership to ensure proposals are viable longterm.

9.0 Equality

The Strategy promotes equal access to waterways for all ages, genders and ethnic groups

and those with limited mobility, sight or hearing.

10.0 Communications

The Strategy will be of general public interest and will be the subject of a press release, possibly followed by a press event linked to the signing of the Partnership Agreement.

11.0 Recommendations

The Cabinet

- a) welcomes the Waterways Strategy and thanks the members of the WS Group for their longstanding commitment and ongoing contribution and involvement
- b) approves the Strategy as a declaration of intent and a guide to partnership work which will be referenced as appropriate in future SCC statutory and regeneration plans
- c) authorises the Cabinet Member for Sustainability to sign the City of Rivers Partnership Agreement along with other partners
- d) endorses in principle the proposal for a biennial State of Sheffield's Rivers Conference, the first to take place in 2013-14



City of Rivers

SHEFFIELD WATERWAYS STRATEGY

This document has been prepared by Sheffield Waterways Strategy Group.

The Group was formed in 2003 at the request of the former Sheffield First for Environment Partnership, which was part of the Local Strategic Partnership, Sheffield First. Waterways Strategy Group is a partnership between voluntary sector groups and statutory organisations, all of whom have an active role in the care and regeneration of Sheffield's various rivers, waterways and other water bodies.

The aim of the group is to promote co-ordinated regeneration of our waterways.

Members include Sheffield City Council (Planning Service, Housing, Enterprise & Regeneration and Culture & Environment Service), the Environment Agency,

Groundwork Sheffield, Sheffield Wildlife Trust, South Yorkshire Forest Partnership, University of Sheffield, the Five Weirs Walk Trust, the Upper Don Walk Trust, Canal and River Trust (formerly British Waterways), Yorkshire Water and a number of other local environmental and amenity groups. The Strategy Group is always open to new members.

Initial work on preparation of the strategy was carried out by John Lord (Yellow Book Ltd). Parts of his work have been incorporated into this document and his contribution is gratefully acknowledged.

The strategy has been edited by Tom Wild (South Yorkshire Forest Partnership), Keith Missen (formerly Sheffield City Council) and John Lord (Yellow Book Ltd).

Editors: Wild, T.C., Missen, K. and Lord, J.
Published by:
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March 2012

ISBN: xxxxxxxx

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The development of this strategy would not be possible without the input of the wider stakeholder group. We are grateful to all those who agreed to be consulted, took part in events and helped to review the draft strategy.

Disclaimer

This document has been prepared solely as guidance for those involved in strategic development within Sheffield and the wider South Yorkshire sub-region. Sheffield Waterways Strategy Group accepts no responsibility or liability and shall not be liable for or in connection with any use that is made of this document (whether by a third party or otherwise) other than the purposes for which it was originally commissioned and prepared. We make every attempt to ensure that carbon emissions from our activities are offset through our annual programme of tree planting.

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Sheffield already offers a fantastic quality of life, and is well known for its attractive parks and countryside.



1 WHY DO WE NEED A STRATEGY FOR SHEFFIELD'S WATERWAYS?

Sheffield is a city made by its rivers.

We have more than 150 miles of rivers and streams; they made the city that we know today, creating our hill and valley landscape with its intimate human scale, they shaped the pattern of settlement and community and they enabled the growth of world leading industry. Rivers have had a profound effect on the character and personality of Sheffield and in large part are responsible for our unique sense of place. In short, waterways and their valleys are the defining features of the city, they have a central role in telling the Sheffield story; they are what made Sheffield - 'Sheffield.'

Although we owe so much to the rivers, we have until recently turned our back on them and years of use and abuse have broken the intimate connection between the city, working life and its waterways.

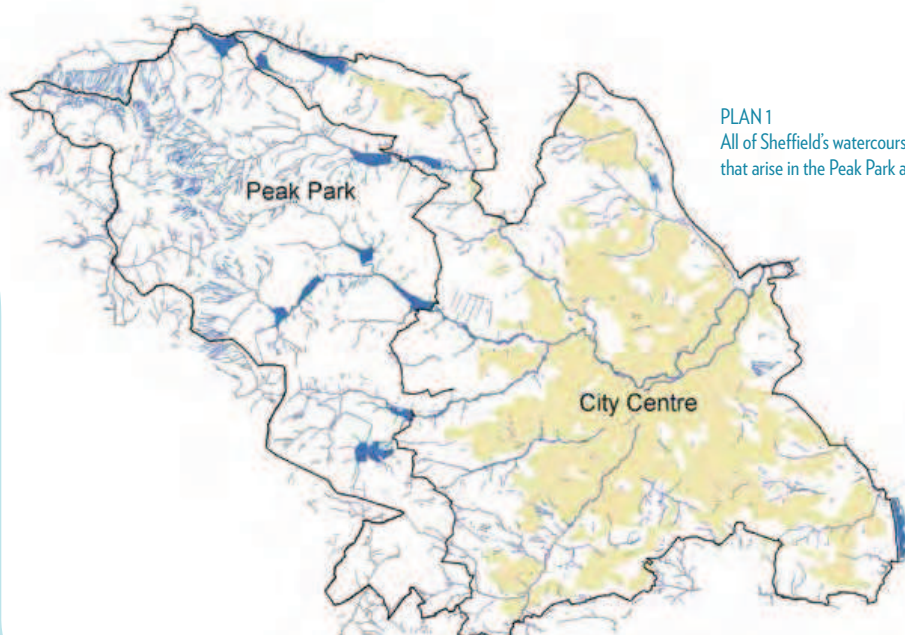
From the early twentieth century and particularly in recent decades, there has fortunately been a change for the better. Water quality has been improved and a great deal of regeneration work has taken place. However, there is no doubt that much more can be achieved and now is an ideal time for the city to re-engage with this major asset.

The central argument of this strategy is that there are three

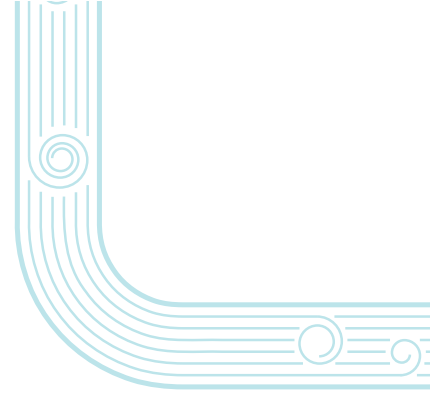
big prizes that can be won by successful river regeneration.

Sheffield's rivers can play a major part in:

- **Making Sheffield a thriving place and competitive city**
- **Helping us adapt to climate change**
- **Improving quality of life**



PLAN 1
All of Sheffield's watercourses including those that arise in the Peak Park area of Sheffield



A Thriving and Competitive City

Competitive places are those that offer not only economic opportunity but also an outstanding quality of life.¹ Having the right business location is important but not enough and focus needs to be centred on character, identity, diversity and richness of experience; not just shopping centres, leisure centres and short-lived visitor attractions which can be found in every town and city.

Sheffield's rich heritage of rivers provides us with essential ingredients for a winning place offering a great opportunity to help develop a signature as a unique, distinctive and successful European city.

Climate Change Adaptation and Mitigation

Climate change has been called "the greatest emerging humanitarian challenge of our time"² and the river system is where the effects are likely to be felt first. We are increasingly likely to suffer flooding, our city will become hotter and many of our best wildlife habitats will be threatened.

Before the city was here, rivers swept down from the hills and dissipated their energy naturally in the reed beds and willows of the Lower Don Valley.

Since those times, so much human intervention has taken place that we can never return the rivers to anything like a fully naturalised state but there is still much we can do to help protect against the changes that we know are coming.

Some locations do however offer scope for re-naturalisation and there are areas suitable for creating new washlands to absorb floods.

Deculverting is possible in places and there are also opportunities to nurture new resilient habitats for threatened wildlife. Taken as a whole our rivers and their corridors offer

a great opportunity for the creation of a new 'green infrastructure' network.³

A further element of our response to climate change must be to adopt more environmentally friendly building types and our urban riversides offer good locations for redevelopment, particularly where climate change resilience measures such as sustainable drainage, living roofs and biodiversity enhancing features are incorporated.

Heart of the city: the Peace Gardens modelled on Sheffield's five main rivers



1. Making Places Profitable (2007). Proceedings of the First Transnational Conference on Creating a Setting for Investment, Sheffield, 2007. South Yorkshire Forest Partnership, Sheffield.
2. Kofi Annan, in Global Humanitarian Forum (2009), 'The Anatomy of a Silent Crisis'.
3.

Quality of Life

Sheffield's green and open spaces are places for everyone to use and enjoy. They are also places that improve our environment and quality of life. Our rivers provide one of the strongest links that enable people to connect with these spaces. With sensitive development and the engagement of local people, they can add value to quality of life in many ways, including better health, leisure and recreation opportunities, sporting activities, social engagement and perhaps most importantly, stronger and more prosperous communities.



Endcliffe Park, one of Sheffield's finest riverside parks

3. 'Green infrastructure' is defined as "a network of multi-functional green space, both new and existing, both rural and urban, which supports the natural and ecological processes and is integral to the health and quality of life of sustainable communities." (Planning Policy Statement 12, 2010).

2 THE STRATEGY

This strategy proposes a **10-year vision** (2012-2022) for Sheffield's waterways and introduces an action plan for the coming 5-year period (2012-2017). It builds on existing achievements and ongoing activities, and it supports new work where action is needed. There are immediate initiatives to address urgent problems and more strategic initiatives to tackle longer-term and intractable issues.

It is not a strategy that relates solely to environment, the Waterways Strategy Group is firmly of the opinion that there are benefits to all aspects of life in the city. It is however primarily concerned with river corridors and not so much with wider catchment management issues. The strategy is not intended to be the nuts and bolts of how to fix everything that needs doing, its purpose is to:

- Open people's minds to the possibilities
- Engage and influence those who have the ability to make things happen
- Coordinate existing river regeneration activities and avoid duplication
- Help secure resources both financial and practical for collaborative work

- Propose an initial set of actions to be delivered in partnership.
- Provide the links with other initiatives

There is great synergy with the recently published Green and Open Space Strategy and whilst there are inevitably some areas of overlap, there are also benefits in dealing with waterways separately. Not only do waterways have a distinct policy agenda and different statutory stakeholders but riparian (riverside land) ownership presents challenges which are specific to waterways. So much needs to be done across the two areas of river regeneration and green space regeneration that there are also benefits in breaking the work down into two more manageable parts. Clearly, careful coordination is required and it is useful to consider waterways regeneration and green space regeneration as being united under the wider aims of green infrastructure development.

Good progress has already been achieved in regenerating our rivers to the benefit of communities, businesses and nature but much of this work remains largely unknown and there is much more still to be done.

Attitudes have begun to change, many people are awakening to the potentials of our waterways and major improvements in water quality mean that now is a perfect time for the city to begin the process of reconnecting with its rivers. There are indeed dangers in delay, we have already lost significant parts of our river related cultural heritage and a part of what remains is under threat. Climate change is also threatening our riverside communities with increased flooding and threatening some of our richest wildlife areas with habitat disruption.

Many parts of our waterways remain unappealing, but could be wonderful. Improvements in water quality, new riverside walkways and riverfront redevelopments mean that our rivers are now again becoming one of our greatest assets.

Realising the many opportunities will take a great deal of hard work, investment, and above all the engagement of many different people working together. Partnership is essential because the rivers are not the responsibility of any single agency.

Sheffield already offers a fantastic quality of life and is well known for its attractive parks and countryside. With careful management and wise decisions, our networks of rivers and associated green spaces can contribute more to the life of the city, creating an attractive landscape and helping us to adapt to climate change.

Sheffield is now ready to reconnect with all of its rivers, offering an invaluable opportunity to help this significant European city become what it deserves to be: successful, distinctive and competitive.



Victoria Quays



Photo Credit: Tom Wild



VISION

By 2022 our rivers will once again be central in **MAKING SHEFFIELD**, providing places where people choose to live, work and invest. Our watercourses and river corridors will be the defining features of a modern competitive, sustainable and attractive city, rich in wildlife and offering a wonderful quality of life to its residents, workers and visitors.

This strategy is focused on achieving eight ambitious but realistic goals:

3.1 People

To place people at the heart of Sheffield's efforts to promote waterways regeneration in ways which are open, inclusive and democratic. We want to help Sheffield regenerate its rivers, and let rivers help regenerate Sheffield.

3.2 Economic Opportunity

To help our city rediscover the economic opportunity of its wealth of waterways. We will help deliver attractive riverside landscapes and high quality riverfront buildings to stimulate investment and opportunities for business.

3.3 Climate Change Adaptation

To adapt to climate change and manage flood risks more sustainably by restoring the natural water cycle as far as practicable, ensuring the use of sustainable drainage systems, promoting low carbon options for travel and development along river corridors and delivering robust yet sensitive approaches at the scale of the entire river catchment.

3.4 Promoting Sheffield and its Waterways

To make Sheffield well known as a city of rivers and show how waterways are a central part of what makes Sheffield. We will promote our shared vision of Sheffield as an attractive, sustainable and competitive city whose defining features are its waterways.

3.5 Heritage, Culture and History

To use our rivers and canals to help celebrate the heritage, culture and rich history of our city. In order to do this we will provide educational opportunities, seek new resources for conservation and promote the careful retention and reuse of Sheffield's culture and industrial heritage. Sheffield's waterways will become a focus for an exciting series of celebrations, festivals and cultural events.

3.6 Access

To secure access along Sheffield's waterways as part of a city-wide network of riverside parkways providing pedestrian and cycle paths that link safe, attractive and natural green spaces.

3.7 Stewardship

To care for our waterways; by promoting river stewardship in order to provide clean, safe and attractive environments, encouraging riparian owner responsibility, involvement, regular and sensitive channel maintenance and helping people to enjoy these unique places.

3.8 Wildlife and Natural Environments

To protect and enhance habitats for wildlife right into the heart of the city, ensuring biodiversity, helping people to access nature and contributing to Sheffield's reputation as the greenest city in England.

3

GOALS



4 WHAT CAN WE ACHIEVE TOGETHER?

The Opportunity

Because of changes in land use patterns, water quality improvements and changing attitudes, we now have the once in a lifetime opportunity to begin reshaping our urban riversides and canal waterfronts, mending the relationship between the city and its waterways. We have the chance

to reclaim our rivers, improve their quality and at the same time use them to help deliver sustainable regeneration for the benefit of Sheffield's citizens of today and tomorrow.

This opportunity is partly due to evolving requirements for different types of building in the city centre, as a result of global economic forces.

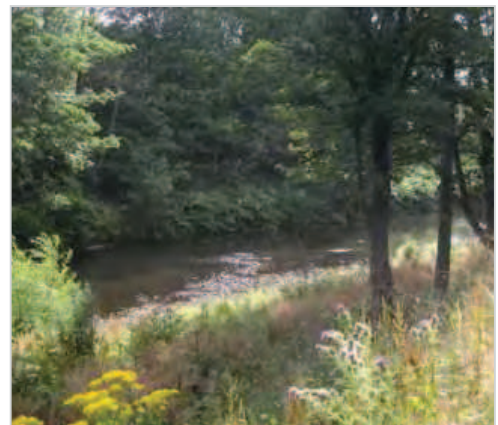
It is vital that we make good decisions now about how to treat our waterfronts because future generations will live with the legacy of these choices. It is also vital that we act now to respond to the impacts of climate change, for instance by taking more sustainable approaches to managing risk to life and property from flooding.



"On the Waterfront" festival at Victoria Quays



The Don as it used to be in Attercliffe



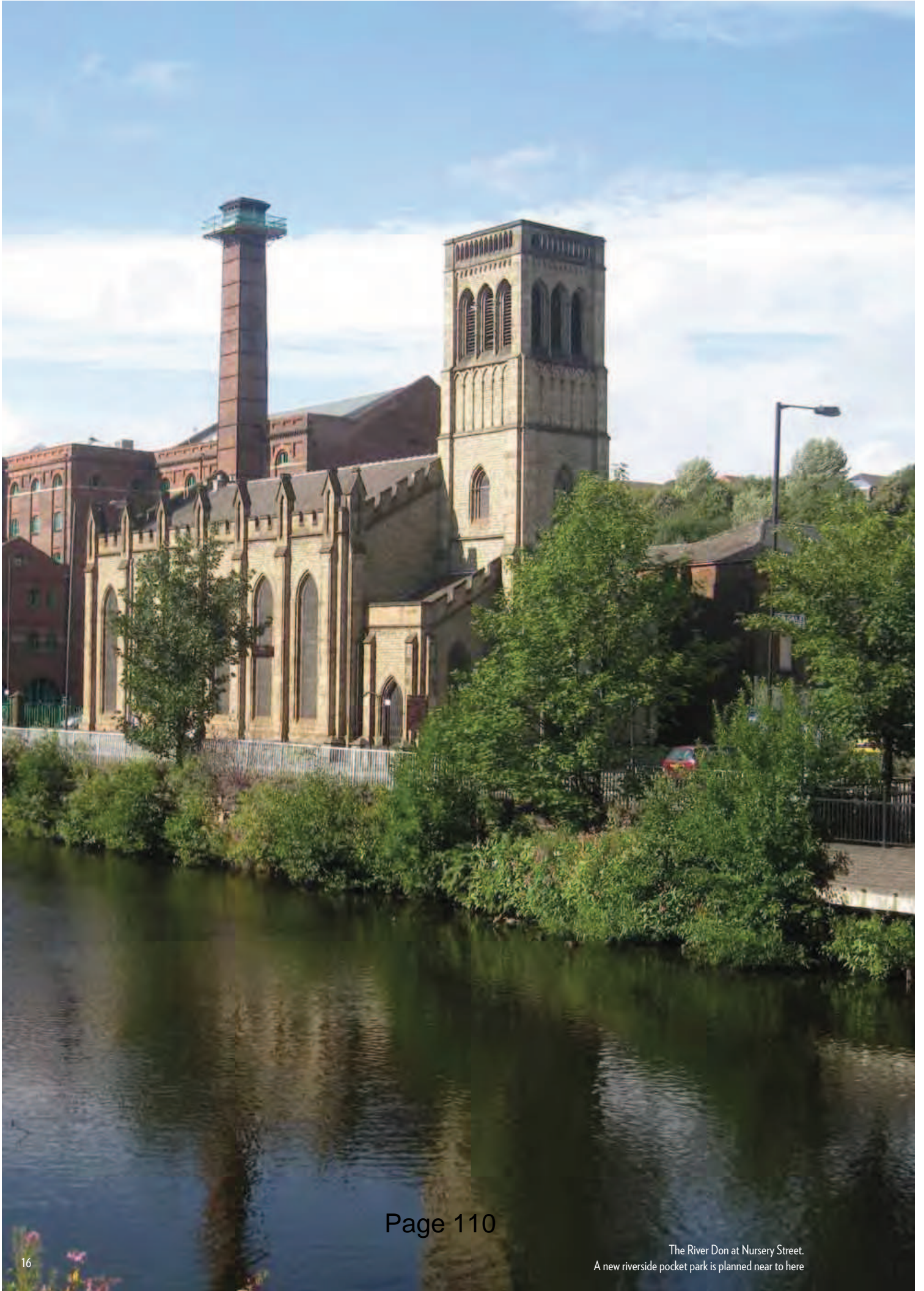
Dramatically changed, this is the same part of the river today


With the involvement and support of the right people, we believe the rivers can help the city, and the city can help the rivers. We want Sheffield's waterways to be beautiful, well loved and well known, contributing to a high quality of life for citizens and helping the city to adapt to the effects of climate change.

In places, waterways in Sheffield are currently well looked after and beautiful, known about and loved by some, and quietly contributing to cooling the city. Some rivers stretches to the West and in the city centre demonstrate the good things that might be possible elsewhere and we already have some great examples of what can be achieved with strong community involvement. In other places however, the waterways are still unknown to many, a source of unhappiness for others due to flooding and rubbish on the banks, and vulnerable to neglect and harm through patchy maintenance and indifferent development or management.









Part of our vision is to make better use of what we already have. This means looking after our waterways and taking better care of riverside communities. We can achieve this by building on the progress made in establishing initiatives such as the River Stewardship Company, to deliver long-lasting changes in the ways we manage our waterways. We can also create new places to live, work and play, across the entire system of waterways, by delivering carefully targeted environmental improvements and public space enhancements that will act as a catalyst for investment. We have done it before in the city centre through the Heart of the City programme and by exploiting our watery assets we can do it again.

We think that in Sheffield's heart, there is a golden opportunity to create lively and attractive new riverfront areas right in the city centre. The bigger vision is for this new 'oasis' to become the centrepiece of a network of riverside parkways; wildlife rich green corridors that can both link up our beautiful nature reserves and act as routes for sustainable travel. In this way a new open space in the city centre can become the 'jewel in the crown.' This is in keeping with Sheffield's Corporate Plan, its Economic Masterplan and the City Centre Masterplan and at the same time provides a framework for Sheffield to build on its reputation as the England's Greenest City.

Taking the opportunity for regeneration along Sheffield's waterways will strengthen the identity and appeal of its urban quarters and suburban centres. This network of riverside parkways can also help showcase Sheffield's rich cultural and industrial heritage. By working together with existing and new partners, we believe we can create culturally exciting, vibrant and attractive waterway locations.

Our opportunity is to help Sheffield's rivers help make Sheffield.

CASE STUDY: AARHUS, DENMARK DE-CULVERTING AND WATERFRONT ECONOMY

Aarhus expanded rapidly in the 1930's and to cater for traffic, much of the town's main river was buried below concrete to enable the building of a new road. Changed priorities in the 1990s removed traffic and presented the opportunity to break out the river. There was an almost immediate transformation to the economy and character of the area with the development of a lively waterfront and an increase in value of residential properties

by up to 40%. The success of the scheme has led to recognition that "blue infrastructure" is a driver for economic development and there are now further projects in progress to de-culvert more of the river and bring water back to other areas in the city. More widely in Denmark, 'blue infrastructure' is being used as an integral element of regeneration, especially to help reduce the impacts of climate change.

Lessons for Sheffield

Nearly all of the city centre stretches of the Porter and Sheaf are hidden or buried underground. Not all can be brought to daylight again but the opening up of as much as possible could help transform the character and economy of this part of Sheffield as well as adding vibrancy to the overall to the image of the city.

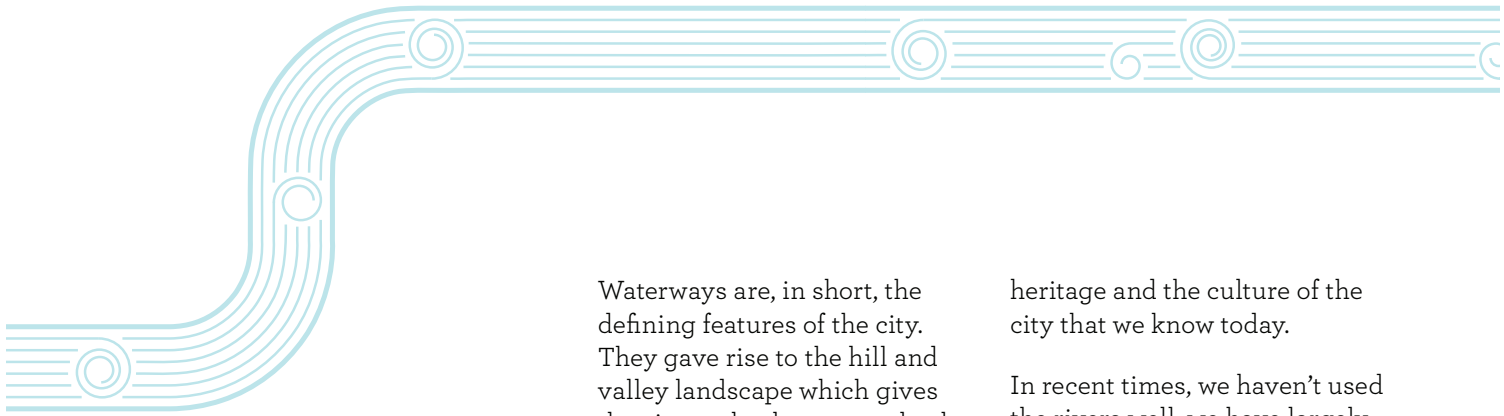


The road over the river



The river today is a central focus for the city. The view in the large picture is the same view as that in the bottom black and white picture





Waterways are, in short, the defining features of the city. They gave rise to the hill and valley landscape which gives the city such a human scale, the growth of world leading industry and a unique pattern of settlement and communities. Waterways therefore have a central role in telling the city's story; they are what make Sheffield - 'Sheffield.'

heritage and the culture of the city that we know today.

In recent times, we haven't used the rivers well, we have largely ignored what they have to offer and in many cases destroyed much that would now be valuable. There are however, still many good things about the rivers that we can build on to develop the Sheffield story.

5

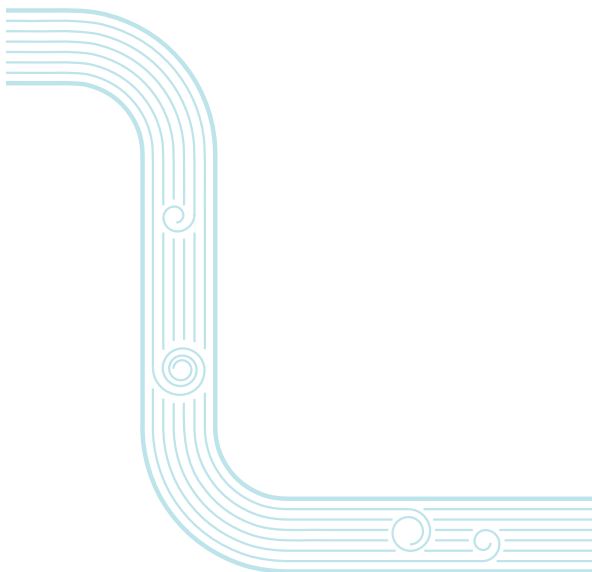
SHEFFIELD'S WATERWAYS

Nevertheless, many Sheffields and visitors are largely unaware of how many rivers and other water bodies we have and of the part that they have played in developing the shape, the

We have over 150 miles of flowing watercourses in five main valleys that converge in the city centre, our rivers link communities; nowhere in Sheffield is far from a river.

PLAN 2

Flowing down from the Pennines, our rivers have carved out a hill and valley landscape which gives Sheffield a much more intimate scale than most other cities.
Attribution: © Infoterra & Bluesky, © 2010 Google



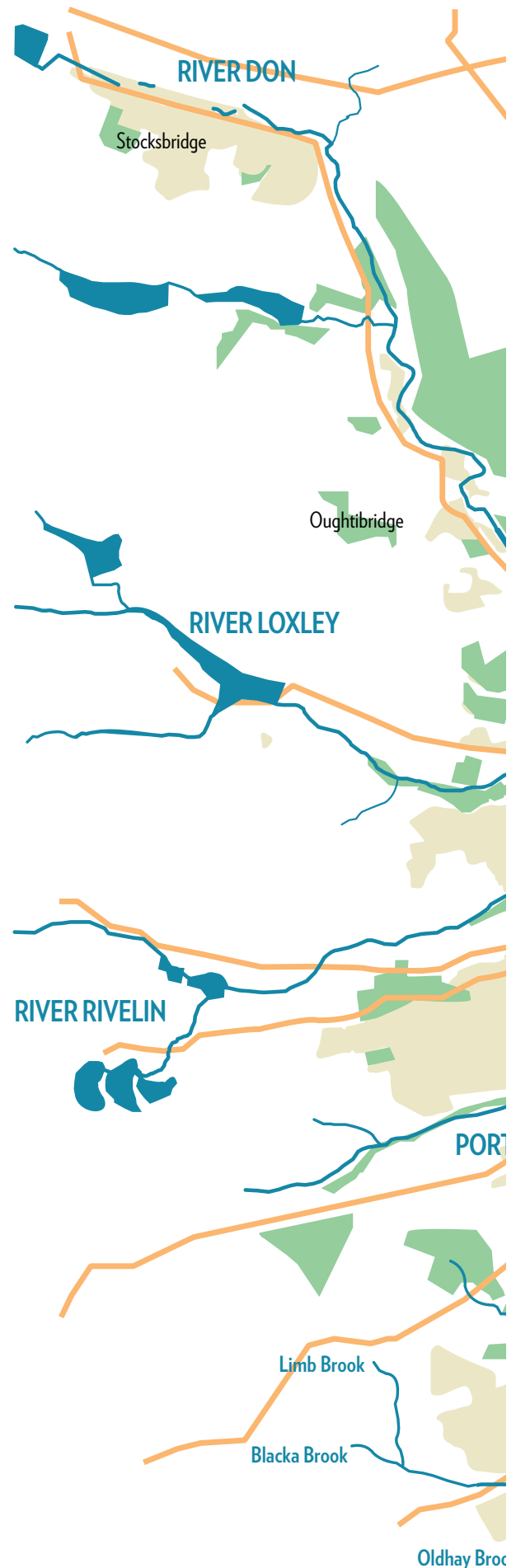
Our principal river is the Don rising in the Pennines above Penistone and reaching the River Ouse at Goole. Throughout Sheffield, it is wide, flows at a moderate pace and is prone to flooding.

Joining the Don at Hillsborough are the Loxley and Rivelin, both are narrow and fast flowing as they run down from their sources on the hills to the west. The Porter and the Sheaf, again narrow and fast flowing, join the Don further to the south in the centre of the city.

Parallel to the lower reaches of the Don is the Sheffield to Tinsley Canal and as the Don flows out of Sheffield, we have Blackburn Meadows Nature reserve, a recently created wetland reserve of European significance.

There are also many hundreds of smaller rivers and brooks, notable amongst these are the Blackburn Brook, the Shire Brook and Ochre Dyke but sadly many of these streams now run underground in culverts.

Since most of our rivers arise in the hills, high and fast flows can form rapidly. Before Sheffield grew into the city it is today, the energy from these flows was dissipated naturally amongst the water meadows of the Lower Don Valley but this natural floodplain was long ago covered by buildings and roads.





A Brief History

Our waterways have always been places in transition, changing and adapting as the city itself has changed. Sheffield was originally centred around a Norman castle built in a strategic location between the River Don and the River Sheaf and it is from this latter river that Sheffield derives its name. The original market held alongside the castle and river would have played a vital role in the growth of the local economy, bringing together the community and visitors coming to buy and sell produce from all around the sub-region.

Chris Firth's millennium history⁴ of the Don Catchment describes the Sheffield floodplain of the Don in the 11th century:

“ ... the river opened out into a complex of open water and marshes which had been formed as a result of the converging flow of the Don with its tributaries. This fluvial plain helped dissipate the energy of the floods which bore down the steep valley following heavy rain in the catchment... vegetation probably consisted of reed beds, interspersed with willow carrs enclosing shallow pools, the pools providing homes to a range of fish species which in turn supported a range of fish eating birds and mammalian predators such as the otter... ”

The Castle was built in the 12th century on land reclaimed from marsh; probably one of the earliest attempts at land drainage in the city. From this time onwards, the impact of human activity has been profound, not only with more drainage and reclamation but also with the impoundment of water to harness the power of the rivers and then in more recent centuries, chemical pollution.



What most of the river may have looked like in the Don Valley before settlement



What the Don had become by the beginning of the 20th. Photo Credit: www.picturesheffield.com

4. Firth, C. (1997). Domesday to the Dawn of the New Millennium: 1000 Years of the Don Fishery. The Environment Agency.

During the 17-20th centuries, the local industries of cutlery production, steel manufacturing and coal mining fuelled an almost hundred fold increase in the population of Sheffield and surrounding communities.⁵ This growth in the city and its economy was in part driven by access to plentiful natural resources and raw materials including woodland, iron ore, coal and the gritstone used for

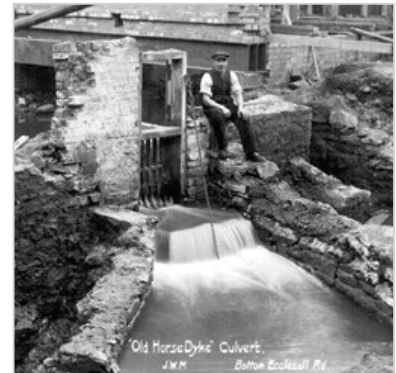
grinding. Probably the most important natural resource however was that of Sheffield's five fast running rivers: the Don, Sheaf, Porter, Loxley and Rivelin. These rivers provided the lifeblood of industry: water supply, power, cooling and a place to wash away the waste.

The late 17th century was the key period for development of water power and by the end of

the 18th century, all available sites on the rivers had been developed. Some of the weirs were substantial structures and in dry weather, the entire flow of the river might be diverted through ponds and goits leaving the river bed dry. The effect on fish was so disastrous that fish populations could not sustain themselves.



John Leather's 1823 Plan of Sheffield, showing just how heavily modified Sheffield's rivers had become by this date



Old Horse Dyke Culvert on the Porter Brook used to be near the bottom of Ecclesall Road
Photo Credit: www.picturesheffield.com



The canal basin in its heyday
Photo Credit: www.picturesheffield.com

By the beginning of the 19th century, sewage and industrial pollutants took their toll since the rapidly growing industrial town had no effective means of disposing of human waste, which flushed from streets into the town's gullies, streams and rivers. The Don became a sewer, "black and foul smelling."

Rehabilitation of the Don catchment started in the 1960s with the reintroduction of fish into disused dams on the Upper Don. In the 1980s factory closures and more stringent environmental legislation, followed by the construction of the Don Valley trunk sewer, resulted in a marked improvement in water quality. It is a measure of the dramatic improvement in the condition of our rivers, which were only recently biologically dead, that wildlife has returned with

improved fish populations which in turn have supported the return of other species including kingfishers, herons and otters.

Despite the rehabilitation of our rivers, they have been altered to such an extent that there can never be a return to a fully naturalised state. Now many of our waterways are constrained within walls and culverts with little capacity to cope with high flows so that flooding is an ever present threat. This has been made worse by large areas of hard paving which prevent rainfall soaking into the ground before it reaches the rivers. Our aspiration must be to introduce a more environmentally sympathetic regime of river use and management which strikes a better balance between the demands of development and the demands of nature.



Tapping furnaces at Thomas Firth & John Brown Ltd
Photo Credit: www.picturesheffield.com

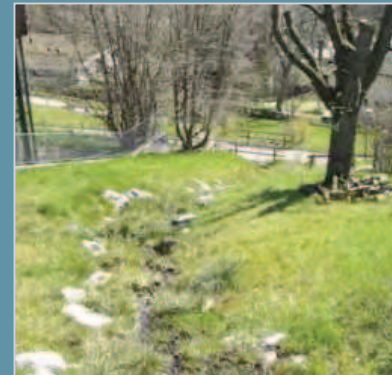


PLAN 4
River Channel Condition

CASE STUDY: ZURICH 'DAYLIGHTING' CULVERTED RIVERS



Deculverted waterways in Zurich
Photo Credit: Tom Wild



Zurich is widely considered as a leading European city in the field of sustainable water management, including deculverting (or 'daylighting') and other forms of river restoration. Since the late 1980s, Zurich has implemented its 'Bache Konzept' of restoring urban brooks throughout the city and its suburbs, by engaging local communities and landowners in projects to open up hidden and buried watercourses. The city has made major cost savings and created attractive new river environments in a wide variety of settings, bringing flood risk management benefits, ecological improvements and reduced water treatment requirements, as well as involving citizens in the planning process to help bring about a more integrated view of water management. Large volumes of clean river water

have been removed from the sewer network and instead brought to the surface as an environmental asset for local communities. Fritz Conradin, a drainage engineer working in the city throughout this period commented that, "every litre per second of clean river water diverted from the sewer network saves us 5,000 Swiss Francs or about £3,000 each year."⁶

Lessons for Sheffield

Almost all of our smaller streams and brooks have been culverted in parts, especially in their lower stretches. Emulating the Zurich model would not only reduce flooding, save money and improve wildlife, it would also provide an ideal opportunity for local people to become actively involved in environmental projects on their doorstep.

6. Wild et al (2010). Daylighting: reviewing the evidence on daylighting and restoration of culverted rivers. Water & Environment Journal. Chartered Institution of Water & Environment Management, London.

The Waterways Today

The recovery of our rivers has been a remarkable success story and its significance for this strategy is that these improvements have opened up opportunities for development, recreation and nature conservation which, only a couple of decades ago, would have been impossible.

Waterways are valuable assets with great potential but also with significant issues that we still need to address. They present us with a range of opportunities and problems and how we respond will determine our success or failure in achieving our vision.



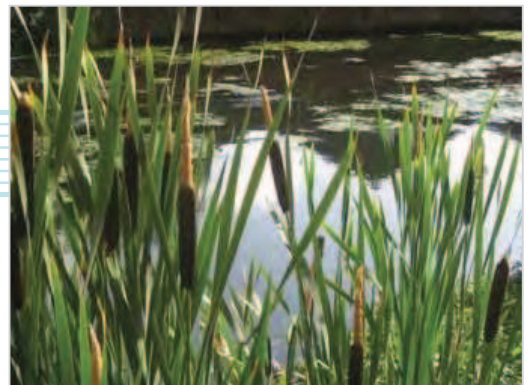
The Porter Brook
Photo Credit: Tom Wild

Strengths and Opportunities

Rivers are integral to Sheffield's topography and its structure, especially its green spaces and built environments. Watercourses help link the city with the countryside and provide the community with valuable access to open spaces and recreation. Our rivers help create places with strong character and distinctive identity. They are associated with Sheffield's rich industrial history and heritage, the appreciation of which is growing rapidly among local people and visitors alike. The Western river parkways offer highly successful models of river regeneration and mature management involving a broad range of stakeholders.



Kelham Island



The Goit at Kelham Island is a haven for wildlife

Regeneration is well underway in central riverside areas and is spreading fast to adjoining parts of the city. The quality of the environment is improving too. Water quality is much better, fish and mammals have returned. Nature reserves have been created throughout the city in areas such as Blackburn Meadows, Salmon Pastures and Shire Brook Valley. New routes such as the Five Weirs Walk and Upper Don Walk have created opportunities to enjoy natural areas by improving access for walkers, cyclists and other users by connecting together a wider network of paths and tracks.

This has stimulated changes in the way we view waterways, many people now see rivers as contributing positively to

our quality of life and this has encouraged users to demand better standards of management and maintenance.

Another major strength for Sheffield is dedication amongst many local people who are devoted to improving our waterways and are willing to go that extra mile to make the most of these unique assets. Strong community engagement in areas such as Rivelin, the Porter Valley, Shire Brook and the Upper Don Valley in Hillsborough shows how real progress may be made relatively quickly and through mechanisms that can deliver lasting and durable benefits.

Working together, we have the capacity to achieve major

improvements, bringing our waterways back into the hearts of our citizens and the city itself. Existing examples such as these can help to inspire new initiatives, such as along the Eastern urban sections of the Don, the Blackburn Brook, the Car Brook and the Shire Brook. Dedicated individuals can also be given more support by the organisations with a strong track record of delivering improvements to Sheffield's waterways over the decades.



New residential and office development together with a new river walkway in the city centre



Sheffield has many willing volunteers and many communities that are keen to get involved
Photo Credit: All - Sheffield Landscape Trust

CASE STUDY: TORONTO'S RIVER DON COMMUNITY LED, ECOSYSTEM BASED REGENERATION

Like our own River Don, the Toronto Don is subject to flooding and for a time, was so heavily polluted by industry that it was almost dead. Regeneration activities have been underway for a number of years and are especially notable because of the development of an extensive partnership network with strong roots in the community. The principal aim is to restore the natural water processes as far as practicable and a key element is that everyone, from citizens to those in business and in governmental organisations, has a responsibility for the river and a part to play in its restoration.

An inclusive steering group known as the 'Watershed Regeneration Council' is made

up of voluntary groups, community councils, residents, businesses and academics together with the local authority and the conservation authority. The original regeneration strategy published in 1995 has now been replaced by an updated strategy and thanks to a strong programme of monitoring and reporting; detailed knowledge has been accumulated about what needs to be done. Numerous community groups work throughout the catchment carrying out restoration works, stewardship activities and access improvements.

Other organisations play their part too, the City Council for example has introduced many initiatives to improve the quality

of storm water reaching the Don, these include a strong green roof byelaw, car park greening measures and roadside drainage swales.

Lessons for Sheffield

One of Sheffield's strengths is its large number of voluntary organisations and active citizens; there is a vast pool of energy, which could be directed towards waterways regeneration once the right catalyst is found. Also important to note from the Toronto Don, is the wide sharing of responsibility for the river.



Toronto's heavily urbanised River Don
Photo Credit: Raysonho, Wikimedia Commons

We have at our disposal legal powers but the key to success has been, and will continue to be, a robust and flexible approach based on sound science and proven ways of working in partnership.

There are many exciting opportunities and Sheffield's waterways have a vital part to play in addressing the twin themes of the Sheffield Development Framework which are transformation and sustainability. We may consider waterways as an opportunity to adapt to climate change as well as responding sustainably to increasing flood risks. This can involve establishing a network of ecologically-rich wildlife corridors and nature reserves, and providing the core framework for a city-wide green and open space network.

The waterways can act as a catalyst for investment, especially where they help to create distinctive places such as in the urban Don Valley. They can help provide new places to live, work and play, providing the city centre with lively, stylish riverfronts and strengthening the identity and appeal of urban quarters and suburban centres. They can be a showcase for Sheffield's rich industrial heritage and provide new sites for culture and creativity.



PLAN 5

Rivers, green corridors and the potential 'Hub and Spoke' network of routes and trails.

River corridors are already well endowed with walking and cycling routes and where these haven't been completed yet, they are relatively feasible to build subject to funding being found. They form the perfect basis for a city wide network of routes and trails, radiating out from the 'hub' of the city centre. Green corridors exist in many parts of the city which will provide an excellent basis for new routes to be constructed to link the river corridors and allow good connections throughout Sheffield



5 Weirs Walk, Lower Don, Sheffield

Access is available to many of the river corridors, often as part of a footpath network. However, the experience of being close to a river is variable. In the western suburbs and on the upper reaches of the tributary rivers, there are woodlands, fields and parks linked together in green corridors making some of these rivers idyllic and cherished places. Elsewhere, particularly towards the city centre and in the north and east, the rivers can be unwelcoming and daunting

with derelict buildings, neglected landscapes and fears for personal safety.

Sadly, some of the partially regenerated Lower Don Valley and other river related regeneration areas are bland and cheerless 'commodity' landscapes where new developments have so far failed to adequately replace the visual drama of former industrial areas although others like Kelham Island, North Bank and the

Canal Basin show what is possible with more imaginative design.

Many of the city's historic and industrial buildings are of national and even international significance and whilst many important sites have been lost, there remains an extraordinary variety and spread of sites. Our heritage is fragmented but remains distinctive, memorable and rich in cultural and historic associations.



Sheffield Canal Basin



Weaknesses and Threats

A major weakness is that our city centre is disconnected from the River Don and the River Sheaf, the main reasons for the city being here in the first place. Furthermore the missing link between the city centre and the canal represents a significant unexploited opportunity. Sheffield does not have a civic riverfront and its other urban centres are not well connected to their rivers.

There are also no obvious connections between the main channel of the River Don itself and the tributaries such as the Loxley, Porter and Sheaf. The result is that it can be difficult for people to understand how the entire river system and its catchment 'works together.' Many of our urban rivers are buried, hidden or heavily modified from their natural form. This degradation includes rivers that have been culverted or lie behind high flood walls with water passing through unattractive artificial channels.

The quality of riversides also varies greatly, with poor environments being far too common, particularly in the city's east and north. Many riverside areas lack good quality open space and suffer from continuing problems with litter, vandalism and antisocial behaviour. In too many riverside locations the city has a weak architectural legacy with the design quality of many public and private buildings being disappointing and uninspiring.



Saville Street in the floods of June 2007
Photo Credit: Craig Broadwith



Lower Don Valley. Some areas have lost much of their character and new development has not made good use of its riverside location



In areas such as Heeley, Hillsborough and Attercliffe, the important connections between communities and their rivers have been lost. For most people in these locations, rivers are no longer viewed as an asset and are instead seen as a threat. This lost opportunity can be redressed by helping these centres become hubs with strong pedestrian, cycle and public transport links. By clustering civic and community facilities in these centres, we can encourage footfall and improve trading conditions for local businesses. Through improvements to the

public realm, we can strengthen people's connections with the rivers so that they become a source of pride.

There are big gains to be made but success is by no means guaranteed. The waterways strategy will need to overcome significant threats including the growing risk of flooding which may deter investors and discourage people from living or running businesses in areas near rivers. This may also lead to inappropriate and over-engineered flood prevention measures, which would dilute

the ecological and amenity value of the waterways.

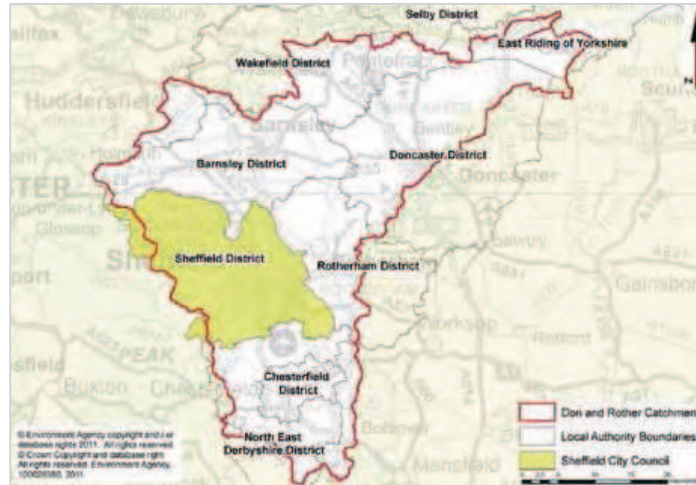
The lack of an overarching landscape strategy may result in piecemeal development and lost opportunities, allowing bland and anonymous development to become the norm, thus undermining Sheffield's distinctive character and culture. The full benefits of capital investment will not be realised unless there is a commitment to the management and stewardship of the rivers and riverside areas.



In many places, the rivers have been heavily engineered, this is the Sheaf on Little London Road

The Wider Context for Sheffield

Not only do we need to take into account how local matters affect our rivers, we must also be aware that regional issues affect us. Physically, Sheffield lies within the River Don and River Rother Catchment, part of the Humber River Basin. In terms of economic relationships, Sheffield is part of the much larger Sheffield City Region.



PLAN 6
The River Don and Rother Catchment © Environment Agency

The European Water Framework Directive

Adopted by EU member states in 2000, the Water Framework Directive is the biggest piece of new legislation on the aquatic environment for many years. It will shape how our rivers, lakes and ground water are managed for decades to come. The Directive will have implications for all organisations with a role in managing the water environment including local authorities, water companies and the Environment Agency. The Directive requires that improvements are made, that there is not deterioration in quality and that water, as resource, is managed sustainably.

Much good work has been done to clean up and restore the water environment. Fish and other wildlife have returned and people can now enjoy waters that until recently were spoilt by pollution. In many towns and cities, the waterside is now a focus for regeneration and economic growth.

Previously rivers had been simply assessed on their basis of chemical quality. The Directive looks at the ecological quality of waterbodies, which often isn't as good as it could be. Watercourses may fail to reach their full potential because of man-made features like weirs and sluices so a new long-term programme to improve our watercourses is required.

The directive sets a target of returning waterbodies to good ecological status. Currently, only 16% of the river Don Catchment meets this standard. Over the next few years, planned and coordinated action is required from a wide range of stakeholders if the necessary improvements are to be achieved. There are opportunities for the voluntary sector and community groups to participate in these improvements.



Don Catchment Flood Management Plan

A Catchment Flood Management Plan has recently been published by the Environment Agency giving an overview of the flood risk in the Don catchment. The plan sets out sustainable flood risk management proposals for Sheffield and the rest of the catchment for the next 50 to 100 years and identifies that currently some 5000 Sheffield properties could be at risk of flooding. It predicts that the impact of climate change on Sheffield will not lead to a significant increase in the geographic area affected by flooding but that there will be an increase in the frequency, speed and depth if no action is taken. Generally, the thrust of future flood management actions is not to build major engineering

types of flood defences but to work towards more sustainable solutions such as naturalised river corridors and flood water storage areas.

The plan contains Sheffield specific actions that rely on partnership working and they include taking opportunities to enhance river corridor habitats, river landscapes, access and amenity facilities, also that the City Council should support a planning policy drive to develop green infrastructure and increase access to the riversides. There is a message that new development must be controlled so that it does not increase flood risk.

Sheffield City Region

Our city is part of Sheffield City Region, not just Sheffield alone. The City Region is based on the towns and cities around us with which we share economic links and the strategic lead is provided by the newly formed Sheffield City Region Local Enterprise Partnership (LEP). The aim is to encourage growth and economic activity to create a prosperous and sustainable region.

Although the LEP has only recently been established, support has already been given to the role that high quality environment can play in successful economic regeneration. The LEP Board has given endorsement to two major water related regeneration proposals; Chesterfield Waterside, which makes great use of its canal-side location and also the Dearne Valley Eco Vision. This latter initiative puts ecology and a low carbon economy at the heart of wide scale regeneration proposals which are built around green infrastructure and eco-literacy. Significant use of the River Dearne is proposed to provide washlands, leisure uses and green routes. Clearly there is also much potential for a similar type of regeneration within our own part of the city region.

Rotherham Connections

The River Don corridor provides us with a strong and well defined physical connection with Rotherham, forming an important element in the region's green infrastructure network. We also share a number of other common river related issues; for instance, flood waters that arise in Sheffield, quickly flow onwards to Rotherham from where they take a longer time to subside. Also important is that we depend on Rotherham's section of the Don to link us with the downstream catchment areas and allow the movement of wildlife up into Sheffield. The better the quality of the waterways connection, the healthier our own wildlife populations will be.

Recently, Rotherham has published its own waterways strategy with broadly similar objectives to the Sheffield strategy. It emphasises the role that Rotherham's waterways can play in 'place making' and for providing a focus for high quality regeneration. It stresses their biodiversity value and the opportunities that they provide for the engagement of local people. It also identifies the value of the Rotherham's river and canal system in tackling climate change and it highlights the need for flood management actions.

Rotherham has already begun to engage with its rivers, creating a new flood storage washland at Centenary Riverside and, as part of 'Rotherham Renaissance', treating it's rivers and canal as key drivers of regeneration.

Clearly there is great opportunity for productive collaboration between Sheffield and Rotherham, not just on issues where there is a direct interrelationship but also where the same types of issues arise in both areas so that sharing of knowledge would be beneficial.

Rotherham's strategy specifically proposes working with Sheffield on the key challenges of flood risk management and the restoration of urban rivers. It also presents the concept of an urban landscape park to provide a framework for development along the common floodplain of the Don Valley. There is a suggestion that both Rotherham and Sheffield should jointly prepare a unified landscape strategy. Other opportunities for collaboration would perhaps include the extension of the River Steward Company area of operation to include Rotherham's waterways.

Guiding Principles

The strategy for Sheffield's waterways must build on the progress that has already been made, capitalising on the strengths and tackling the persistent problems and liabilities.

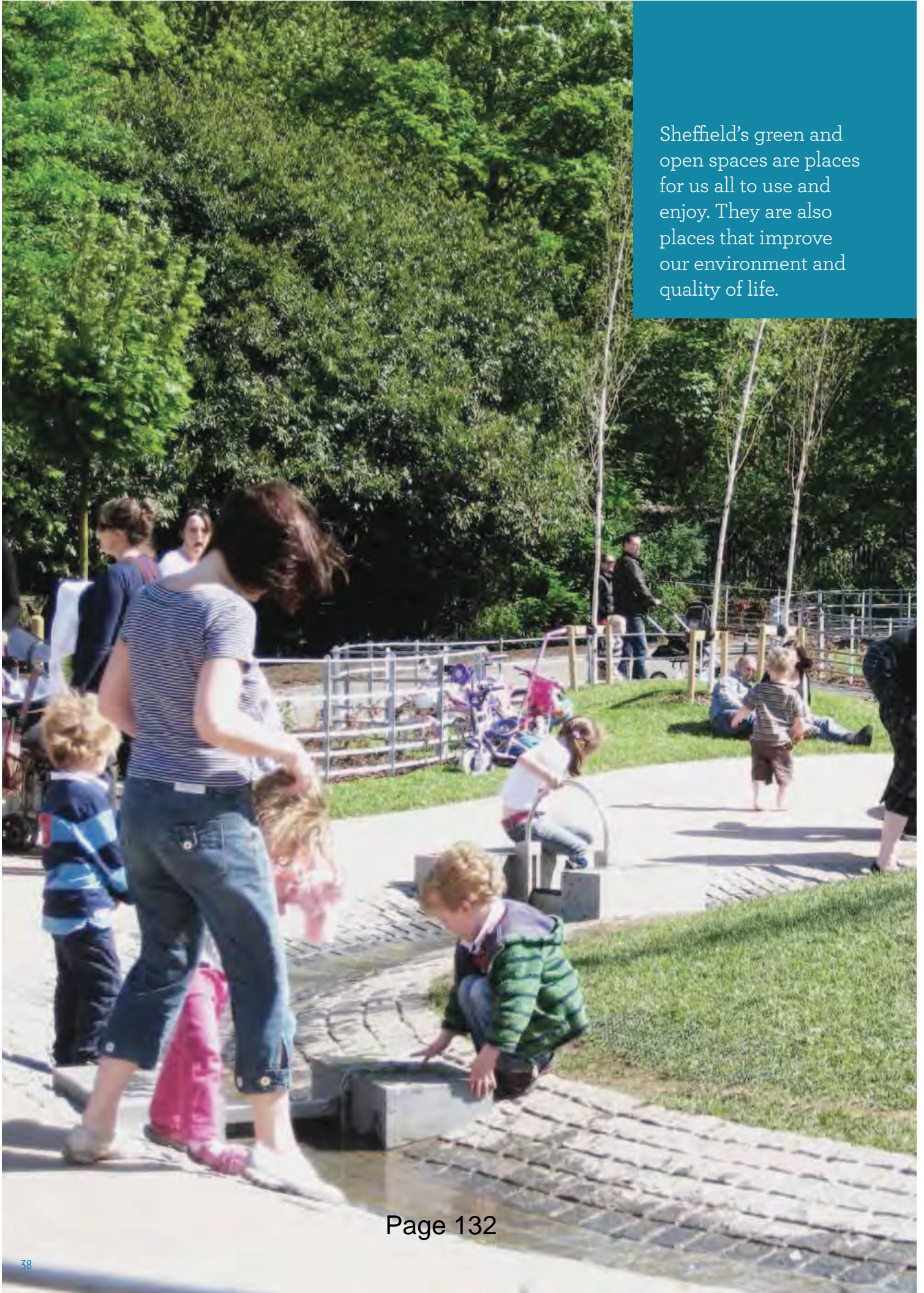
Remarkable progress has been made elsewhere in Sheffield in the past 10-15 years with the success of landmark projects such as the Peace Gardens, the Millennium Galleries, the Winter Garden and many others. The transformation and recovery of special places like the Botanical Gardens and Weston Park has strengthened Sheffield's special character and identity, linking the city's past and future with flair and imagination. A common thread running through all of these high profile projects is a well-resourced and sustainable management regime.

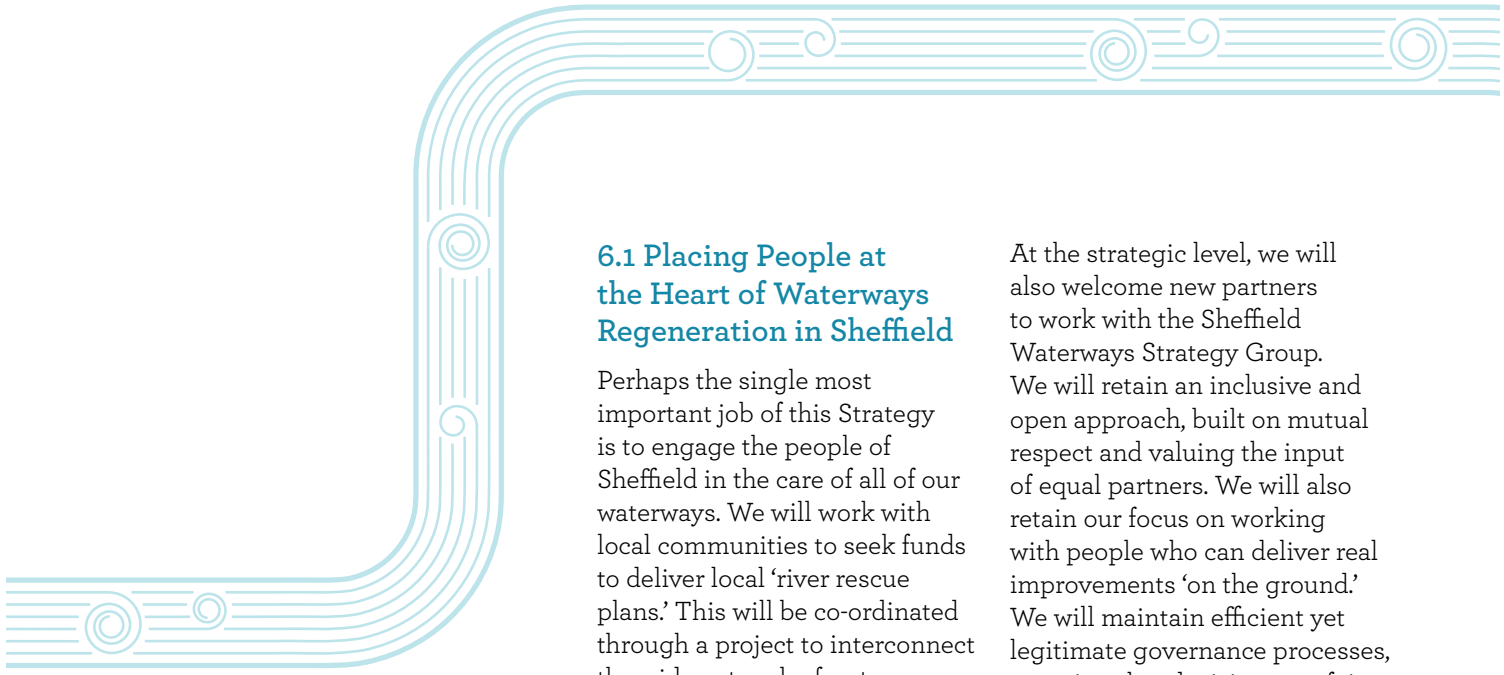
This success is a great message and should inform the regeneration of Sheffield's waterways just as it has the rebirth of the city centre. The aim must be to nurture and strengthen Sheffield's distinctive sense of place and to make the revived waterways network one of the defining features of the 'Sheffield signature.' These should be guiding principles of a strategy to assist in the delivery of a new wave of economic, community and environmental benefits over the next 10-20 years.



Lady's Bridge, Sheffield

Sheffield's green and open spaces are places for us all to use and enjoy. They are also places that improve our environment and quality of life.





6.1 Placing People at the Heart of Waterways Regeneration in Sheffield

Perhaps the single most important job of this Strategy is to engage the people of Sheffield in the care of all of our waterways. We will work with local communities to seek funds to deliver local ‘river rescue plans.’ This will be co-ordinated through a project to interconnect the wide network of waterways, both small and large, throughout the city. For these improvements to be durable, the focus must be on helping local people to bring about change themselves. Projects will be supported preferentially where they have the wide engagement of the local community. This will not only involve physical work but will include also efforts relating to local history, education, training and work experience.

At the strategic level, we will also welcome new partners to work with the Sheffield Waterways Strategy Group. We will retain an inclusive and open approach, built on mutual respect and valuing the input of equal partners. We will also retain our focus on working with people who can deliver real improvements ‘on the ground.’ We will maintain efficient yet legitimate governance processes, ensuring that decisions are fair, efficient and accountable, and will keep our strong ties with leaders in the public, private and not-for-profit sectors – these arrangements will be formalised through partners signing up to a ‘City of Rivers’ partnership agreement.

6

HOW CAN WE ACHIEVE THE STRATEGY GOALS?

We will support the voluntary and business sectors and work with local people to prepare action plans identifying their own priorities. Practical jobs will include addressing issues such as keeping places clear of litter and debris, restoring canalised rivers and removing culverts, looking after archaeological sites and providing habitats for wildlife. We will work with a range of partners to provide guidance and to help raise funding for this work.

Opposite: Millhouses Park Sheffield. New water play area.



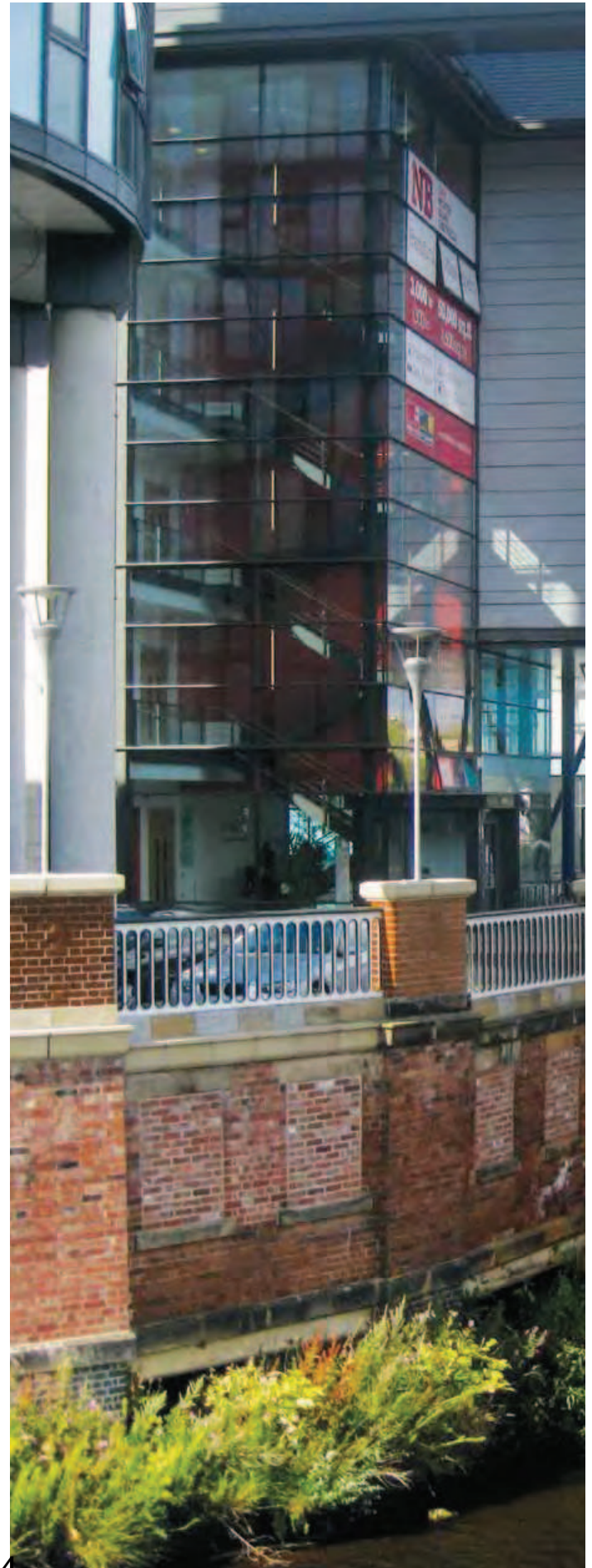
The Five Weirs Walk Trust exhibiting proposals for a new section of riverside walk

6.2 Helping Our City Rediscover its Wealth Of Waterways as an Economic Opportunity

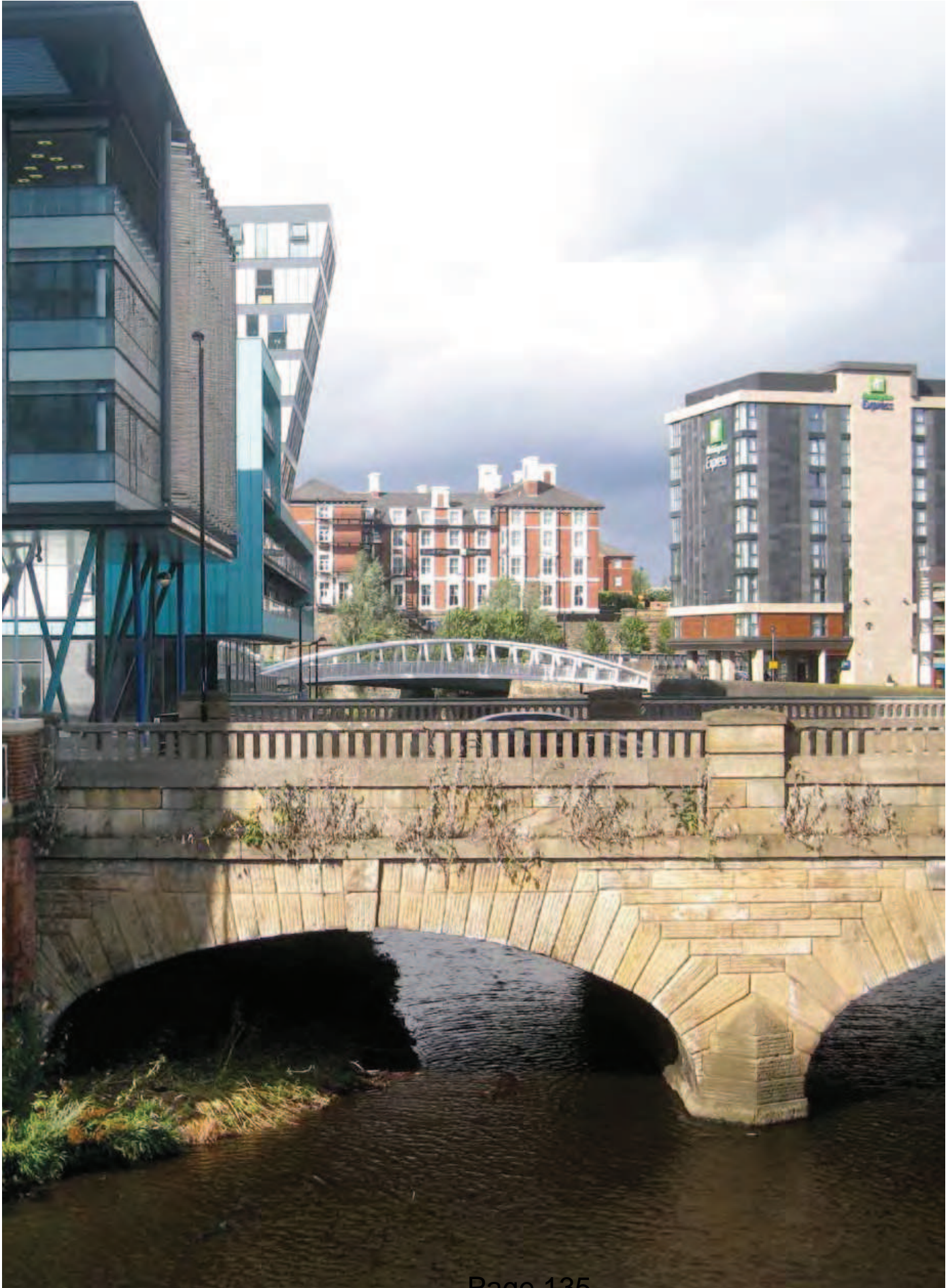
Historically, Sheffield's economy was always intimately linked with its rivers. Markets were traditionally held near the river alongside the Norman castle, built at the bridge crossing and stronghold location at the confluence of the Sheaf and the River Don. Water power was harnessed from the Middle Ages and by the time of the Industrial Revolution in the 18th century, the fast flowing rivers contained one of the densest arrays of water mills in Europe. Later in the 19th century, steam power replaced water power but industry clung to the waterways. Through industrial times and right through to the present, rivers have always been a special place for business in Sheffield, with the current focus being on commercial and residential developments.

The small scale, dense usage and absence of navigation give Sheffield's rivers a particularly intricate and highly adapted character which is different from that found in most other major industrial cities. Now, changes in land use along the waterways give us an incredible opportunity to develop distinctive, attractive and vibrant 'riverfronts', right in the heart of the city and through to its suburbs and 'lost' riverside towns such as Attercliffe and Heeley.

If Sheffield is to be a competitive city and a major player on the European stage, it needs to secure investment and to attract and retain talent. The challenge is to grow a knowledge-based economy where human capital, the skills, creativity and enterprise of people, is the critical success factor.



Blank Street Bridge, this is one of the few areas where new development has openly embraced riverside education.



CASE STUDY: RIVER QUAGGY, LONDON

FLOOD MANAGEMENT AND OTHER BENEFITS GAINED BY NATURALISING THE RIVER CHANNEL



Newly naturalised river in Sutcliffe Park
Photo Credit: Mike Quin, CC

The Quaggy River is an inspirational case study showing how river restoration can successfully deliver a wide range of social, economic and environmental benefits.

The river travels for 17km through the London boroughs of Bromley, Greenwich and Lewisham before feeding into the Thames. During the 1960s, the Quaggy was channelised and culverted in an attempt to alleviate flooding but this made the flooding problem worse.

During the last decade, the concrete channel has been demolished in a number of places and the river re-naturalised to spectacular effect.

The impressive series of partnership projects on the Quaggy have delivered enviable results and won many accolades. This progress has in part, been led by the community via the Quaggy Waterways Action Group (QWAG). Its aim is to demonstrate that rivers can

be major assets to an urban environment, bringing natural beauty, educational facilities and wildlife value into urban landscapes and lives. The action group have highlighted the importance of winning the hearts and minds of planners, politicians and landowners with a simple message “that the mistakes of the past, burying urban rivers in concrete coffins, can be reversed, to bring living natural features into the hearts of our urban jungles.”

The Environment Agency has undertaken a major programme of flood defence and river restoration works. In all, around £18 million has been spent on flood protection works, parkland creation, and wetland habitat enhancement, covering a 4.3 kilometre stretch penetrating right into Lewisham's town centre.

High profile successes include Sutcliffe Park and Chinbrook Meadows where the main aim has been to provide space for floodwater to go without damaging property. At Sutcliffe Park, the flood risk to 600 homes and businesses has been reduced and according to the Environment Agency, the standard of flood protection has been improved from 1 in 5 years (20% probability) to a minimum of 1 in 70 years (1.4% probability).

The scheme involves much more than just flood defence however. Via a sustained collaboration, many partners have come together with the community to restore the river, improving the quality of the environment, making it better for wildlife, and turning the Quaggy into a valuable and attractive asset for local people. Since opening in 2004, visits to Sutcliffe Park have increased by 73 per cent. One in four only started visiting the park after the improvements and people who used the park before are now staying longer. Both Sutcliffe Park and Chinbrook Meadows have been awarded 'Green Flag' status.

For many years, the Quaggy was forgotten and neglected. It flowed underground through concrete channels, unnoticed and providing little habitat

for wildlife. By bringing the Quaggy out of its culvert, a meandering river has been reborn. The restored river can overflow into the park using it as a flood storage area and at other times, the park and wetland is there for local communities to enjoy.

Lessons for Sheffield

Most of our rivers and streams have been confined within hard banked, man-made channels for at least part of their course. The Quaggy example shows that naturalisation is possible in many places to slow down water flow and provide flood storage. We also already have some fine riverside parks and a water themed 'Green Flag' site would raise the profile of our waterways generally.



Sutcliffe Park Lake
Photo Credit: Ian Yarham, CC



Typical section of the Quaggy that has yet to be naturalised
Photo Credit: Mike Quinn, CC

Having the right business location is important but no longer enough by itself. In the 21st century, the focus has shifted from location to place. Places attract talent and companies follow talent. It is character, identity, diversity and richness of experience which make places; not just shopping centres, leisure centres and visitor attractions which can be found everywhere. Winning places are those that offer economic opportunities together with an outstanding quality of life. Our rivers offer a unique opportunity to help Sheffield become a place where people want to stay.

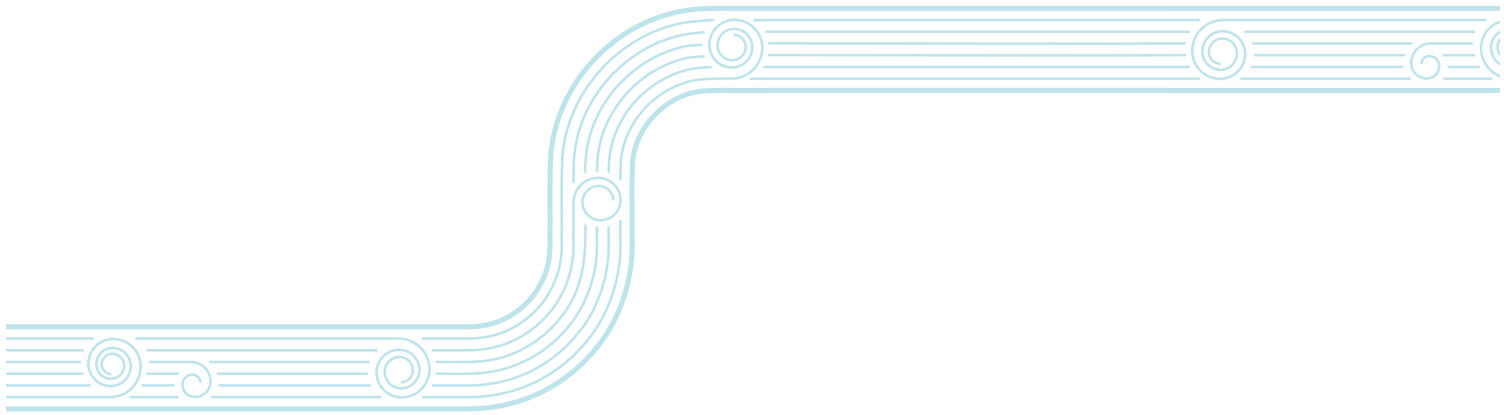
We will prepare new 'masterplan' documents to guide land use and development along waterways in the city. Masterplans will need to be supported by a policy framework to address key issues such as urban design and sustainability, ensuring a 'level playing field' for all investors.

We will prepare new design guidance, focusing on the re-use and adaptation of existing buildings and the incorporation of new development into the historic landscape. We will work with a range of partners to promote opportunities to create new, high quality mixed-use developments alongside waterways and promenades, including routes along newly restored and re-naturalised rivers.

The riverside will be fully integrated into the city centre through a centrepiece regeneration scheme involving new open spaces at the Wicker and at the site of Sheffield Castle. This project will involve new buildings, attractive riverfront amenities, restored habitat and new access routes which link the river between Corporation Street, Castlegate and the Wicker. New links will also be forged with the canal at Victoria Quays and beyond to Park Square. The approach

will also include measures to deal with flood and drought risk stemming from climate change.

Further out from the centre, trade and growth can be encouraged in riverside towns such as Heeley, Hunter's Bar and Hillsborough by improving the quality of the public realm and improving the cultural 'offer' to visitors by carefully targeted investment. Together we can reconnect local riverside centres with their waterways to create lively and attractive areas. Well-connected walkways, cycle paths and open spaces alongside the rivers in these local centres will increase footfall and stimulate economic opportunity.



Sustainable drainage. A flood storage basin at the manor holding water after the rainstorm that caused Sheffield's floods in June 2007
Photo Credit: Roger Nowell

6.3 Adapting to Climate Change and Managing Flood Risks More Sustainably

We are beginning to understand how we can manage our waterways and the water cycle more wisely but of course the flooding of June 2007 shows how serious a threat to life and property water can be if we do not follow nature's way. These local events, coupled with a greater appreciation of the impacts of global climate change, highlight the need to act now so that our communities can adapt for the future. Climate change means we have to get used to the increased likelihood of heavy rainfall, but also of droughts and heat waves.

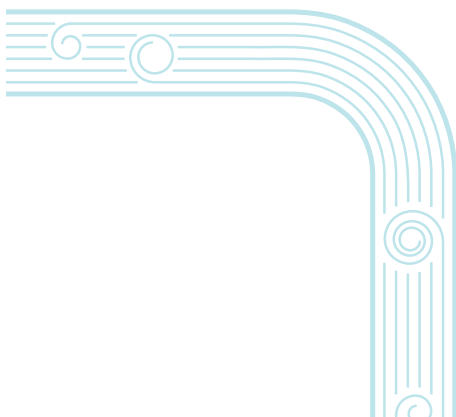
It is not an exaggeration to say that global climate change is the greatest emerging challenge of our time. We need to make room for water in the city; 'blue spaces' such as rivers, streams, wetlands, floodplains and sustainable drainage systems have a vital role to play in creating climate change resilient development.

As a city, Sheffield could have one of the most forward thinking approaches to water management in the whole country, informed by the best science from its Universities and from around Europe

through targeted project partnerships. The city has put in place a ground-breaking planning policy to help reduce runoff of rainwater from urban areas using 'green roofs' and sustainable drainage systems. Sheffield is a world-leader in researching urban water and we have the opportunity to make more of this asset in planning our future use of water and our relationships with rivers.

Through this strategy, we intend to work with others to restore natural water processes as far as possible, in order to reduce vulnerability to flooding. Sheffield should be designated a sustainable drainage zone. This, combined with increased storage capacity, and work to reinstate natural floodplains in the east of the city, would help reduce the risk of flooding.

Since June 2007, the Sheffield Waterways Strategy Group partners have acted together to reduce flood risks in the city and the wider river catchments. This includes removing debris from the river channel and at major 'bottlenecks' such as bridges and weirs. We have also worked with communities and businesses to understand their needs and to raise awareness of the duties of riverside landowners, for instance to manage waterfront land.





Work by the Environment Agency at Kelham to reduce flood risk by clearing the river channel obstructions. Habitat improvements were made at the same time

Furthermore, we have produced and implemented designs for new flood defences and are seeking opportunities for water storage at the top of the river catchments, where they can bring most benefit to the entire city and downstream urban areas. This would also be of benefit to other South Yorkshire towns and cities. Through our strong links with research projects and European networks, we will continue to learn how we can best respond to both the opportunities and threats associated with regeneration along our city's waterways.

Of course, responding positively to climate change also means addressing the source of the problem by using less carbon in the form of fossil fuels. We believe that river corridors offer lots of great opportunities to do this. We can create pathways for walking and cycling, and use the river to create carbon-free power, for cooling the city and

for creating attractive green areas. The need to make space for more extreme flooding events as well as droughts can be harnessed to create more attractive river corridors with new parks, wetlands and water meadows. These initiatives cannot be limited to Sheffield's city limits but should be shared and developed by partners throughout the Don catchment from the Peak District right through to the Humber.

We will deliver inspiring demonstration projects that show how this can be achieved for minimal cost and to deliver a wide range of benefits; for profit, for people and for the planet. Over time, we will build these responses into our communities by encouraging locally led projects and through adaptations to our planning system. This way we can ensure that we grow and develop in more sustainable ways, meeting not just our own needs, but also those of future generations.

CASE STUDY: ROTHERHAM, CENTENARY RIVERSIDE FLOOD STORAGE AND GREEN SPACE

This new urban wetland park is located on the River Don between Templeborough and Rotherham town centre. On the site of a former steel works, it restores flood plain functions by providing new areas for floodwater storage and giving 1 in 100 year flood protection to nearby sites. The project underpins the community led 'Rotherham Renaissance' strategy and allows adjacent land to be developed safely.

Importantly, it also provides many other benefits including enhanced wildlife value and opportunities for local recreational and educational use. The site has been carefully designed to create a number of new wildlife habitats

and it will function as a 'stepping stone' for wildlife such as otters, moving along the river corridor. At the same time the park is intended to be very accessible to people, having new footpaths, a cycle route and ultimately a visitor centre. Industrial relics from the former steel works have been incorporated into the design and bold new sculptures added.

At a cost of £15 million, the project is a partnership of Rotherham Metropolitan Borough Council, the Environment Agency, Yorkshire Forward, Sheffield and Rotherham Wildlife Trust and South Yorkshire Forest Partnership. To enable future management, an endowment has

been provided as part of the project costs and is to be invested to pay for maintenance in perpetuity.

Lessons for Sheffield

This project is an excellent demonstration of how flood defence can be designed with conservation in mind, providing both economic benefits and multiple green infrastructure benefits.



New urban wetland
Photo Credit: Sheffield and Rotherham Wildlife Trust



Before the project
Photo Credit: Sheffield and Rotherham Wildlife Trust

6.4 Promoting Sheffield and its Waterways

An important job is to promote Sheffield as an attractive, thriving and enjoyable place which offers opportunities for business and a high quality of life. Sheffield has ambitions to be a first-rate European city, competing alongside other major centres of business and industry but networked with other successful partner cities around the world. During the last decade we have made great progress towards this goal, for instance through European projects to develop best practices. It is widely recognised however, that we need to bring about a step change to move up a gear in order to really punch our weight as a major European city.

Sheffield has always been known as both an innovative and creative city with worldwide trade links and an international reputation for quality as well as offering an attractive green environment. We need to put rivers back into the heart of 'What Makes Sheffield.' The two main strands of our future approach are to be both globally competitive and to keep offering a very high quality of life. We believe that we can achieve a shared vision of sustainable development in the Don Valley, meeting the needs of citizens, businesses and visitors. Our river 'corridors' can become internationally renowned locations as places where people want to live, work, invest and play. They can again become repopulated with rejuvenated traditional neighbourhoods, homes, schools, shops and healthcare.



Riversides can provide places for employment, featuring high quality environments for modern work space, high tech manufacturing and creative production in ‘urban villages.’ Waterways can also provide places for leisure and recreation, taking better advantage of opportunities for boating, fishing and walking, and with a productive landscape of gardens, allotments, smallholdings, orchards and woodlands. We can also provide unique opportunities for culture, creativity and learning with townscapes and buildings being reused as flexible spaces for performance, events and studios, with cultural events becoming internationally known.

All of this effort will be wasted though, if we do not get out there and tell people about the opportunities in Sheffield and its wonderful waterways. A key part of our strategy must be

to communicate our strengths to our investors and partners. We will do this by forging new links with globally significant partners and strengthening our existing networks.

6.5 Using Our Rivers to Help Celebrate the Heritage, Culture and Rich History of Sheffield

More must be done to celebrate the city’s built heritage along its network of waterways, including the globally significant mills, works, weirs and ‘goits’, the mill races or channels feeding waterwheels. This can be achieved by retaining and reusing industrial buildings and traditional street patterns, and by nurturing the intimate scale and long tradition of craft manufacturing in Sheffield. Former riverside towns can be reconnected with their rivers, for instance by creating multifunctional cultural and community spaces, celebrating heritage and offering a high quality public realm.

At the broader scale, an exciting opportunity for Sheffield is to discuss whether our network of waterways should become a new Cultural Landscape under UNESCO’s World Heritage List scheme. We believe that Sheffield’s river valleys

and their complex system of man-made infrastructure are worthy of this claim as the home of steel manufacturing and the cutlery industry. We think that this is a globally important place, which deserves proper care and protection, and we will consult widely about these ideas.

Sheffield has learned that much can be achieved through these types of physical enhancements and demonstration schemes. However, an equally important task is to promote awareness and understanding of the multiple values of waterways, not just to visitors but also amongst citizens.

An exciting way to promote Sheffield’s cultural heritage, which is so intimately linked with its waterways, is through an innovative and exciting series of celebrations, festivals and cultural events. We will also work hard to create new opportunities for education for people of all ages and from all walks of life using waterways as an important community resource.

At the core of our efforts to support the cultural heritage of Sheffield's waterways will be an annual celebration, the 'City of Rivers Festival', held right by the river in the newly restored waterfront environment. This celebration will build on the successes of the 'On the Waterfront' events which have been held several times in recent years and will grow to become an internationally important cultural event. We will tie in a series of high profile business meetings, conferences and international visits to the city, held alongside the festival, so that our visitors can experience Sheffield at its very best, whilst celebrating our raison d'être – our wonderful waterways.

This event will be at the heart of a broader cultural programme – a 'meeting place' in which to celebrate the heritage and cultural richness that surrounds our city. This will include a specially prepared and well publicised programme of exciting events and less formal social aspects relating to the city's waterways. The programme will be a major opportunity for networking and learning from others, not just within the city, but also from around the world and will extend our reach to new friends through a cultural celebration.

'Waterfront' festival held at Victoria Quays. Events like this could be held at a number of different places throughout Sheffield





CASE STUDY: GERMANY GERMANY'S RIVER RUHR REGION & THE 'EMSCHER LANDSCAPE PARK'

Emscher Park in Germany's Ruhr Region provides an inspirational lesson for regeneration in post-industrial economies, which is extremely relevant to places like Sheffield. A key part of this regeneration strategy was the Emscher Park 'International Building Exhibition' which was commenced in 1989 and finished in 1999. According to the European Academy for the Urban Environment:

"The ten-year project 'Emscher Park' was based on a structural programme of 1988 with the objective of giving a strong impulse to the derelict Emscher area and with the main goal

of urban development and ecological renewal in the highly contaminated former industrial and coal mining area."⁷

The programme focused on the re-use of industrial sites including collieries and steelworks, 'reimagining' this cultural heritage to create a valuable asset from what had become a liability. To the people of the Ruhr region, it was not acceptable to simply let these structures become rusted and derelict, then to tear them down. The industrial infrastructure was seen as valuable and culturally important, having helped to build and shape local communities.

The environmental legacy of the industry was however negative, similar to that of Sheffield in the 1980s, one of pollution, habitat loss and unattractive spaces.

The Emscher Park project rebranded the regional identity, leading regeneration through improvements to environmental quality as part of a broader strategy for reinventing the image of the Ruhr region.

Careful consideration was given in spatial planning processes to the importance of restoring and recreating wildlife corridors and taking a broader, catchment-wide view of rivers and water management.



The new landscape and buildings are good but what makes them memorable is the retained pit head gear
Photo Credit: LEG GmbH

Another critical aspect of this approach was the 'Working in the Park' concept, which involved creating attractive locations for business and employment.

In 2009, the Sheffield-led 'Creating a Setting for Investment' project concluded that, at the wider scale, these investments in environmental quality had brought about higher land values and improved investor confidence in the region.⁸

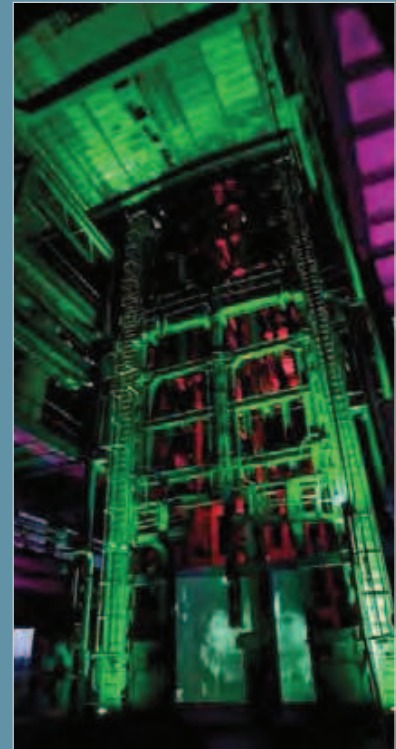
The 'Creating a Setting for Investment' project, under the leadership of South Yorkshire Forest Partnership, included partners from the Ruhr region including a publicly-owned company responsible for regenerating coal-field sites, and the regional spatial planning research institute. Together, they carried out a full-scale cost benefit analysis of the 'greening' of industrial sites throughout the Emscher Park area, along with in-depth qualitative research on people's perceptions of the value of land and the quality of the environment. They concluded that improving the landscape had been a successful economic



measure as part of a broader regional regeneration strategy.

Lessons for Sheffield

Early regeneration initiatives in the Ruhr Valley were based on providing conventional new infrastructure and were not especially effective. Changing focus to concentrate on 'spirit of place' by celebrating regional industrial heritage and culture has been much more successful and has achieved international recognition for the distinctive qualities of the area. Extensive greening has provided an excellent complement and significant improvements to quality of life.



Re-used structures that could easily have been cleared away as derelict
Photo Credit: Tom Wild

8. Creating a Setting for Investment (2009). Final report of the Interreg IVB North West Europe CSI project. South Yorkshire Forest Partnership, Sheffield. ISBN: 978 0 86321 264 2



From L-R - (1) Salmon Pastures Nature Reserve, created from a former spoil heap adjacent to Five Weirs Walk (2) Rare visitor: a Cetti's Warbler at Blackburn Meadows Nature Reserve in the lower Don Valley. The reserve was created from a former sewage works (3) Until recently, this area was a derelict paddling pool at Millhouses Park, now the River Sheaf partly flows through it allowing fish to swim past two major weirs

6.8 Wildlife and Natural Environments

Sheffield's green and open spaces are places for us all to use and enjoy. They are also places that improve our environment and quality of life. Our waterways provide one of the strongest links that enable people to connect with these spaces.

With sensitive development, waterways can add value to our lives in many ways. Sheffield has a long history of nurturing wildlife and nature in its urban and industrial areas, and has been extremely successful in creating new reserves in the heart of the city. Working together we will continue to conserve biodiversity and to enhance natural habitats 'on our doorstep.'

We will do yet more to create new wetlands, woodlands and nature reserves, and to target improvements where they will make the biggest difference, in joining up wildlife corridors along the city's rivers. We will continue to improve fish passage at barriers such as weirs and culverts, and will work towards our target of bringing salmon, eels and otters right back up our river system. The result will be that our waterways again become attractive places of high ecological value as well as prized community assets. Through careful decisions and good management, we can help rivers and riverside areas to become neat, tidy and ecologically diverse, whilst being robust and durable in areas of heavy use.



7

WHAT HAVE WE DONE SO FAR?



Upper Don Walk. The first mile is in place, it needs to continue at least as far as Oughtibridge

Working together, the partners in the Sheffield Waterways Strategy Group have delivered the following improvements, providing direct and measurable benefits to the city and its people.

Riverside Walkways

We have created new riverside access routes along great stretches of Sheffield's previously ignored rivers. For instance, the Five Weirs Walk runs almost continuously from the city centre to Meadowhall; achieved through the work of Five Weirs Walk Trust and with a total investment value of about £10,000,000. The beginnings of an Upper Don Walk are in place, running from the City Centre to Kelham with other stretches to be added soon. The canal has been elevated from 'remainder' to 'cruising' status with the towpath and bank wall having been repaired and rebuilt where necessary. Almost the whole of the Shire Brook Valley has been reclaimed from industry which included mining, landfill and sewage treatment. Now it is a rich haven for wildlife and a great asset for local people. Charlton Brook and Tongue Gutter have also been transformed into accessible and wildlife rich green corridors. The beginnings of a River Sheaf Walk from Granville Square to Millhouses Park have been laid out. There are superb mature riverside parkways on the Upper Porter, Sheaf, Loxley, and Rivelin each with a different character and providing good templates for the further regeneration in other areas.

River Stewardship Company

We have established a not-for-profit company that helps businesses and communities make the most of their relationship with the river, for instance by taking steps to create and maintain an attractive, natural environment, whilst at the same ensuring that riverside landowners meet their legal responsibilities and statutory duties. The River Stewardship Company has played a very important role in developing improved resilience to flooding and developing a community of people engaged with our rivers. It is recognised across the country as an innovative model of good practice. Recent work by the Environment Agency and Sheffield City Council to clear away flood debris and establish clear channels now requires regular and smaller scale management to maintain the improvements, and the River Stewardship Company is well placed to help do this.



River stewards
Photo Credit: River Stewardship Company

Nature Reserves, Habitat Enhancement and Biodiversity

We have created new nature reserves from deserted industrial wastelands, abandoned sites and derelict land. Blackburn Meadows Nature Reserve is now of international significance and is actively used as an education resource and community green space. New urban wildlife sites such as Salmon Pastures, Crabtree Ponds and the Shire Brook Valley help bring nature right into the city centre to provide peaceful areas where citizens can watch, reflect and relax. Fish passes have been created and habitat improvements made to enable migration of wildlife such as salmon, otter and kingfishers. On both the Sheaf and the Don, we are working to remove barriers to wildlife, enabling healthier and more sustainable populations to flourish. Biodiversity surveys have been undertaken along the entire River Don corridor, mapping out just what is there and helping us to understand the importance of our urban wildlife.

Water Quality Improvements

We have brought about major improvements in water quality, through controls to pollution from industry, sewage works, agriculture and urban development. The investment and the results are dramatic. Yorkshire Water has invested approximately £30,000,000 in the last few years to improve the quality of discharges into the river system and this has been crucial to support the growth of fish populations and the return of otters.



Blackburn Meadows Nature



Pond dipping at Blackburn Meadows
Photo Credit: The Wildlife Trust for Sheffield and Rotherham

Improved Flood Risk Management

We have responded positively and sensitively to the increasing risk of flooding brought about through climate change, and successfully implemented policies to promote the use of sustainable drainage (SUDS) throughout the city. Since the devastating flooding of June 2007, we have worked together to reduce flood risks and to develop strategies covering the entire catchment so that problems are not just passed on downstream. Major blockages in the river system have been removed and measures have been put in place to maintain ecologically diverse and attractive river environments whilst sustaining the benefits of flood protection works. We have worked hard to engage with local businesses and residents to help develop resilience to future flooding, and to improve the uptake and efficiency of warning systems. A comprehensive Sheffield Flood Protection Strategy is now emerging, based for the first time on a more thorough understanding of the catchment hydrology and river hydraulics.




Top to Bottom: (1) Sustainable drainage schemes such as this help prevent floodwater reaching rivers and so reduce flooding (2) Corporation Street Bridge, June 2007 (Photo Credit: Craig Broadwith)

Quality Riverfront Developments and Waterside Recreational Facilities

The City Centre Master Plan identifies the Central Riverside as one of the two major new business districts in Sheffield. High quality riverfront offices, flats and recreational facilities have already been built at Victoria Quays Canal Basin, Kelham Island, Blonk Street and North Bank. However, these developments require more coherent and better quality public spaces to link them together and create access to the water whilst providing improved flood protection. The diversion of traffic away from the river by the new northern section of the Inner Relief Road offers an opportunity to further transform these areas.



Top to Bottom: (1) Photomontage of proposed pedestrianisation for Castlegate and suggestions for new mixed use development (Image Credit: Sheffield City Council, Castlegate Action Plan) (2) Castlegate, impression of proposed mixed use development and open space (Image Credit: Sheffield City Council, Castlegate Action Plan)



As can be seen from previous sections, much work has already been done by partners in the Sheffield Waterways Strategy Group and other groups. Knowledge acquired from this work together with consultation and dialogue with other stakeholders including local people has been used to inform development of further actions, which are required to achieve the eight goals of this strategy.

representation of statutory and voluntary sector groups is well placed to provide this lead, acting as the delivery co-ordination body for the strategy. All partners have been responsible for significant regeneration activities and have extensive experience covering all aspects of the work that needs to be done.

To formalise delivery of the strategy, it is recommended that Waterways Strategy Group partners, together with other stakeholders engaged in regeneration, sign a 'City of Rivers Agreement' setting out their commitment to delivery and to making resources available within their organisations. It is also proposed that Waterways Strategy Group produces an annual report on activities and achievements which will be submitted to the relevant governing parts of their individual organisations for approval as well as being made publically available.

Membership of Waterways Strategy Group will be reviewed with the objective of maintaining its representativeness and involving all potential partners.

8

PUTTING THE STRATEGY INTO ACTION

Strategic Lead and Governance

Waterways regeneration activities have been taking place for many years in Sheffield, largely due to organisations making the most of opportunities as they arise and no doubt this opportunistic approach will continue. Results are already significant but the scale of what is needed means that much more has to be done. Delivery of the comprehensive range of actions contained in this strategy will require change from an opportunistic approach to one of concerted partnership with wide support.

To ensure that this happens, it is necessary to have an organisation to take a strategic lead. Sheffield Waterways Strategy Group with its

CASE STUDY: EDINBURGH WATER OF LEITH COMMUNITY TRUST

The Water of Leith is Edinburgh's main river, a relatively modest but very picturesque and varied one which flows for 24 miles from the Pentland Hills to the Firth of Forth at Leith Harbour. It is comparable in scale to the Loxley or Don in Sheffield.

Parts of the walk were built in the 19th century at Dean Village around the picturesque edges of the New Town and are characterised by high quality Victorian park-like features. Most of the river however, was dominated by industry and lined by over 70 watermills as well as railway yards and warehousing close to the Leith Docks. De-industrialisation in the 70s and 80s created the opportunity to reclaim the river.

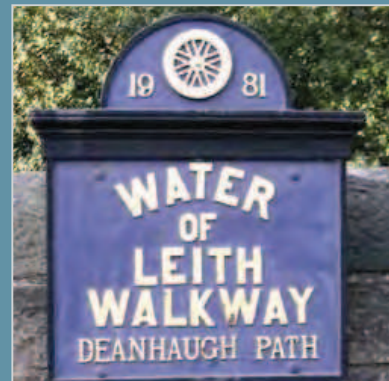
In 1988 a charitable trust was set up to promote a continuous walkway (incidentally inspiring the Five Weirs Walk Trust) and this was slowly achieved over the next decade particularly after 1997 when the Trust was successful in gaining a £5m Lottery grant to complete the walk and build a River Visitor Centre in the old Slateford School. Some sections have involved ingenious bridges and structures.

More recently, flood defences have been added to sections running close to housing requiring hard decisions about intrusion, loss of tree cover and some loss of views.

The Water of Leith Community Trust now runs the Visitor Centre and carries out extensive educational work, represents river users and organises a significant volunteer programme climaxing in an annual community clean up where local people compete for a trophy for the most unusual items of debris in the river!

Lessons for Sheffield

The Water of Leith success clearly demonstrates the power of community organisations to bring about major change. The Trust has raised large amounts of funds, carried out practical work, established stewardship and engaged the wider community. Through their efforts, they have ensured the survival of a major cultural asset for the benefit of future generations.



Top to Bottom: (1) Water of Leith Visitor Centre (2) City Centre Walkway (Photo Credit: both Simon Ogden) (3) Near to Leith (Photo Credit: David Dixon, CC) (4) (Photo Credit: CC)



Riversides can provide places for employment, featuring high quality environments for modern work space, high tech manufacturing and creative production in 'urban villages'
Photo Credit: Tom Wild

Delivery Mechanism and Funding

As the strategy moves into the delivery phase, the Sheffield Waterways Strategy Group will widen its representation to include political and private sector support and to broaden its involvement at 'grass roots' level through the engagement and representation of community groups.

Funding to augment the initial outlay by partners will be sought in the form of bids for support by the European Union under various schemes and from sub-regional funding allocations. Monies will also be sought from a range of charitable foundations and trusts having an emphasis on environmental quality, social cohesion and local governance. Funders can expect to receive excellent value for money, and proven, real benefits delivered by a group with a demonstrable track record in managing innovative, purposeful and durable partnership projects. Together we will bring about sustainable improvements 'on the ground.'

Initially, our work will focus on developing partnerships with the groups that have the power to change or influence what happens to our waterways:

- **Voluntary Sector and the Sheffield Community** – They have led much of what has been achieved so far
- **Statutory Authorities** – Those who have responsibilities which must be carried out as part their duties
- **Developers & Landholders** – Much development land is in the river corridors and developers bring the biggest financial resource. More can be done to bring together these interests and to find common solutions and opportunities for shared benefits
- **Funders** – Several charities and statutory funding programmes have clear objectives that fit well with the goals of the Strategy, including schemes administered at the local, regional, national and transnational levels. We will work with them to establish how we can meet their aims and provide good value for money
- **Researchers** – Sheffield has the excellent asset of two leading universities plus many other higher educational institutions. We will work together to investigate innovations and best practices in bringing about waterways regeneration, sustainable creation of jobs and growth, climate change adaptation, environmental resilience and social cohesion

9

ACTION PLAN 2012-2015

The map displayed here and the tables shown on pages 64-71 identify potential key actions together with lead delivery organisations, stakeholders and the key outcomes. Actions are organised geographically as follows:

- Urban projects and actions.
- Suburban & rural projects and actions.
- City-wide projects and actions
- Regional projects and wider links

We will support or if necessary initiate the following:

Improved management of all waterways through river stewardship and involving riparian owners and communities

Don catchment level partnership on water quality, biodiversity and river corridor management; for instance through Living Landscapes Project and South Yorkshire Green Infrastructure Strategy

Promotion of recreational and tourism potential of the waterways

Develop more sustainable fisheries

Change management of moorlands and upland catchments including reservoirs to improve flood retention and compensation flows

We will work together with stakeholders to establish which initiatives are to be highlighted and considered to be 'key projects.' Some of these actions are already underway and others need to be initiated. Following consultation and subsequent adoption of this strategy, detailed explanations of these actions, together with specific objectives will be shown in a separate document entitled 'Sheffield Waterways Master Plan and Action Plan.'

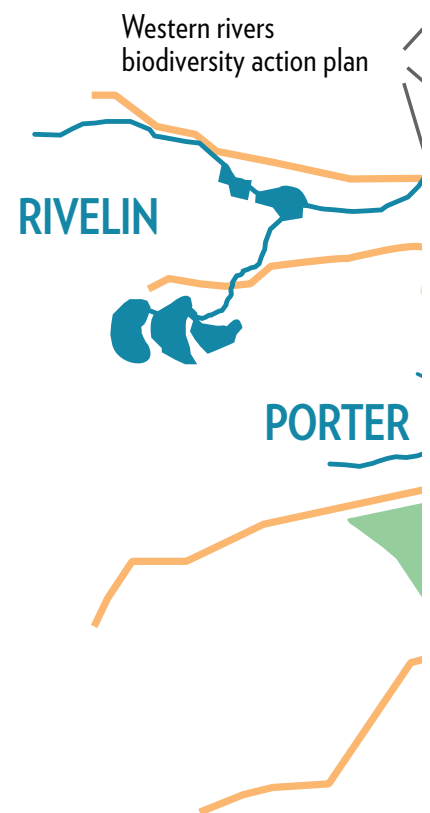
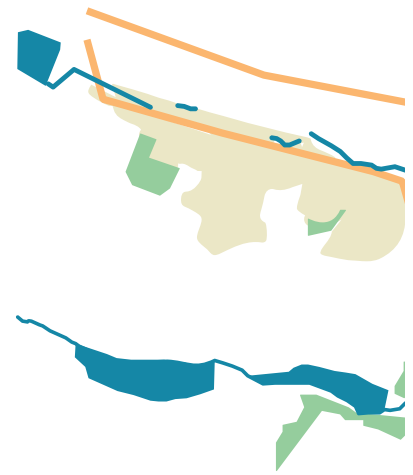
Extend plans for public access to all waterways working with local and catchment-wide partners

Seek Green Flag status for key waterway sites

Look for opportunities to share knowledge with higher educational institutions, other UK cities and international partners

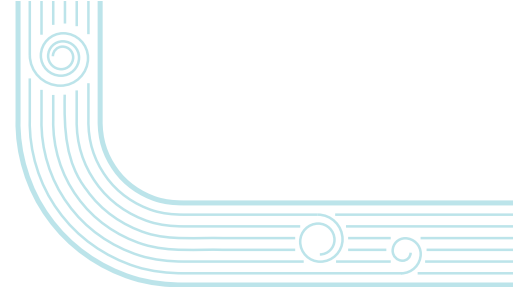
Develop new ways of communicating with the public; for instance social networking via the 'Riverlution' website

An annual or biennial State of the Rivers Conference to review progress and partnership



PLAN 7
Potential Waterways Strategy Actions.
More detail is given in the action plan





FIVE YEAR ACTION PLAN

Urban Projects and Actions

These relate to the Don flowing Southwards from Oughtibridge together with the lower reaches of the Sheaf, Porter, Loxley and also the Sheffield to Tinsley Navigation and Blackburn Meadows.

SCC Sheffield City Council

DCRT Don Catchment Rivers Trust

SWT Sheffield Wildlife Trust

FWW Five Weirs Walk Trust

RSC River Stewardship Company

TBC To Be Confirmed

All All SWSG partners

SCC CDD City Development Division

UDWT Upper Don Walk Trust

EA Environment Agency

SYFP South Yorkshire
Forest Partnership

RCV Rivelin Conservation
Volunteers Group

CRT Canal and River Trust

UoS University of Sheffield

FoPV Friends of Porter Valley

RMBC Rotherham Metropolitan
Borough Council

Action	Description	Lead by	Partners	Outcomes/Measures
Open up the River Sheaf at confluence with River Don	Regeneration at Castle Market site, making a more attractive site, promoting Sheffield's heritage and daylighting the river - establish project development process and secure funding. Close linkage with proposed Victoria Sq new public square strengthening connection to Canal Basin	SCC	DCRT; SWT; FWW, Private developers	<ul style="list-style-type: none"> • Regeneration of Castlegate Quarter • Heritage enhanced and protected • Improved flood resilience • Removal of 'barrier' between Sheaf and Don
Flood preparedness programme	Work with communities to improve resilience to flooding	EA	RSC; Community groups	<ul style="list-style-type: none"> • People, businesses and property protected against flooding • Reduced financial loss • Improved ability to cope with flooding impacts
City centre watersports and waterways recreation	Promote opportunities for a diverse range of recreational activities including fishing, canoeing, canal boat trips and cycling	TBC likely to be local sport/ recreation group	All	<ul style="list-style-type: none"> • More visitors to waterways • Increased trade to existing businesses and new economic opportunities • Greater appreciation of environment, wildlife and heritage
Upper Don walkway	Completion of walkway, promotion of vision and work towards aims and objectives of the Upper Don Valley Masterplan	UDW	SCC; EA; Private developers,	<ul style="list-style-type: none"> • Sustainable transport; reduced carbon emissions • Reduced road congestion • Health and wellbeing • Employment opportunities • Access to services • Wildlife protected
Club Mill Road	Restoration of former land fill site to form green space and riverside walk	TDI Whites	SCC; UDWT; Local businesses	
Lower Porter Brook public realm and river restoration	River daylighting and regeneration of Lower Porter Brook in Cultural Industries Quarter & St Mary's Gate area. Flood protection including Railway Station, Riverside cycle-footways, improved environment and stimulate development	SCC CDD; SYFP	EA; Network Rail; Private developers	<ul style="list-style-type: none"> • Improved access • Flood risks reduced • More aesthetically pleasing environment • Better quality of life • Distinctiveness of local area

Action	Description	Lead by	Partners	Outcomes/Measures
Central Riverside regeneration and flood defences	Co-ordinated river management and public realm improvements, commencing with debris removal, development of permanent and interim flood defences and green space enhancements – towards regional best practices	SCC CDD	SYFP; EA, Private Developers	<ul style="list-style-type: none"> • Improved economic conditions for investment • Reduced flood risks • Extend benefits of Heart of City programme towards deprived communities • More people accessing the River Don, particularly for boating • Develop best practice and roll out across region
Sheffield-Rotherham Don Valley Masterplanning	New vision for Lower Don Valley ‘string of pearls’ – connected open spaces along the Five Weirs Walk from Sheffield City Centre to Rotherham Town Centre, access links between the canal and river. Co-ordinated projects for sports and leisure, renewable energy, flood protection and economic regeneration.	SCC Planning	FWW; SWT; CRT	<ul style="list-style-type: none"> • Raised land values • More people using Lower Don • Improved design and quality of development • More attractive landscape • Urban wildlife and biodiversity • Active use of waterfront • Reduced crime and fear of crime
Lower Don Valley Flood Protection Strategy	Comprehensive Flood Protection Plan for major industrial and infrastructure with potential for wider amenity and habitat benefits	SCC; EA; Private stakeholders	SYFP	<ul style="list-style-type: none"> • Improved economic conditions for investment • Reduced flood risks • Support for Don Valley Modern Manufacturing • More people accessing waterways • Develop best practice and roll out across region
Attercliffe Canalside project - Sheffield & Tinsley Canal	Mixed use development programme including public realm and canal towpath improvements	BW; SCC; Norfolk Estate	Private developers	<ul style="list-style-type: none"> • Strengthen district centre • More viable businesses • Economic investment • More people living in Lower Don Valley • Active and healthy lifestyles
Blackburn Meadows Nature Reserve phase III	Community engagement programme, access to nature and extended local stewardship – potential Blackburn Meadows visitor centre. Link Bridge to Magna.	SWT	RSC, FWW	<ul style="list-style-type: none"> • Improved local involvement • More visitors to an attractive natural environment • Less vandalism and fly-tipping • Potential jobs at visitor centre
Meadowhall Metropolitan	Creation of new waterside park(s) and improved access to River Don	British Land	SCC; SYFP; RSC; Groundwork Sheffield	<ul style="list-style-type: none"> • More accessible, safe and attractive open spaces • Recreation, activity and leisure opportunities

Suburban and Rural Actions

The middle and upper reaches of the Porter, Sheaf, Rivelin and Loxley together with the myriad brook, streams and culverts.

Action	Description	Lead by	Partners	Outcomes/Measures
Sheffield Comprehensive Flood Review	Strategy for Flood Protection for the Sheffield river system	EA; SCC	All riparian owners	<ul style="list-style-type: none"> • More responsive flood risk management • Efficient use of assets • More integrated water cycle management • Drought management • Programme of hard and soft resilience measures
Uplands flood storage and control projects	Investigate opportunities for flood control in upper catchments including water retention, farming diversification, changes to moorland and peat management	EA	SCC; SYFP; SWT; DCRT; UDW	<ul style="list-style-type: none"> • Reduced flooding • More sustainable rural drainage • Less flashy flows • Drought protection • Climate change adaptation and mitigation
Real-time river management project – River Don catchment	Future management of river water quantities and quality using weather forecasting and flow management techniques – wiser management of compensation flows and sewer drainage for floods	EA; YW	DCRT	<ul style="list-style-type: none"> • More responsive flood risk management • Efficient use of assets • More integrated water cycle management • Drought management • Reduced fish kills
Loxley – Rivelin World Heritage Site	Investigate opportunity for entire river corridors to be designated as World Heritage site due to global importance as 'birthplace' of cutlery and steel manufacturing – with associated tourism, leisure and environmental opportunities	SCC	SYFP; SWT; RCV	<ul style="list-style-type: none"> • Increased visitor numbers • Impacts on wider city image • Tourism • Economic opportunities • Education • Protect and showcase globally important heritage • More biodiversity • High quality linkage between city and countryside
Shepherd Wheel restoration project	Restoration of water wheel, millpond and other associated structures at this unique heritage site dating back to 1584. Educational facilities, landscape interpretation and wildlife conservation.	SCC	SIMT; FoPV	<ul style="list-style-type: none"> • Protect and promote unique, listed heritage feature • Education • Tourism • Biodiversity
Green corridor management plans	Green and open space masterplans for each river corridor covering management and improvement schemes	SCC	All	<ul style="list-style-type: none"> • Better quality of life • Improved access to recreation • More green and open spaces in urban areas

Action	Description	Lead by	Partners	Outcomes/Measures
Sheffield's river rescue projects	Community-led projects involving a wide range of SWSG partners, supporting local people to deliver river restoration e.g. at Blackburn Brook, Car Brook etc.	SCC	All	<ul style="list-style-type: none"> • Reduced flood risks • Increased number of people engaged in volunteering • Increased skills, confidence • Job opportunities • More active lifestyles • Improved community cohesion • More targeted funding
Western Rivers Biodiversity Action Plan	Provision of more coherent information and data resources on biodiversity	SWT	SCC Ecology Unit	<ul style="list-style-type: none"> • Greater biodiversity and wildlife protection • More coordinated partnerships • Fundraising • Improved awareness
Forge Dam restoration project	Potential restoration of historic showpiece water asset and key 'node' on Porter Brook waterway – investigate how to manage siltation and encroachment most sustainably	FoPV	SCC; SYFP	<ul style="list-style-type: none"> • Educational opportunities • Awareness of biodiversity • Address neglect of heritage asset
Local Waterside Urban Centres	Establish local 'hubs' for transport, economic development and high quality public open spaces at Hillsborough, Attercliffe, Heeley, Hunter's Bar and Stocksbridge – Thriving Local Centres at these former riverside 'towns'	SCC Planning	All	<ul style="list-style-type: none"> • Stronger community cohesion • Economic and social regeneration • Pride in the local environment • Improved awareness of the river • Viable businesses and investment opportunities
Meadowhall Weir river restoration	Provision of major new fish pass, access improvements and recreational facilities	DCRT	EA; SCC; UDWT	<ul style="list-style-type: none"> • Increased fish populations • More efficient and sustainable fishery management • Leisure and recreation opportunities • Better access and transport links to currently isolated community centre • Reduced flood risks
River Sheaf weirs restoration scheme	Removal of obstructions to fish passage	SCC	EA	<ul style="list-style-type: none"> • Increased biodiversity including healthier fish populations and more connected river ecology



City-Wide Projects and Actions

City-wide projects and actions. These are the initiatives requiring action across the city or towards the river catchments scale.

Action	Description	Lead by	Partners	Outcomes/Measures
Community engagement in waterways regeneration - coordination via a city-wide 'hub' for involving local people	Capacity-building for community involvement in local river restoration projects	SCC	RSC; SWT; DCRT	<ul style="list-style-type: none"> • Numbers of people involved • Right people mobilised • More political support for waterways and SWS actions • Increased resilience • Stewardship • Widen benefits to deprived communities • Support materials available • Funding information, expertise and delivery capacity
Annual programme of events/festivals along the city's waterways including 'On the Waterfront,' educational activities and fun events	Events located at Central Riverside, Victoria Quays, Kelham Island and potentially at Abbeydale Hamlet, Shepherd Wheel and similar sites	RSC/ Groundwork Sheffield	SCC; Community groups; Schools; Businesses	<ul style="list-style-type: none"> • Greater involvement of local people • Protection of waterways for future • Improved awareness • Celebration of water heritage
Sheffield Waterways Volunteers	Coordination of voluntary workforces - city-wide arrangements for voluntary activity	RSC	SCC; SWT; DCRT; Community groups; Recreational organisations	<ul style="list-style-type: none"> • Active lifestyles • Health and wellbeing • Friendships • More effective activity • More volunteers • Training, skills and qualifications • Areas of land improved and maintained
Supplementary Planning Document on waterways regeneration	Management agreements for waterfront developments - agreements secured for future maintenance of landowners sections of rivers	SCC Planning	All	<ul style="list-style-type: none"> • Quality developments • Amount of well-managed riverside open spaces • Flood resilience • Contributions to strategic aims • More riverside walks • Reduced carbon emissions
Sheffield Waterways Access Network (SWAN project)	Promoting total, city-wide network of pedestrian and cycle routes, addressing key gaps and links	SWSG	All	<ul style="list-style-type: none"> • Sustainable transport • Reduced carbon emissions • Health and wellbeing • Reduced congestion • Employment opportunities • Access to services • Wildlife protected

Action	Description	Lead by	Partners	Outcomes/Measures
Sheffield Waterways Communications Strategy	Development of key messages – targeting of audiences and communication channels	SWSG	All	<ul style="list-style-type: none"> • Greater awareness and buy-in • Political support • Community involvement • Number of presentations, briefings and press coverage of SWSG activities
Catchment Flood Management Plan	Coordination of strategic approach to flood risk management at river catchment scale	EA	All	<ul style="list-style-type: none"> • Reduced flood risks • Wider involvement • Innovation • Knowledge-sharing
Eels recovery project	Improvement of wetland habitat, fish passage and recovery of crashed populations (down 95%)	DCRT	EA; Defra	<ul style="list-style-type: none"> • Recovery of keystone species populations • Wetland habitat enhanced • Improved flood resilience • Better awareness of eels ‘plight’
Aquatic Mammals Initiative	Potential project	SWT	N/A	<ul style="list-style-type: none"> • Populations of keystone aquatic mammal species e.g. otters on all rivers • More ecologically connected river systems
White-Clawed Crayfish action plan	Sustainable management of environmental modifications (e.g. changes to weirs)	SWT	SCC	<ul style="list-style-type: none"> • Increase chances of survival • Population levels • Awareness of endangered species
Sustainable fisheries management	Delivery of improved fisheries – cost effective, inclusive and environmentally sustainable management of resource	EA	DCRT	<ul style="list-style-type: none"> • Fisheries habitat enhanced • Biodiversity of fish species
South Yorkshire Green Infrastructure Strategy	Targeting of investment in key greenspace nodes and links, to establish green networks and corridors	SYFP	All	<ul style="list-style-type: none"> • Better targeted investment • Connected communities • Climate change adaptation
River channels management and maintenance planning	Detailed 5-year management and maintenance plan for Sheffield river channels and banks – more sustainable approaches	EA	RSC; All	<ul style="list-style-type: none"> • Reduced flood risks • More community involvement and ownership • Efficient and coordinated input • Less debris • Improved perceptions of environmental quality • Reduced vandalism and misuse

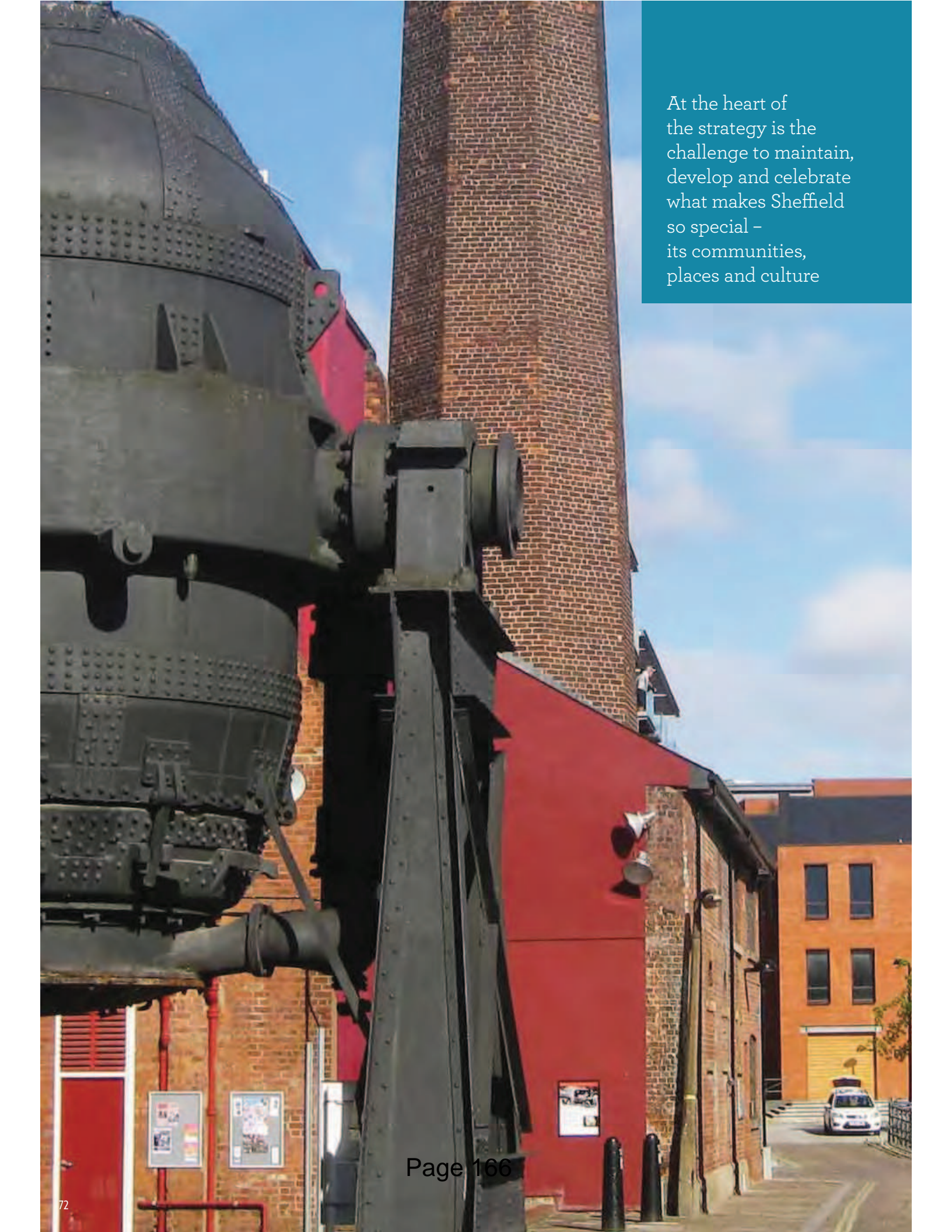
Action	Description	Lead by	Partners	Outcomes/Measures
Green Flag status riverside sites	Submission of riverside sites for classification of Green Flag status	RSC	SCC; SWT	<ul style="list-style-type: none"> Promotion and awareness raising Funding for future activities First in country
Invasive species – catchment wide eradication	Coordination of catchment-wide approaches to controlling Japanese Knotweed and Himalayan Balsam	SWT	RSC; DCRT; Community groups	<ul style="list-style-type: none"> Biodiversity key species Local flora and fauna Maintenance of riverside structures Economic benefit to land owners
State of rivers conference	Annual or biannual event to publicise SWS, to promote its objectives and focus on indicators	SCC CDD	All	<ul style="list-style-type: none"> Wider engagement Links and networks Innovation and improved strategy delivery
River Stewardship Company	City-wide growth of established stewardship scheme and help for others to roll-out across region	RSC	All	<ul style="list-style-type: none"> Geographical coverage increased Improved quality of river corridor habitat and aesthetics Improved awareness of flooding and resilience to flood impacts

Regional Projects and Wider Links

Activities occurring across local boundaries and with broader links to other areas, including projects with partners in other parts of the country or overseas.

Action	Description	Lead by	Partners	Outcomes/Measures
Living Landscapes regional biodiversity opportunities map	Promotion, uptake and use of map to highlight potential improvements	SWT	Regional BAP forum; SCC	<ul style="list-style-type: none"> Biodiversity key species Climate change adaptation Awareness and coordination
URSULA – urban river corridors and sustainable living agendas	Research project (EPSRC funded) on sustainable regeneration of urban river corridors for the benefit of society, the economy and the environment	UoS	SCC/EA	<ul style="list-style-type: none"> Evidence on social, economic and environmental benefits of waterways regeneration 3D visualisations of Sheffield's river corridors

Action	Description	Lead by	Partners	Outcomes/Measures
Interreg IVB MARE project	EU flood adaptation project - including Don Catchment Learning Alliance and regional learning network	SCC CDD	UoS; Rotherham MBC; Other authorities; Sheffield City Region	<ul style="list-style-type: none"> • Transnational learning on climate change adaptation and flood resilience
Interreg IVB VALUE project	EU project on Valuing Attractive Landscapes in the Urban Economy	SYFP/SCC	UoS	<ul style="list-style-type: none"> • Evidence on efficient targeting of green infrastructure investments • Improved approaches to valuing natural environments • Public realm improvements at Wicker Riverside, Centenary Wetlands and A61 Corridor
Interreg IVB Making Places Profitable	EU network project on long-term stewardship of environmental investments	SYFP/SCC	UoS	<ul style="list-style-type: none"> • Best practice in durable management and maintenance of public realm environment • Public realm investments at Sheaf Valley Park and Firth Park
Transnational project on waterways governance	Proposal for a new EU project to help fund the work of this strategy	SWSG	All	<ul style="list-style-type: none"> • Funding for work to establish best practices in governance of waterways regeneration
Rotherham Waterways Strategy	Liaison and coordination with Rotherham on common objectives	RMBC		<ul style="list-style-type: none"> • Value for money • Catchment-wide approaches • Sub-regional investment
Tourism links	Promotion of city and waterways to visitors - e.g. Trans Pennine Trail; linking international conferences etc. to city of rivers festivals/cultural programme	SCC	Interreg project partners	<ul style="list-style-type: none"> • Profile as a first rate destination city in EU
River Basin Management Plans	Ongoing planning cycle for EU Water Framework Directive - promotion of more holistic water management (much of Don system has 'Poor' ecological status)	EA	All	<ul style="list-style-type: none"> • Ecological status (lengths): water quality and habitat • Education and community involvement • Visitor numbers • Economic impact of water management

A photograph of a tall brick chimney and a large industrial machine in Sheffield. The chimney is made of red brick and stands prominently in the background. In the foreground, a large, dark, riveted industrial machine is visible, likely a part of a factory or mill. The scene is set in an urban environment with other buildings and a street visible in the distance. The sky is blue with some light clouds.

At the heart of the strategy is the challenge to maintain, develop and celebrate what makes Sheffield so special – its communities, places and culture

10

WHAT WILL THIS MEAN FOR SHEFFIELD?



New walkway and development at Bridgehouses

At the heart of the strategy is the challenge to maintain, develop and celebrate what makes Sheffield so special – its communities, places and culture.

The quality of the urban environment in the centre of Sheffield has never been better, setting a new benchmark for public realm. However, with a few exceptions, the riverside environment falls far below this standard.

The strategy aims to drive up standards of design and management of the riverside, benefiting society, the economy and the environment. Successful delivery of the strategy will also create a city image that has a resonance with investors and decision makers, a distinctive offer that combines best of urban living with access to a superb outdoor environment, providing the best quality of life in any UK city.

The economic value of public spaces is now well documented; a high quality public environment is an essential part of any regeneration strategy, impacting positively on the local economy particularly by encouraging investment and the creation of jobs. In less favoured parts of the city, our restored waterways will act as one of the catalysts to regeneration.

The important environmental benefits that our rivers bring to urban areas will be much improved with greater opportunity for people to be close to nature. Wildlife corridors and natural habitats

will be protected, extended and joined up as part of a concerted greening programme. Re-naturalised river corridors will help develop the city's resilience to climate change, slowing flood waters, helping cool the city and providing new and alternative wildlife habitats.

Well maintained public spaces will help improve physical and mental health, encouraging more people to take opportunities to become active. The experience of the natural environment will provide children and young people with opportunities for fun, exercise and learning. Better managed and more visited public spaces will help to reduce crime rates and allay people's fears of crime.

Well designed and maintained riverside places will bring communities together, providing meeting opportunities in the right context and fostering social ties. One of the fundamental benefits arising from better connected river corridors will be to allow people to move around without the challenge of reconciling the needs of different modes of transport.

New riverside neighbourhoods will provide homes, workspace, cultural and educational opportunities in a memorable and productive landscape setting. Cultural assets and venues will be created from the retention and re-use of buildings, not only those of architectural merit but also the workaday buildings where so much of Sheffield's history was enacted.

11

HOW WILL WE KNOW WHEN WE'VE GOT THERE?



Kelham: new uses for old buildings

These will be the indicators of success.

A Thriving and Competitive City

- Sheffield's distinctive image reinforced enhancing its aim to be a unique and leading European City
- More jobs and new economic opportunities leading to increased competitive advantage and investment
- Design guidelines on waterfront development leading to improved design and quality of development
- Increased footfall along waterways and in district centres
- More attractive public realm
- Heritage protected, promoted and conserved
- Raised waterside land values
- Reduced economic cost of water management
- Increased trade for existing riverside businesses
- Improved distinctiveness of local area
- Improved citizens' pride in the local environment

Quality of Life

- Improved social cohesion and inclusion
- Support for the voluntary sector groups and networks

- Improved educational opportunities and capacity for lifelong learning
- Improved safety and accessibility
- Opportunities for social engagement and involvement in projects
- More visitors to waterways and more people accessing natural environments
- Greater involvement of local people
- Reduced congestion
- Better health and wellbeing
- Less vandalism and fly-tipping
- Healthier fish populations
- Recovery of keystone species populations
- More efficient and sustainable fishery management
- Recreation, activity and leisure opportunities
- More active lifestyles
- High quality linkages between the city and countryside
- More urban wildlife and biodiversity
- Benefits of regeneration extended towards deprived communities
- Riparian rights and responsibilities known, understood and implemented



The Don at Effingham Street

Climate Change Mitigation and Adaptation

- Reduced flood risk and improved flood resilience, including better awareness and preparedness and ability to cope with flooding impacts
- People, businesses and property protected from damage and loss
- More sustainable urban and rural drainage
- Prevention of drought and protection against its impacts
- Less flashy river flows
- Improved water quality
- Reduced reliance on private car transport
- Greater uptake of sustainable transport options including walking and cycling
- Reduced carbon emissions
- Connected habitat network resilient to climate change
- A connected, high quality and functional green infrastructure network
- Biodiversity action plans preparing for impacts of climate change
- Climate change adaptation plans
- More connected river ecology
- Better targeting of interventions and improved value for money

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Griffiths P. East End Trails 3 The Five Weirs Walk.

Ogden S. East End Trails 1 The Sheffield and Tinsley Canal.

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FIVE YEAR ACTION PLAN

Urban Projects and Actions

These relate to the Don flowing Southwards from Oughtibridge together with the lower reaches of the Sheaf, Porter, Loxley and also the Sheffield to Tinsley Navigation and Blackburn Meadows.

Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Open up the River Sheaf at confluence with River Don	Regeneration at Castle Market site, making a more attractive site, promoting Sheffield's heritage and daylighting the river – establish project development process and secure funding. Close linkage with proposed Victoria Sq new public square strengthening connection to Canal Basin	SCC	DCRT; SWT; FWW, Private developers	a) Regeneration of Castlegate Quarter b) Heritage enhanced and protected c) Improved flood resilience d) Removal of 'barrier' between Sheaf and Don		
Flood preparedness programme	Work with communities to improve resilience to flooding	EA	RSC; Community groups	a) People, businesses and property protected against flooding b) Reduced financial loss c) Improved ability to cope with flooding impacts		

FIVE YEAR ACTION PLAN

Urban Projects and Actions

These relate to the Don flowing Southwards from Oughtibridge together with the lower reaches of the Sheaf, Porter, Loxley and also the Sheffield to Tinsley Navigation and Blackburn Meadows.

Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
City centre watersports and waterways recreation	Promote opportunities for a diverse range of recreational activities including fishing, canoeing, canal boat trips and cycling	TBC likely to be local sport/recreation group	All	a) More visitors to waterways b) Increased trade to existing businesses and new economic opportunities b) Greater appreciation of environment, wildlife and heritage		
Upper Don walkway	Completion of walkway, promotion of vision and work towards aims and objectives of the Upper Don Valley Masterplan	UDW	SCC; EA; Private developers,	a) Sustainable transport; reduced carbon emissions b) Reduced road congestion c) Health and wellbeing d) Employment opportunities e) Access to services f) Wildlife protected		
Club Mill Road	Restoration of former land fill site to form green space and riverside walk	TDI Whites	SCC; UDWT; Local businesses			

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Urban Projects and Actions						
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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Lower Porter Brook public realm and river restoration	River daylighting and regeneration of Lower Porter Brook in Cultural Industries Quarter & St Mary's Gate area. Flood protection including Railway Station, Riverside cyclefootways, improved environment and stimulate development	SCC CDD; SYFP	EA; Network Rail; Private developers	a) Improved access b) Flood risks reduced c) More aesthetically pleasing environment d) Better quality of life e) Distinctiveness of local area		

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Urban Projects and Actions						
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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Central Riverside regeneration and flood defences	Co-ordinated river management and public realm improvements, commencing with debris removal, development of permanent and interim flood defences and green space enhancements – towards regional best practices	SCC CDD	SYFP; EA, Private Developers	<ul style="list-style-type: none"> a) Improved economic conditions for investment b) Reduced flood risks c) Extend benefits of Heart of City programme towards deprived communities d) More people accessing the River Don, particularly for boating e) Develop best practice and roll out across region 		

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Urban Projects and Actions						
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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Sheffield-Rotherham Don Valley Masterplanning	New vision for Lower Don Valley 'string of pearls' – connected open spaces along the Five Weirs Walk from Sheffield City Centre to Rotherham Town Centre, access links between the canal and river. Co-ordinated projects for sports and leisure, renewable energy, flood protection and economic regeneration.	SCC Planning	FWW; SWT; CRT	a) Raised land values b) More people using Lower Don c) Improved design and quality of development d) More attractive landscape e) Urban wildlife and biodiversity f) Active use of waterfront g) Reduced crime and fear of crime		
Lower Don Valley Flood Protection Strategy	Comprehensive Flood Protection Plan for major industrial and infrastructure with potential for wider amenity and habitat benefits	SCC; EA; Private stakeholders	SYFP	a) Improved economic conditions for investment b) Reduced flood risks c) Support for Don Valley Modern Manufacturing d) More people accessing waterways e) Develop best practice and roll out across region		

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Urban Projects and Actions

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Aftercliffe Canalside project - Sheffield & Tinsley Canal	Mixed use development programme including public realm and canal towpath improvements	BW; SCC; Norfolk Estate	Private developers	<ul style="list-style-type: none"> a) Strengthen district centre b) More viable businesses c) Economic investment d) More people living in Lower Don Valley e) Active and healthy lifestyles 		
Blackburn Meadows Nature Reserve phase III	Community engagement programme, access to nature and extended local stewardship – potential Blackburn Meadows visitor centre. Link Bridge to Magna.	SWT	RSC, FWW	<ul style="list-style-type: none"> a) Improved local involvement b) More visitors to an attractive natural environment c) Less vandalism and flytipping d) Potential jobs at visitor centre 		
Meadowhall Metropolitan	Creation of new waterside park(s) and improved access to River Don	British Land	SCC; SYFP; RSC; Groundwork Sheffield	<ul style="list-style-type: none"> a) More accessible, safe and attractive open spaces b) Recreation, activity and leisure opportunities 		
Suburban and Rural Actions The middle and upper reaches of the Porter, Sheaf, Rivelin and Loxley together with the myriad brook, streams and culverts						

FIVE YEAR ACTION PLAN

Urban Projects and Actions

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Sheffield Comprehensive Flood Review	Strategy for Flood Protection for the Sheffield river system	EA; SCC	All riparian owners	<ul style="list-style-type: none"> a) Reduced flooding b) More sustainable rural drainage c) Less flashy flows d) Drought protection e) Climate change adaptation and mitigation 		
Real-time river management project – River Don catchment	Future management of river water quantities and quality using weather forecasting and flow management techniques – wiser management of compensation flows and sewer drainage for floods	EA; YW	DCRT	<ul style="list-style-type: none"> a) More responsive flood risk management b) Efficient use of assets c) More integrated water cycle management c) Drought management d) Reduced fish kills 		

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Urban Projects and Actions

These relate to the Don flowing Southwards from Oughtibridge together with the lower reaches of the Sheaf, Porter, Loxley and also the Sheffield to Tinsley Navigation and Blackburn Meadows.

Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Real-time river management project – River Don catchment	Future management of river water quantities and quality using weather forecasting and flow management techniques – wiser management of compensation flows and sewer drainage for floods	EA; YW	DCRT	a) More responsive flood risk management b) Efficient use of assets c) More integrated water cycle management d) Drought management e) Reduced fish kills		
Loxley – Rivelin World Heritage Site	Investigate opportunity for entire river corridors to be designated as World Heritage site due to global importance as 'birthplace' of cutlery and steel manufacturing – with associated tourism, leisure and environmental opportunities	SCC	SYFP; SWT; RCV	a) Increased visitor numbers b) Impacts on wider city image c) Tourism d) Economic opportunities e) Education f) Protect and showcase globally important heritage g) More biodiversity h) High quality linkage between city and countryside		

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Urban Projects and Actions

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Shepherd Wheel restoration project	Restoration of water wheel, millpond and other associated structures at this unique heritage site dating back to 1584. Educational facilities, landscape interpretation and wildlife conservation.	SCC	SIMT; FoPV	a) Protect and promote unique, listed heritage feature b) Education c) Tourism d) Biodiversity		
Green corridor management plans	Green and open space masterplans for each river corridor covering management and improvement schemes	SCC	All	a) Better quality of life b) Improved access to recreation c) More green and open spaces in urban areas		

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Urban Projects and Actions

These relate to the Don flowing Southwards from Oughtibridge together with the lower reaches of the Sheaf, Porter, Loxley and also the Sheffield to Tinsley Navigation and Blackburn Meadows.

Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Sheffield's river rescue projects	Community-led projects involving a wide range of SWSG partners, supporting local people to deliver river restoration e.g. at Blackburn Brook, Car Brook etc.	SCC	All	<ul style="list-style-type: none"> a) Reduced flood risks b) Increased number of people engaged in volunteering c) Increased skills, confidence d) Job opportunities e) More active lifestyles f) Improved community cohesion g) More targeted funding 		
Western Rivers Biodiversity Action Plan	Provision of more coherent information and data resources on biodiversity	SWT	SCC Ecology Unit	<ul style="list-style-type: none"> a) Greater biodiversity and wildlife protection b) More coordinated partnerships c) Fundraising d) Improved awareness 		
Forge Dam restoration project	Potential restoration of historic showpiece water asset and key 'node' on Porter Brook waterway – investigate how to manage siltation and encroachment most sustainably	FoPV	SCC; SYFP	<ul style="list-style-type: none"> a) Educational opportunities b) Awareness of biodiversity c) Address neglect of heritage asset 		

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Urban Projects and Actions

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Local Waterside Urban Centres	Establish local 'hubs' for transport, economic development and high quality public open spaces at Hillsborough, Attercliffe, Heeley, Hunter's Bar and Stocksbridge – Thriving Local Centres at these former riverside 'towns'	SCC Planning	All	a) Stronger community cohesion b) Economic and social regeneration c) Pride in the local environment d) Improved awareness of the river e) Viable businesses and investment opportunities		
Meadowhall Weir river restoration	Provision of major new fish pass, access improvements and recreational facilities	DCRT	EA; SCC; UDWT	a) Increased fish populations b) More efficient and sustainable fishery management c) Leisure and recreation opportunities d) Better access and transport links to currently isolated community centre e) Reduced flood risks		

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
River Sheaf weirs restoration scheme	Removal of obstructions to fish passage	SCC	EA	Increased biodiversity including healthier fish populations and more connected river ecology		
City-Wide Projects and Actions						
City-wide projects and actions. These are the initiatives requiring action across the city or towards the river catchments scale.						
Community engagement in waterways regeneration – coordination via a city-wide ‘hub’ for involving local people	Capacity-building for community involvement in local river restoration projects	SCC	RSC; SWT; DCRT	a) Numbers of people mobilised b) Right people mobilised c) More political support for waterways and SWS actions d) Increased resilience e) Stewardship f) Widen benefits to deprived communities g) Support materials available h) Funding information, expertise and delivery capacity		

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Urban Projects and Actions

These relate to the Don flowing Southwards from Oughtibridge together with the lower reaches of the Sheaf, Porter, Loxley and also the Sheffield to Tinsley Navigation and Blackburn Meadows.

Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Annual programme of events/festivals along the city's waterways including 'On the Waterfront,' educational activities and fun events	Events located at Central Riverside, Victoria Quays, Kelham Island and potentially at Abbeydale Hamlet, Shepherd Wheel and similar sites	RSC/ Groundwork Sheffield	SCC; Community groups; Schools; Businesses	a) Greater involvement of local people b) Protection of waterways for future c) Improved awareness d) Celebration of water heritage		
Sheffield Waterways Volunteers	Coordination of voluntary workforces – city-wide arrangements for voluntary activity	RSC	SCC; SWT; DCRT; Community groups; Recreational organisations	a) Active lifestyles b) Health and wellbeing c) Friendships d) More effective activity e) More volunteers f) Training, skills and qualifications g) Areas of land improved and maintained		
Supplementary Planning Document on waterways regeneration	Management agreements for waterfront developments – agreements secured for future maintenance of landowners sections of rivers	SCC Planning	All	a) Quality developments b) Amount of well-managed riverside open spaces c) Flood resilience d) Contributions to strategic aims e) More riverside walks f) Reduced carbon emissions		

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Urban Projects and Actions

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Sheffield Waterways Access Network (SWAN project)	Promoting total, city-wide network of pedestrian and cycle routes, addressing key gaps and links	SWSG	All	<ul style="list-style-type: none"> a) Sustainable transport b) Reduced carbon emissions c) Health and wellbeing d) Reduced congestion e) Employment opportunities f) Access to services g) Wildlife protected 		
Sheffield Waterways Communications Strategy	Development of key messages – targeting of audiences and communication channels	SWSG	All	<ul style="list-style-type: none"> a) Greater awareness and buy-in b) Political support c) Community involvement d) Number of presentations, briefings and press coverage of SWSG activities 		
Catchment Flood Management Plan	Coordination of strategic approach to flood risk management at river catchment scale	EA	All	<ul style="list-style-type: none"> a) Reduced flood risks b) Wider involvement c) Innovation d) Knowledge-sharing 		

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Urban Projects and Actions

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Eels recovery project	Improvement of wetland habitat, fish passage and recovery of crashed populations (down 95%)	DCRT	EA; Defra	a) Recovery of keystone species populations b) Wetland habitat enhanced c) Improved flood resilience d) Better awareness of eels 'plight'		
Aquatic Mammals Initiative	Potential project	SWT	N/A	a) Populations of keystone aquatic mammal species e.g. otters on all rivers b) More ecologically connected river systems		
White-Clawed Crayfish action plan	Sustainable management of environmental modifications (e.g. changes to weirs)	SWT	SCC	a) Increase chances of survival b) Population levels c) Awareness of endangered species		
Sustainable fisheries management	Delivery of improved fisheries – cost effective, inclusive and environmentally sustainable management of resource	EA	DCRT	a) Fisheries habitat enhanced b) Biodiversity of fish species		

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
South Yorkshire Green Infrastructure Strategy	Targeting of investment in key greenspace nodes and links, to establish green networks and corridors	SYFP	All	a) Better targeted investment b) Connected communities c) Climate change adaptation		
River channels management and maintenance planning	Detailed 5-year management and maintenance plan for Sheffield river channels and banks – more sustainable approaches	EA	RSC; All	a) Reduced flood risks b) More community involvement and ownership c) Efficient and coordinated input d) Less debris e) Improved perceptions of environmental quality f) Reduced vandalism and misuse		
Green Flag status riverside sites	Submission of riverside sites for classification of Green Flag status	RSC	SCC; SWT	a) Promotion and awareness raising b) Funding for future activities c) First in country		

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Invasive species – catchment wide eradication	Coordination of catchmentwide approaches to controlling Japanese Knotweed and Himalayan Balsam	SWT	RSC; DCRT; Community groups	a) Biodiversity key species b) Local flora and fauna c) Maintenance of riverside structures d) Economic benefit to land owners		
State of rivers conference	Annual or biannual event to publicise SWS, to promote its objectives and focus on indicators	SCC CDD	All	a) Wider engagement b) Links and networks c) Innovation and improved strategy delivery		
River Stewardship Company	City-wide growth of established stewardship scheme and help for others to roll-out across region	RSC	All	a) Geographical coverage increased b) Improved quality of river corridor habitat and aesthetics c) Improved awareness of flooding and resilience to flood impacts		
Regional Projects and Wider Links						
Activities occurring across local boundaries and with broader links to other areas, including projects with partners in other parts of the country or overseas.						

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Living Landscapes regional biodiversity opportunities map	Promotion, uptake and use of map to highlight potential improvements	SWT	Regional BAP forum; SCC	a) Biodiversity key species b) Climate change adaptation c) Awareness and coordination		
URSULA – urban river corridors and sustainable living agendas	Research project (EPSRC funded) on sustainable regeneration of urban river corridors for the benefit of society, the economy and the environment	UoS	SCC/EA	a) Evidence on social, economic and environmental benefits of waterways regeneration b) 3D visualisations of Sheffield's river corridors		
Interreg IVB MARE project	EU flood adaptation project – including Don Catchment Learning Alliance and regional learning network	SCC CDD	UoS; Rotherham MBC; Other authorities; Sheffield City Region	a) Transnational learning on climate change adaptation and flood resilience		

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Urban Projects and Actions

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Interreg IVB VALUE project	EU project on Valuing Attractive Landscapes in the Urban Economy	SYFP/SCC	UoS	a) Evidence on efficient targeting of green infrastructure investments b) Improved approaches to valuing natural environments c) Public realm improvements at Wicker Riverside, Centenary Wetlands and A61 Corridor		
Interreg IVB Making Places Profitable	EU network project on long-term stewardship of environmental investments	SYFP/SCC	UoS	a) Best practice in durable management and maintenance of public realm environment b) Public realm investments at Sheaf Valley Park and Firth Park		
Transnational project on waterways governance	Proposal for a new EU project to help fund the work of this strategy	SWSG	All	a) Funding for work to establish best practices in governance of waterways regeneration		
Rotherham Waterways Strategy	Liaison and coordination with Rotherham on common objectives	RMBC		a) Value for money b) Catchment-wide approaches c) Sub-regional investment		

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
Tourism links	Promotion of city and waterways to visitors – e.g. Trans Pennine Trail; linking international conferences etc. to city of rivers festivals/cultural programme	SCC	Interreg project partners	a) Profile as a first rate destination city in EU		
River Basin Management Plans	Ongoing planning cycle for EU Water Framework Directive – promotion of more holistic water management (much of Don system has 'Poor' ecological status)	EA	All	a) Ecological status (lengths): water quality and habitat b) Education and community involvement c) Visitor numbers d) Economic impact of water management		

Abbreviations

SCC - Sheffield City Council
DCRT - Don Catchment Rivers Trust
SWT - Sheffield Wildlife Trust

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Action	Description	Lead by	Partners	Outcomes/Measures	Status	Funded
FWW	- Five Weirs Walk Trust					
RSC	-River Stewardship Company					
TBC	- To Be Confirmed					
All	- All SWSG partners					
SCC CDD	- City Development Division					
UDWT	- Upper Don Walk Trust					
EA	- Environment Agency					
SYFP	- South Yorkshire Forest Partnership					
RCV	- Rivelin Conservation Volunteers Group					
CRT	- Canal and River Trust					
UoS	- University of Sheffield					
FoPV	- Friends of Porter Valley					
RMBC	- Rotherham Metropolitan Borough Council					