



# GREEN INFRASTRUCTURE - A PROSPECTUS FOR LOWLAND DERBYSHIRE & NOTTINGHAMSHIRE

investing in natural capital for the benefit of the economy, people and nature



January 2017



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## Foreword

*Lowland Derbyshire and Nottinghamshire is an area that combines the major urban conurbations of Nottingham and Derby, with important centres such as Mansfield, Ashfield and Chesterfield, attractive market towns and countryside that is both beautiful and biodiverse.*

*This Prospectus makes the case for strategic investment in Green Infrastructure as a way to maintain and extend the high quality natural environment that we are so lucky to enjoy in our area. The natural environment has always been valued for its amenity benefits – we also want to ensure its value to the economy is recognised and that we take full advantage of its economic potential.*

*At least 77,000 new homes and 55,000 new jobs are planned in the area by 2023 and these, along with development of land for business, retail and industry will put pressure on the natural resources of our area. Lowland Derbyshire and Nottinghamshire has a high quality natural environment but there are significant environmental issues that investment in Green Infrastructure could help to address.*

*We want money to be invested in Green Infrastructure to protect and support this future economic growth and create high quality open spaces that connect town centres, public transport hubs, employment and residential areas with river corridors, parks and the wider countryside. These spaces will make the area more accessible through walking and cycling routes as well as helping people and the economy cope with the impacts of climate change such as flooding or heat waves. They will be better places to play and socialise and be more attractive to wildlife. Well delivered, they can stimulate further investment, increase property values and help people lead active lives.*

*I welcome feedback on this Prospectus from all stakeholders with an interest in delivering high quality Green Infrastructure in our area.*



**Tim Farr**  
Chair, Lowland Derbyshire  
& Nottinghamshire Local  
Nature Partnership

# 1 - Introduction

This Prospectus is a starting point for developing a strategic framework for the planning and delivery of Green Infrastructure (GI) in Lowland Derbyshire and Nottinghamshire. It identifies the benefits of GI, current issues and concerns, makes the case for GI investment and outlines a strategic framework and a way forward to develop a GI Strategy.

A major step-change in the scale, quality and connectivity of GI assets is urgently required to match the amount of imminent new growth planned in our area. Some 55,000 new jobs and 77,000 new homes are expected here by 2023 and we need strategic development of GI to be at the heart of the planning process.

We now know that improving the natural environment can enhance the economic competitiveness of a region. An attractive and resilient natural environment attracts businesses and investment and encourages economic growth. Investment in GI not only makes good business sense, but provides important health and well-being benefits, too. Furthermore, it can help to mitigate the effects of climate change- such as flooding, which is a major threat to economic sustainability.

This Prospectus is primarily aimed at strategic decision-makers and leaders including:

- Local authorities
- D2N2 Local Enterprise Partnership (LEP)
- Health and Well-Being Boards in Derbyshire and Nottinghamshire
- Statutory environmental authorities,
- Other key stakeholders including neighbouring LEPs and LNPs.

This Prospectus will be the start of a process, in collaboration with key stakeholders, to develop and implement a regional GI framework and strategy to ensure that GI is in place to support economic growth and people's needs.

## Lowland Derbyshire & Nottinghamshire Local Nature Partnership

Established in 2012, we are a partnership of influential organisations and businesses that works strategically at a local level to promote and enhance our natural environment so it can support local people and the economy now and into the future. As an organisation with a strategic remit, the LNP has an important role to play in supporting the planning and delivery of sustainable development. The LNP area covers 3,684 km<sup>2</sup> representing 2.8% of England. It contains the main urban areas of the two counties, including the cities of Derby and Nottingham (**Figure 1**).

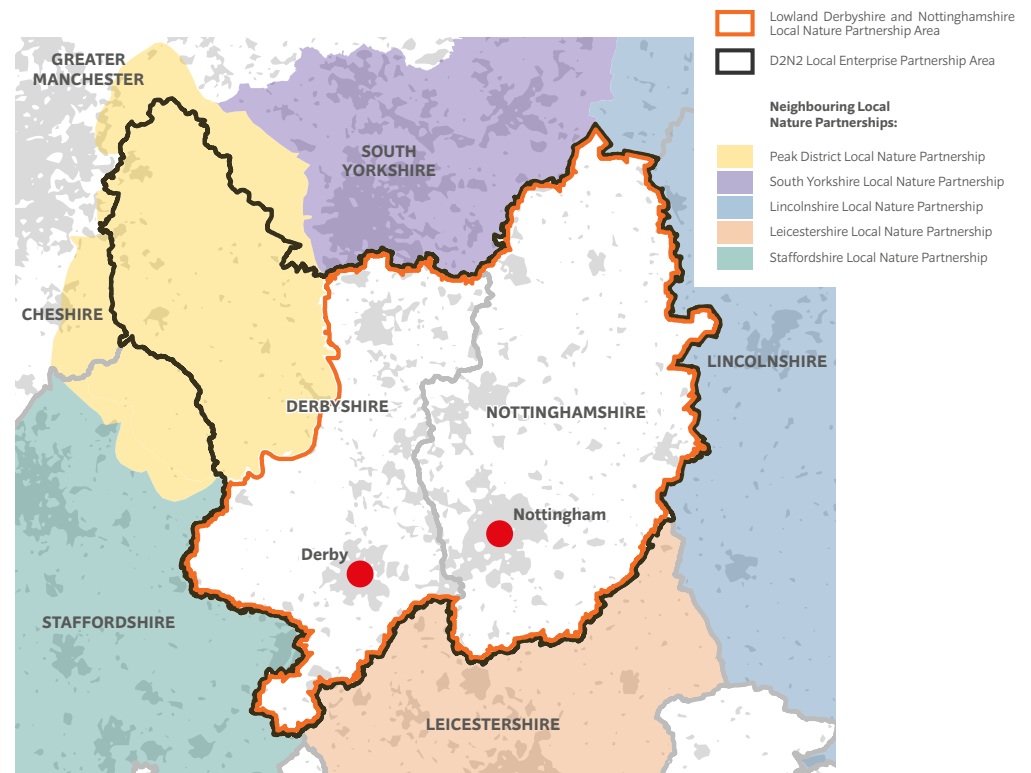


Figure 1 Lowland Derbyshire and Nottinghamshire LNP Area

## 2 - A Natural Capital approach

The concept of 'Natural Capital' underpins the LNP approach to strategic planning for sustainable development and Green Infrastructure.

Natural capital refers to all the elements of our natural environment that provide us with valuable goods (e.g. food, building materials, energy, clean air and water) and benefits (e.g. a healthy workforce, flood protection, recreation and tourism) delivered through 'ecosystem services'. Our area has 8 categories of natural capital (**Figure 2**). Degradation of our natural capital assets, or fragmentation by development, can impact heavily on our economy and our lives (e.g. flood disruption, reduced crop pollination, poor water supply, poor health and reduced house values).

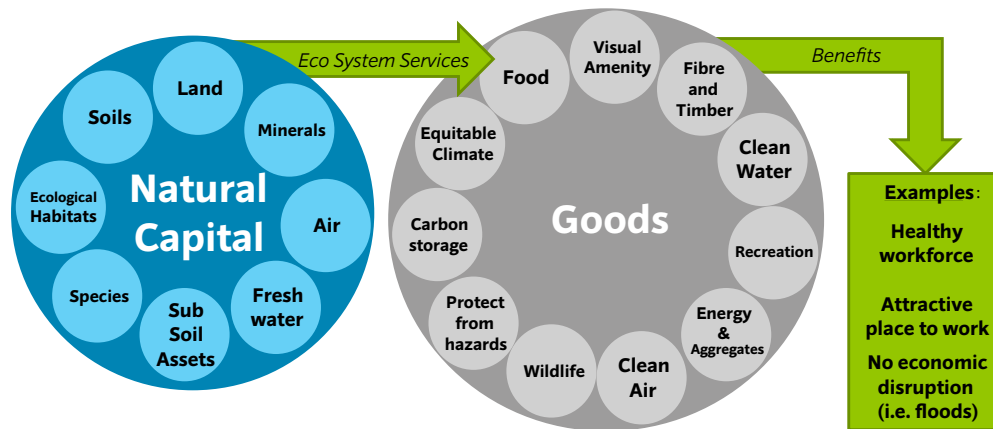


Figure 2 Natural Capital Categories, Goods and Benefits

*"The scale of the economic benefits that could be obtained from better protecting and improving natural capital, and the economic losses that could arise from failing to do so... is significant."*

UK Natural Capital Committee (March 2015)



In 2015, the LNP carried out a Natural Capital Baseline Assessment to ascertain what assets exist in its area. Across the eight broad categories there were 72 components (for example woodlands, grasslands, amphibians, birds) defined in line with UK Natural Capital Committee guidelines. Data about their quantity, quality and spatial distribution were collected and evaluated where available. **Figure 3** shows how much data and of what type were collected.

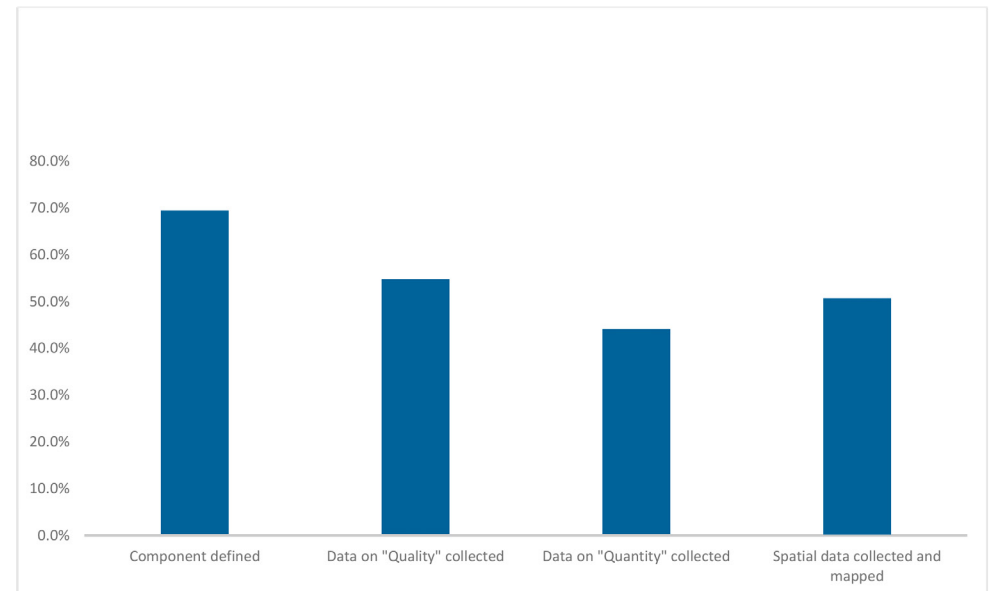


Figure 3 Lowland Derbyshire and Nottinghamshire Natural Capital Baseline Data Collection

**Figure 4** (overleaf) is an example of the spatial distribution of one of the assets – Woodlands. We aim to further improve this baseline dataset in the future.

Local examples of natural capital assets relevant to GI, and their quantities, are tabulated in **Figure 5** (overleaf). These assets are invaluable to the area and form an important baseline from which to promote a GI strategic framework and to measure its delivery.



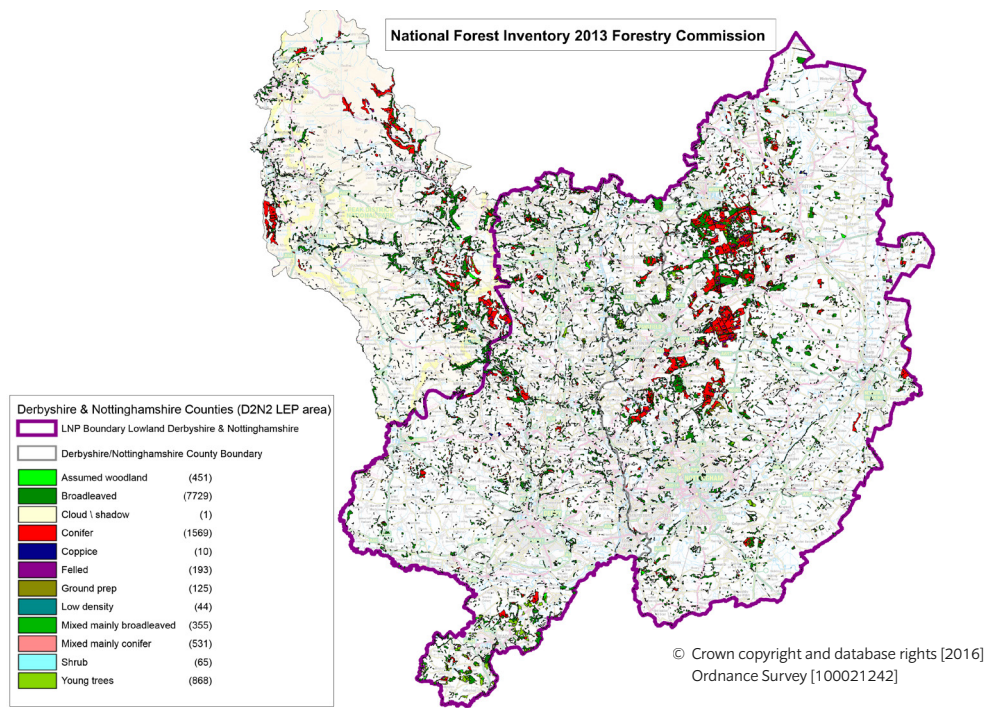


Figure 4 Example Spatial Distribution Map (Woodland)

Natural Capital Asset	Area (hectares)
Grassland habitat	4,201
Heathland habitat	567
Freshwater habitat	6,599
Woodland habitat	44,000
Broadleaved woodland	25,357
Ancient woodland	7,701
Open mosaic habitat	567

Within these assets over 34,000 hectares are of high ecological importance as Sites of Special Scientific Importance, Local Wildlife Sites or Local Nature Reserves.

Figure 5 Provisional List of Selected Natural Capital Assets Relevant to GI Delivery

### 3 - What is Green Infrastructure?

Green (and Blue) Infrastructure is the network of multi-functional green space, waterbodies and ecological communities, in urban and rural areas, which is capable of delivering a wide range of environmental and quality of life benefits for local people.

GI assets (such as forests, parks, allotments, canals and green routeways) can serve one or many purposes. Their design and management should respect and enhance the character and distinctiveness of an area. Physical connections between new or existing areas often make the most impact by creating corridors and 'stepping stones' that encourage wildlife movement and allow people to travel via sustainable walking and cycling routes. Well-connected GI assets also give resilience to climate change.

In urban areas, well-planned development should protect, improve and create new green infrastructure, putting the environment right at the heart of the planning process. Existing green spaces and new infrastructure should both thread through and surround the built environment, connecting the urban area to its wider rural hinterland. In rural areas, GI is often considered at a broader strategic scale, including larger country parks, forests, river corridors and flood meadow landscapes, as well as green corridors and ecological networks.

Linked together, Green Infrastructure assets form important multifunctional networks at a range of spatial scales – from buildings, streets and neighbourhoods in urban areas, right up to strategic places at the landscape-scale (see **Figure 6**).





Figure 6 Green Infrastructure Scales and Connectivity



# 4 - Benefits of investing in Green Infrastructure

One of the most powerful arguments in favour of well-planned Green Infrastructure is that it can provide multiple benefits in three areas:

## i) Economic benefits

- Enhances economic competitiveness – pleasant environments attract businesses, investment and skilled workers.
- Improved health outcomes lead to greater productivity and reduced worker absence.
- Increases land and property values in surrounding areas.
- Natural water filtration and flood defences can offer better value than hard-engineered alternatives.

D2N2 has six key competitive advantages [which include]:

*"A high quality natural environment and iconic landscapes that make D2N2 a great place to live, work and invest."*

**D2N2 LEP Strategic Economic Plan** (July 2013)



## ii) Social and health benefits

- Contributes to social welfare, community cohesion and quality of life.
- Access to natural green space enhances people's mental health and well-being, particularly in areas of social deprivation.
- Provides physical health benefits by encouraging activity and through improvements in air quality and temperature regulation.

*"There is growing evidence that green space in urban areas, as well as access to the wider countryside, enhances child development, and improves physical and mental health outcomes for all."*

**UK National Ecosystem Assessment** (2011).

## iii) Environmental benefits

- Enhances wildlife and ecosystems, helping to conserve and link the most special landscapes, habitats and species.
- Supports people who live in towns and cities to adapt to a changing climate by providing shade, cooling and wind interception and an insulation role in winter.
- Provides sustainable urban drainage.
- Can improve air and water quality.
- Contributes to the 'carbon sink' function of land for climate change mitigation.

# 5 - Current issues and the case for a GI Strategy

Our recent work with partners and stakeholders has already highlighted several key issues that good quality Green Infrastructure can address. This has been informed by evidence collected in our Natural Capital baseline assessment and the expected economic growth and requirement for new housing. Current issues are:

- **Habitats:** have become fragmented by development which limits their ability to provide the GI benefits identified above.
- **Woodland:** the percentage of land area covered by woodland in Lowland Derbyshire and Nottinghamshire is ~7% - well below England's coverage of 10%. The national target is 12% cover by 2060.
- **Water quality:** only 15% of rivers and streams are designated as 'Good' quality; 36% of them are 'Poor'.
- **Air quality:** there are 18 Air Quality Management Areas (AQMAs) where levels of air pollutants exceed National Air Quality Objectives. They are present in 8 out of 16 lower tier authorities in our area.
- **Minerals:** parts of the LNP area are rich in resources such as sands and gravels. Piecemeal extraction and redevelopment offer fewer economic benefits than a well-planned, coordinated strategy for regeneration incorporating Green Infrastructure from the outset.
- **No regional spatial GI framework:** although GI plans exist in many Local Authorities, there is no over-arching regional GI spatial strategy or framework for prioritising GI delivery across the whole LNP area. The last regional spatial strategy, produced by the 6Cs Partnership (covering Derby, Derbyshire, Leicester, Leicestershire, Nottingham and Nottinghamshire) only covered the southern half of our region and has not been maintained or updated.

- **Regional growth:** growth within our area is expected to generate 77,000 new homes and 55,000 new jobs by 2023. **Without a regional GI strategic framework and a target for creating GI, the capacity to maximise the benefits from limited resources by setting priorities for GI investment and delivery is weakened.**
- **Landscape schemes:** there are already a number of landscape schemes across the area and a range of local GI initiatives demonstrating good benefits from GI investment (see case study example below), but such schemes would benefit from a regional GI strategic framework by being linked in a co-ordinated manner and avoiding competition for funding.

These current issues have cross boundary implications and consequently require a regional GI strategic approach to identify appropriate or supporting GI solutions and delivery.

## Case Study Example: The National Forest

The National Forest is one of England's boldest environmental projects and covers 200 square miles of the counties of Leicestershire, Derbyshire and Staffordshire. Its objectives are to increase woodland cover within its boundaries from an initial six per cent to about a third and to demonstrate all the benefits that can come from a multi-purpose forest.

More than 8.5 million trees have been planted so far, but it is about so much more than trees: it is one of the most wide-ranging projects based on a changed landscape that the country has ever seen, growing local pride and new economies, as well as the woodlands.





## Benefits

### Environmental:

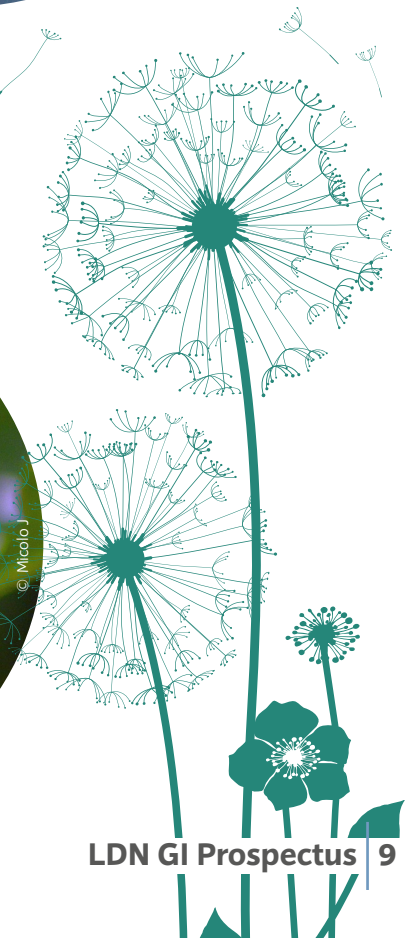
- Woodland cover in the National Forest increased from 6% in 1991 to around 20% today. This has helped to sequester more than 50 kilo-tonnes of carbon and remove 182m kg of carbon dioxide from the atmosphere.
- Visible, sustainable landscape change has been achieved with more than 7,000 ha of new habitat created through agricultural diversification and reclamation of derelict and mineral sites.
- 60% of woodlands are now in active management, significantly improving habitats for woodland and farmland birds.
- At least 20% of the area of each new development is expected to be allocated to woodland planting and landscaping

### Economic:

- Employment rates in the area are greater than the regional and national average. Over 4,800 jobs are supported in tourism and the woodland economy, with 7.8 million visitors enjoying the area each year.
- The area has generated over £1 billion of inward investment to date.
- Socio-economic performance across the area is generally robust, although pockets of deprivation still exist.

### Social:

- The proportion of the Forest's population living in the most deprived areas in England declined from 26% to 16%, between 2000 – 2004.
- There are high levels of public satisfaction with The National Forest and strong local involvement through volunteering and community activity.
- With 80% of new habitats having public access, most of the population live within 500m of an accessible woodland.



## 6 - Key challenges for delivering GI in our area

Any Green Infrastructure Strategy that the LNP develops will need to address a number of significant issues. Amongst these challenges are:

- Strengthening strategic decision-making on GI planning and delivery.
- Maximising the net positive impact of economic growth on GI.
- Enhancing access to green space, especially for urban communities.
- The availability of adequate funding and developer contributions to deliver the step change in GI provision required to support the scale of planned growth in Lowland Derbyshire and Nottinghamshire over the next decade(s).
- Securing long-term strategic revenue streams to ensure the continued maintenance of all new GI.
- Uncertainty on the availability of future principal funding streams.
- Reversing the erosion and fragmentation of ecological habitats and loss of biodiversity.
- Developing resilience of communities and habitats to climate change.
- Enhancing the condition of our existing green infrastructure assets through improved management and connectivity.

## 7 - Towards a Vision for Green Infrastructure

The long-term aim of our LNP is to encourage the maintenance, enhancement and extension of a multi-functional network of Green Infrastructure at all scales across Lowland Derbyshire and Nottinghamshire. This will support the economy and the health and well-being of our growing communities.

In 2016, the LNP held a stakeholder workshop to identify current and potential GI projects and funding opportunities and consider a vision to take these forward. That workshop became the catalyst for development of this Prospectus, reflecting a desire by partners for the LNP to start developing a vision and strategy for Green Infrastructure across its region.

*Our Vision for the GI of Lowland Derbyshire and Nottinghamshire is that:*

The area has an accessible, well-connected, multifunctional Green Infrastructure network comprising high quality green spaces, ecological communities and links that offer many benefits for the economy, people and wildlife.

The network's integrity and connectivity is maintained, protected and enhanced in a planned and managed way, which recognises the interdependency and multi-functionality of landscape, heritage and biodiversity elements.

Investment in Green Infrastructure underpins the on-going success of the area by supporting sustainable growth, improving quality of life and place, delivering ecosystem services and tackling climate change.

Lowland Derbyshire and Nottinghamshire is a green and healthy place to live, with an increasingly coherent and resilient ecological network of wildlife habitats, helping conserve biodiversity.





## 8 - Developing our Strategic Green Infrastructure Network

As we develop our own Green Infrastructure approach, we consider key elements of GI as contributing in a hierarchical manner. This approach was used in 2010 when developing the regional GI Strategy for Nottinghamshire, Derbyshire and Leicestershire, known as the 6Cs partnership, to set priorities for GI investment within its area. It was based on 'Strategic Green Infrastructure Networks' which were identified at three spatial scales. This hierarchy of inter-connected corridors could indicate broad locations at the landscape-scale where prioritising investment should deliver the greatest range of benefits, in line with the LNP's proposed Vision for GI.

*The proposed Strategic Green Infrastructure Network consists of:*

- 1. Sub-Regional Green Infrastructure Corridors** (see **Figure 7**) – these broadly-defined corridors (strategic river corridors, forests and woodlands and regional parks) would reflect significant wildlife habitats that link with other Green Infrastructure in surrounding areas at the sub-regional level. They would have an important role in maintaining the overall integrity of the Strategic Green Infrastructure Network in the long-term.
- 2. Urban Green Infrastructure Corridors** (see **Figure 8**) – collectively, these broadly defined corridors in and around urban areas, including the cities of Derby and Nottingham, would provide links for people and wildlife through the countryside between the surrounding cities, towns and villages, extending into urban areas. They would connect with the Sub-Regional Green Infrastructure Corridors and the Urban Fringe Green Infrastructure Enhancement Zones.
- 3. Urban Fringe Green Infrastructure Enhancement Zones** (see **Figure 7** and **Figure 8**) – these broadly defined Zones would form the immediate landscape setting to the urban areas, and encompass the countryside in and around them. Taking into account anticipated future directions of growth, these Zones are expected to have the greatest demand, and therefore need, for enhanced provision of existing and new Green Infrastructure.

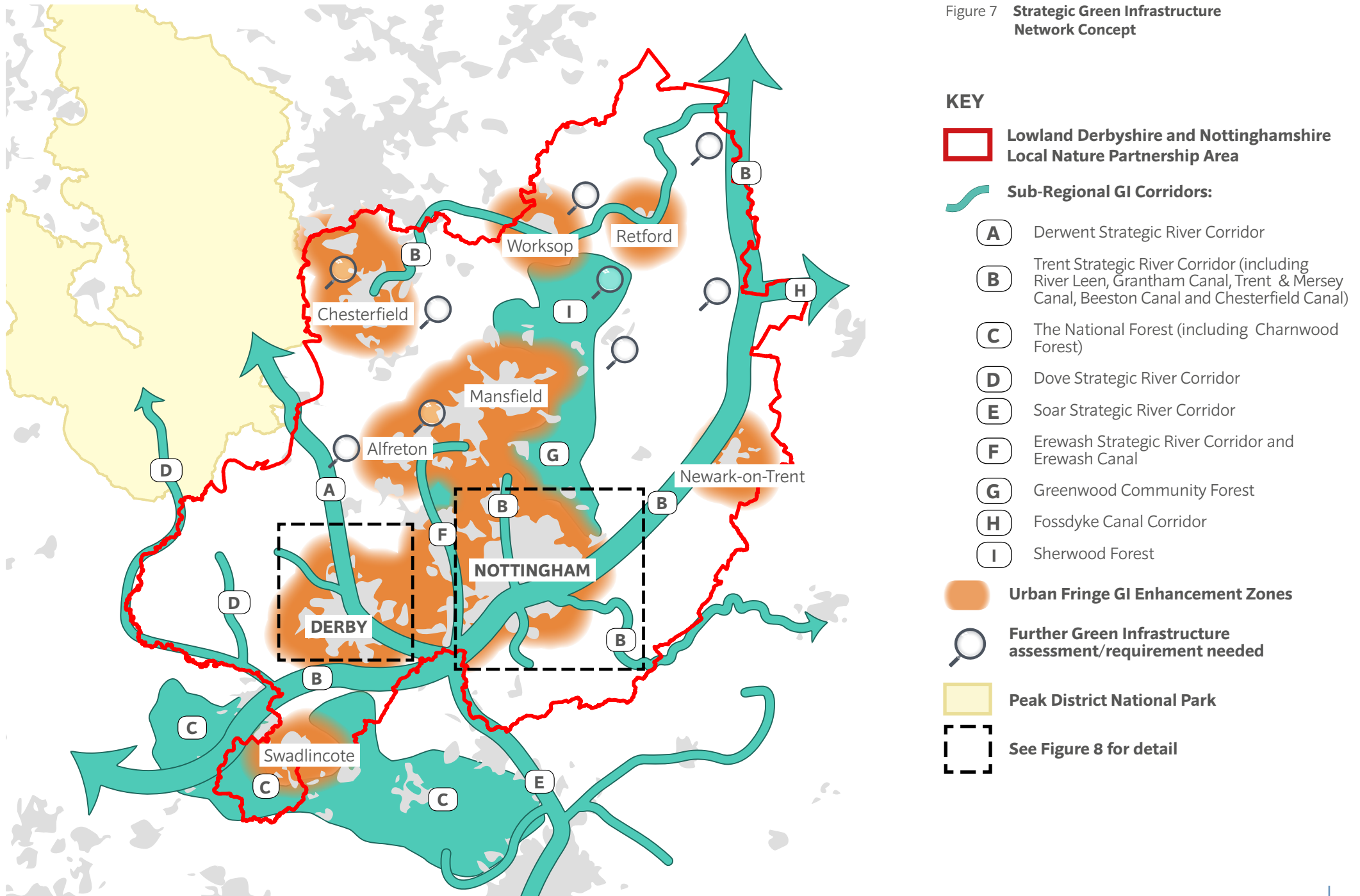
Adopting this approach with current baseline data, our initial strategic GI network is shown in **Figure 7**. The GI Network that we envisage could focus on at least nine strategic Corridors and Zones that should be safeguarded, managed or connected so as to contribute to the provision of multi-functional GI. However, we recognise that the northern parts of both Counties have limited regional scale networks compared to the southern parts of the counties and this limitation needs to be addressed. This initial network would provide a spatial framework for GI delivery across the LNP area, incorporating the priorities within Local Plans prepared at the district/ borough level.

*The proposed Sub-Regional Green Infrastructure Corridors could include:*

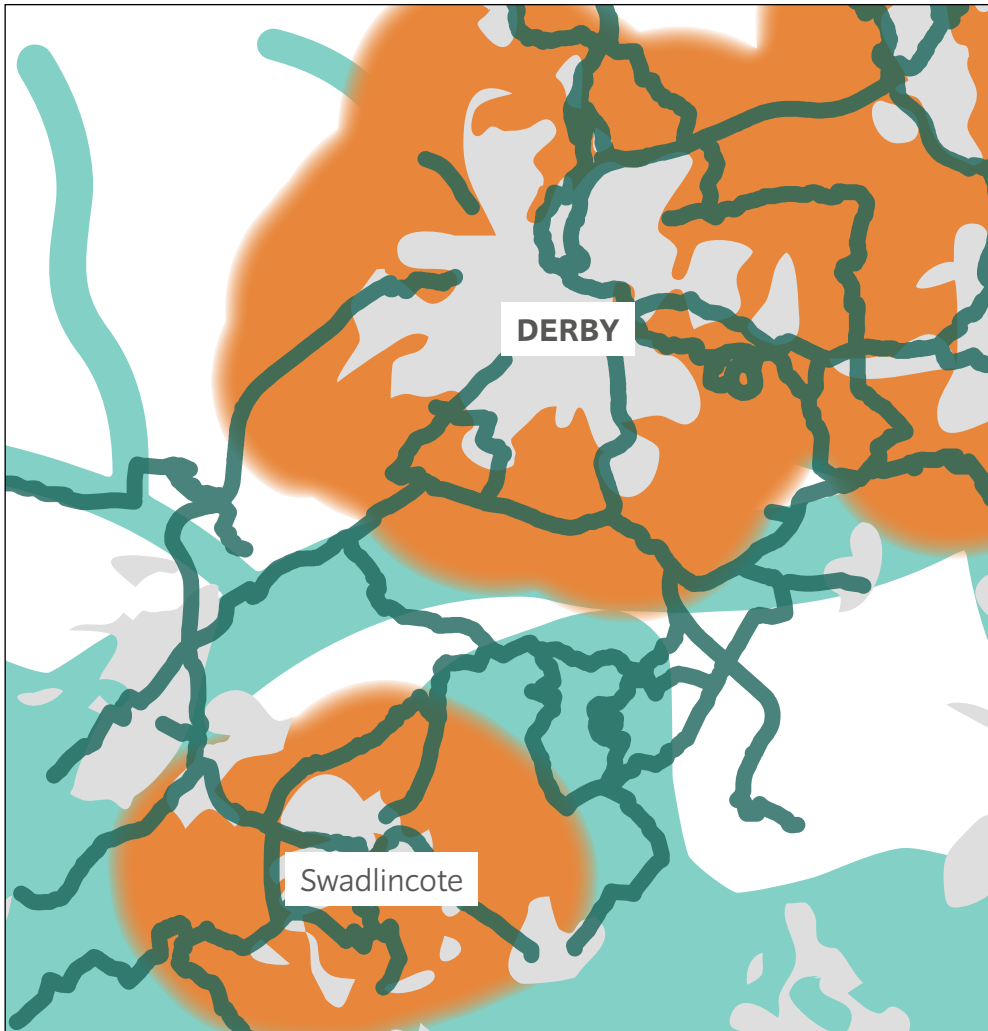
- A. Derwent Strategic River Corridor**
- B. Trent Strategic River Corridor (including River Leen, Grantham Canal, Trent & Mersey Canal, Beeston Canal and Chesterfield Canal)**
- C. The National Forest (including Charnwood Forest)**
- D. Dove Strategic River Corridor**
- E. Soar Strategic River Corridor**
- F. Erewash Strategic River Corridor and Erewash Canal**
- G. Greenwood Community Forest**
- H. Fossdyke Canal Corridor**
- I. Sherwood Forest**

Identifying the strategic GI requirements in the north of both counties, and understanding what projects are already planned or in place is essential to completing the Green Infrastructure Framework. Important corridors – such as Chesterfield Canal/Idle/Ryton Valleys and the Magnesian Limestone areas – would probably be candidates for inclusion in this approach.

Figure 7 **Strategic Green Infrastructure Network Concept**







**KEY**

- Sub-Regional GI Corridors
- Urban Fringe GI Enhancement Zones
- Urban GI Corridors
- Existing Urban Areas

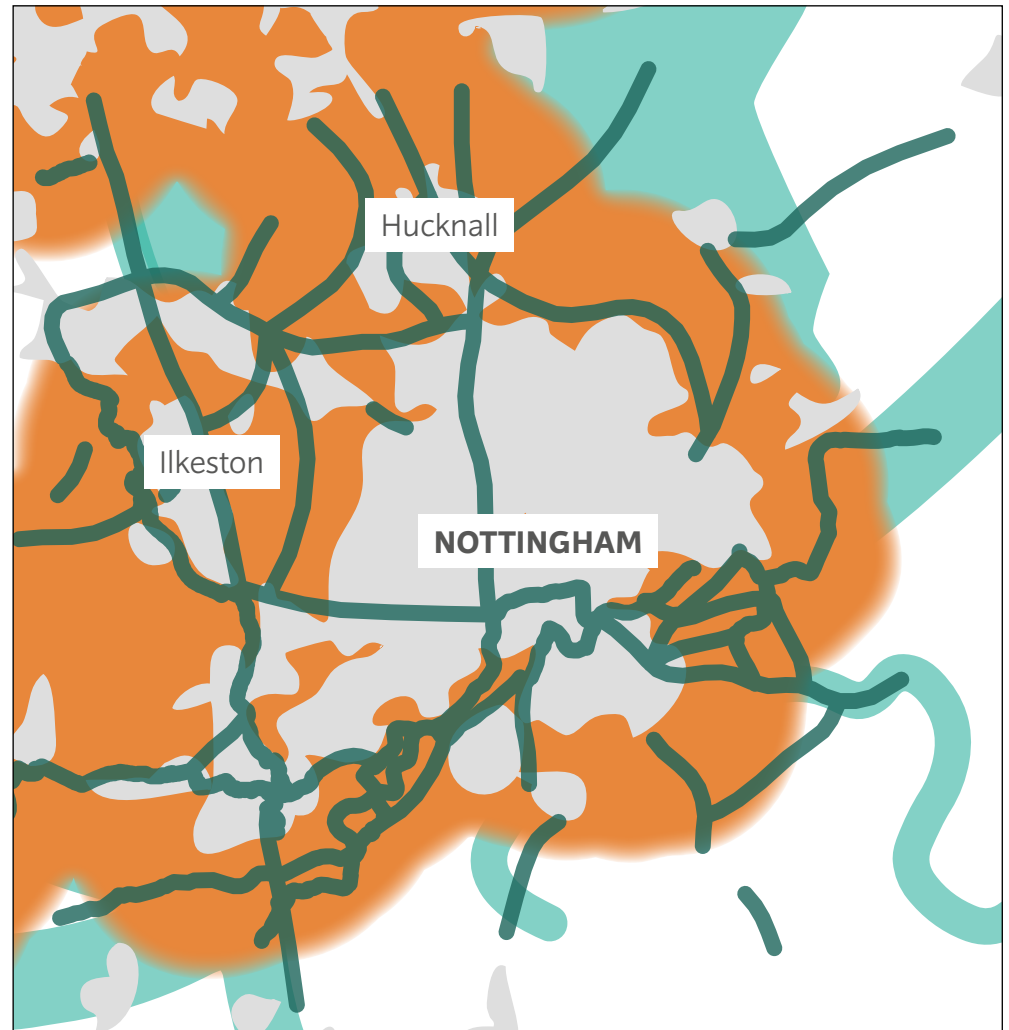


Figure 8 **Strategic Green Infrastructure Network Concepts for Urban Areas**

## 9 - Recommendations

The LNP recommends that local strategic partners collaborate and adopt a three step action plan, outlined below, to develop and enhance green infrastructure to meet future economic growth and to mitigate environmental risk from climate change. This needs to be a regional GI spatial strategy and infrastructure network to support investment decisions and local planning.

### **Step 1 – Undertake a Green Infrastructure Audit**

Carry out a baseline assessment of existing GI and future opportunities and risks to ensure that any Strategy is based on the latest evidence.

### **Step 2 – Establish a regional Strategic Green Infrastructure Network and GI Targets**

The Regional Strategic Framework would set out the agreed vision, targets and strategic spatial networks for GI and be used to identify priorities for investment. It would establish GI governance, planning, appraisal criteria, delivery mechanisms and arrangements as well as providing a framework for local Green Infrastructure delivery plans.

### **Step 3 – Developing the Green Infrastructure Action Plan and Delivery**

The Action Plan would set out a costed and prioritised list of GI projects for supporting delivery of GI across the LNP area through capital infrastructure investments and other funding streams, including long-term maintenance funding.

## 10 - Conclusions

A strategic approach to prioritising investment in the Green Infrastructure network across Lowland Derbyshire and Nottinghamshire makes sound economic, social and environmental sense.

The existing network of green spaces and ecological communities does already provide links in and around the two cities of Derby and Nottingham, connecting with surrounding settlements. The river valleys of the Trent and Derwent and their tributaries then provide the 'backbone' of the Green Infrastructure network, linking the two cities and other towns in the area with one another. The northern parts of our area have limited spatial GI networks defined, and current issues show an increasing strain on the quantity, distribution and quality of our GI assets. They also face increasing pressure from future growth and development.

An enhanced Regional Green Infrastructure network, implemented in a strategic manner, would keep pace with growth and economic developments, providing much-needed opportunities for communities in and around the cities and towns to access a variety of green spaces on their doorsteps, as well as in the wider countryside. It would be set within, and contribute to, a high-quality natural, cultural and built environment. It would provide substantial quality of life benefits for the growing numbers of residents and visitors here, and be a focus for attracting and retaining businesses and investment in the LNP area.

Whilst helping local communities, enterprises and wildlife to mitigate against the impact of climate change, a strategically enhanced GI network would also provide opportunities for delivering biodiversity benefits on a landscape-scale, and help in protecting, connecting and creating a diverse range of wildlife habitats and providing ecological corridors for species dispersal and migration.

It is important now that partners and stakeholders work with the LNP to develop and implement a regional strategic vision and GI network.





[www.ldnlnp.org](http://www.ldnlnp.org)

## Feedback

Feedback from stakeholders on this Prospectus is welcomed. Please email your comments to:

[coordinator@ldnlnp.org](mailto:coordinator@ldnlnp.org) or  
[chair@ldnlnp.org](mailto:chair@ldnlnp.org)

Please also contact the LNP Coordinator if support is needed in any funding applications for potential Green Infrastructure projects.

## Acknowledgements

The LNP would like to thank all the individuals and organisations that helped identify potential Green Infrastructure projects, participated in the 2016 workshops and contributed to preparation of this Prospectus.

We are particularly grateful to the Forestry Commission for funding the workshop and preparation of this Prospectus.

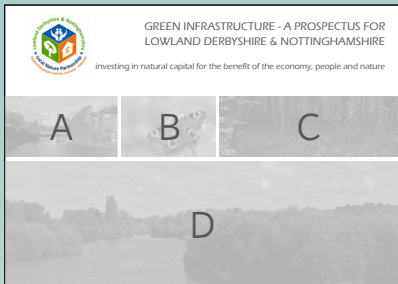
Chris Blandford Associates facilitated the GI workshop and helped prepare this Prospectus and proposed Vision on behalf of the LNP.



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