



Shipley & Canal Road Corridor GREEN INFRASTRUCTURE STUDY

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GILLESPIES

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01

Introduction

1.1 The purpose of this document

This Green Infrastructure study will form an integral part of Bradford's Local Plan process, by informing policies and proposals to be contained in the Area Action Plans ensuring that growth is delivered in a sustainable way with advance planning for Green Infrastructure (GI) provision.

The study will help applicants, developers and planners to ensure that proposals for development make the most of potential opportunities to improve existing GI and create new GI for the overall benefit of the Shipley and Canal Road corridor.

It will develop a long term vision and strategic framework to support the delivery of GI across the Shipley and Canal Road corridor, identifying any issues of implementation including issues relating to delivery and funding, enabling the economic value of GI assets to be incorporated into the decision making process.

1.2 Methodology

The aim of this Green Infrastructure study is to identify and categorise existing Green Infrastructure in order to assess the impact of development, the likely needs arising from proposed development and the potential opportunities within the Shipley and Canal Road Corridor AAP area (from here on referred to as the 'SCRC' or 'corridor'). Based on the analysis, the study seeks to develop a vision and framework to support a realistic and deliverable corridor wide Green Infrastructure strategy, which builds upon current and future initiatives and identifies key areas and opportunities to enhance Green Infrastructure appropriate to the corridor.

The methodology used was as follows:

- Assess the baseline condition of the SCRC in order to identify current and future needs in terms of GI.
- Identify, classify and map current GI assets using satellite mapping and existing baseline data.
- Analyse those existing assets and assign them a 'typology'.
- Assign each GI asset a 'score' in terms of both present and potential multi-functionality.
- Analyse the findings against the baseline data (e.g. environmental, social and economic) in order to identify key issues, opportunities and gaps in provision, having regard for future development projections.
- Identify a vision for a corridor wide network of Green Infrastructure that will protect and enhance key existing assets and ensure adequate provision to meet future needs and healthy lifestyles.
- Produce a framework for multi-functional green/blue infrastructure networks.
- Identify any issues of implementation and delivery including funding mechanisms, future management and monitoring.

1.2.1 Key documents referred to in this report include:

- Natural England: 'Green Infrastructure Guidance'; 'Nature Nearby – Accessible Natural Greenspace Guidance' and 'Microeconomic evidence for the benefits of Investment in the environment – review'
- TCPA: 'Planning for a Healthy Environment – Good Practice Guidance for Green Infrastructure and Biodiversity'
- Landscape Institute: 'Green Infrastructure: An integrated approach to land use' and
- Genecon: 'Green Infrastructure Valuation Toolkit User Guide'
- The National Planning Policy Framework (NPPF)

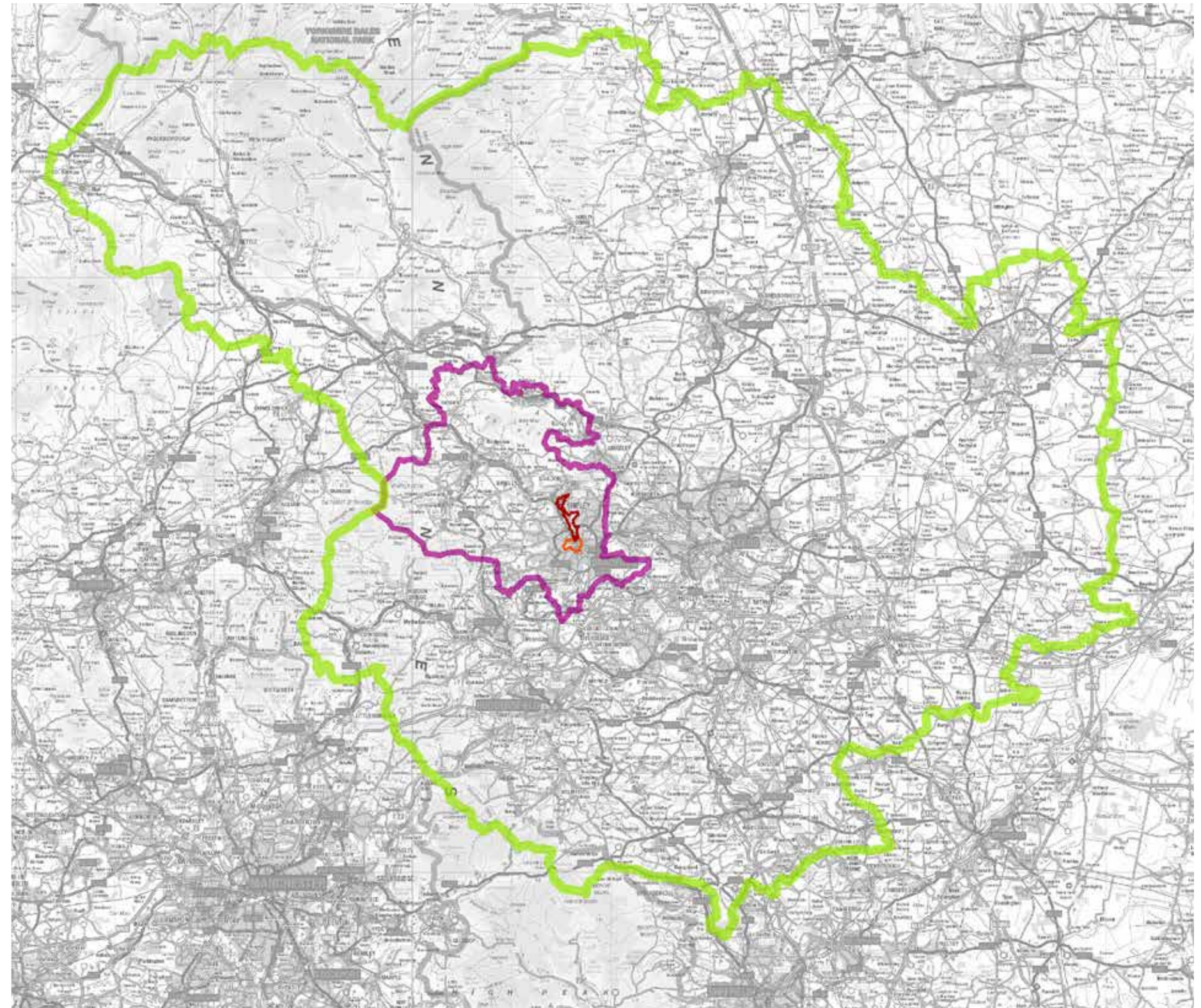


Figure 1 - The SCRC AND City Centre AAPs

1.3 What is Green Infrastructure and why is it important?

1.3.1 The NPPF's definition of Green Infrastructure

The NPPF defines GI as 'a network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities'.

Green Infrastructure is the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect villages, towns and cities. Individually, these elements are GI assets, and the roles that these assets play are GI functions. When appropriately planned, designed and managed, the assets and functions have the potential to deliver a wide range of benefits – from providing sustainable transport links to mitigating and adapting the effects of climate change. (Landscape Institute Position Statement 2013)

1.3.2 Green Infrastructure assets

Green Infrastructure **assets** range from country parks, lakes and woodlands to urban interventions such as green roofs and street trees. They can be specific sites at the local level or broader environmental features at the landscape scale within and between rural and urban areas such as wetlands, moors and mountain ranges. (Landscape Institute Position Statement 2013)

Assets span spatial scales and types of land use. For example, they can include woodland, water courses, amenity spaces, highway verges, parks, urban trees, private gardens, the grounds of hospitals, schools and business parks etc. (GI valuation toolkit user guide)

Not all of these general GI asset 'typologies' will be applicable to all specific areas. For this reason, this study will define the specific GI Assets for the SCRC (in section 2.3.1).

1.3.3 Green Infrastructure functions

Green Infrastructure **functions** are the roles that assets can play if planned, designed and managed in a way that is sensitive to, and includes provision for, natural features and ecosystem services. An asset may have obvious primary functions, but each asset can perform different functions simultaneously – a concept known as multi-functionality. For example, street trees add aesthetic quality to an urban area, but will also reduce airborne pollution, provide shade, reduce urban heat island effects, mitigate wind chill and turbulence and increase biodiversity. (Landscape Institute Position Statement 2013)

The more functions that an assets can perform simultaneously means that it has greater value from a GI perspective, and one of the aims of GI planning is therefore to achieve high levels of multi-functionality where possible.

1.3.4 Green Infrastructure benefits

These GI functions give rise to **benefits**, which can be classified as environmental, social and economic. There is a growing interest in how can we simultaneously achieve these economic, environmental and

social goals. For example, through the promotion of biodiversity 'services', these ecological services can also provide benefits to our economy and society. (GI Valuation toolkit user guide, Genecon)

This report considers that the economic benefits of Green Infrastructure are important both to the 'person in the street' and decision-makers as this is ultimately what will 'sell' the concept and delivery of GI.

1.3.5 What are the economic benefits of Green Infrastructure?

There is a significant existing evidence relating to the economic benefits of Green Infrastructure. Those documents include:

- Microeconomic Evidence for the Benefits of Investment in the Environment (Natural England Research Report NERR033 (2012))
- The Economic Value of Green Infrastructure (Natural Economy Northwest)
- UK National Ecosystem Assessment Follow on – Synthesis of key findings (UNEP-Defra, 2014)
- Economic Benefits of Greenspace – A Critical Assessment of evidence of net economic benefits (Forestry Commission (2012))

As Natural England point out within their report, '*Green Infrastructure is designed to get the most benefit out of what nature is doing for free.*' Therefore, whilst it may require investment in terms of design, installation, management, or maintenance, it offers a great deal of value for money which far outweigh these costs and which can be seen from the above reports. Just some of those key findings are listed below:

- **Health:** A number of studies have attached monetary benefits arising from the health benefits of Green Infrastructure and the potential saving to the NHS. The following monetary estimates (per person per annum) were obtained: Physical exercise (+3 hours of vigorous activity per week): £12–£39; Having a view of greenspace from your house (versus no view): £135–£452; Local broadleaved/mixed woodland land cover (+1% within 1 km of the home): £8–£27. (Forestry Commission, 2012, page vi). Further research suggests that when people have good access to greenspace (perceived and/or actual) they are 24% more likely to be physically active. Using this figure it is possible to generate an *illustrative* cost saving covering the hypothetical benefit of moving from a situation of nobody having access to greenspace to everybody having access to greenspace of £2.1 billion (Natural England, 2012, page 32)
- **Mental health:** There is strong evidence from a large number of high-quality studies that nature promotes recovery from stress and attention fatigue and that it has positive effects on mood, concentration, self-discipline, and physiological stress. The economic and social costs of mental illness in England are estimated at £77.4 billion for the year 02/03. This includes direct costs of healthcare of £8.4 billion, non-employment costs of £9.4 billion and sickness absence of £3.9 billion. (Natural England, 2012, page 27-28)
- **House prices:** A study of house prices in Aberdeen showed that 'relative to a property located 450 metres away from a park, a property located on the edge of a park could potentially attract a premium of between 0.44% and 19%'. A study of house prices in London found that 'on average a 1 per cent increase in the amount of greenspace in a ward can be associated with a 0.3 to 0.5% increase in average house price. A view of forest can raise house prices by 7% and water by 5%. (Natural England, 2012, page 13)



Green Infrastructure within the SCRC corridor - view looking south from Shipley towards Bolton Woods Quarry

- **Commercial proximity to green space:** A survey of real estate developers and consultants across Europe found that 95% of respondents believe that open space adds value to commercial property and would be willing to pay at least 3% more to be in close proximity to open space. (Natural England, 2012, page 16).
- **Regeneration and employment:** A broadly mixed regeneration investment which included an element of landscaping, tree planting and rubbish clearance at Winsfield Industrial Estate in Cheshire was followed by a 13% increase in employment against a small decrease in employment in the local area. Another broadly mixed regeneration investment which included an element of landscape, tree planting and rubbish clearance in Portland Basin, Tameside, was followed by a 25% increase in employment against a background increase of 8.3% in the local area (Natural England, 2012, page 17)
- **Flood alleviation:** In 2010, New York City published a plan to improve water quality in the New York Harbor System through reducing Combined Sewer Outflows following storms. The approach aims to use Green Infrastructure approaches (such as street trees, swales, bioinfiltration, and blue and green roofs), to capture first inch of rainfall on 10% of the impervious area in combined sewer watersheds over 20 years. It is estimated that this will reduce combined sewer overflows by 1.5 billion gallons a year. (Natural England, 2012, page 44)
- **Air Quality:** The UK air-quality strategy estimates that air pollution reduces the average life expectancy by 7 - 8 months and that this equates to a cost of £20 billion a year. (Natural England, 2012, p 52)

1.4 Planning policy in respect to Green Infrastructure

1.4.1 National Level

The National Planning Policy Framework sets out the Governments planning policies for England and how it expects this to be applied to the planning system. Its core aim is to achieve sustainable development and lists a number of Core Principles (paragraph 17) which includes:

'Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions (such as for wildlife, recreation, flood risk mitigation, carbon storage, or food production);

Further, at paragraph 114 it states that local planning authorities should:

'set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and Green Infrastructure'.

Also, at paragraph 99, that:

'Local Plans should take account of climate change over the longer term, including factors such as flood risk, coastal change, water supply and changes to biodiversity and landscape. New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of Green Infrastructure.'

It is also stated at paragraph 109 that the 'planning system should contribute to and enhance the natural and local environment by:

- recognising the wider benefits of ecosystem services; and
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

1.4.2 Regional Level

Leeds City Region Green Infrastructure Strategy 2010

The SCRC is identified within the Leeds City Region Green Infrastructure Strategy as the 'Bradford Shipley Canal Road Corridor Urban Eco-Settlement'. The programme aims to deliver Eco-Town principles in major urban brownfield locations within the heart of some of the city region's major economic and population centres. The aim is to create 'a series of vibrant and diverse new sustainable settlements... linking the economic centres of Bradford and Shipley.'

Significant GI assets which are located within the Bradford district but outside the AAP boundaries include the Leeds Liverpool Canal, the River Aire (whose catchment is identified within the city region strategy as a strategic programme titled Fresh Aire), the Aire and Calder Canal greenspace, the Dales Way Link and Sustrans Route 66 National Cycle Route, a number of Heritage features (including Saltaire World Heritage Site, Undercliffe cemetery and significant areas of scenic countryside (the Moors to the west and north, including Haworth moor with its literary associations).

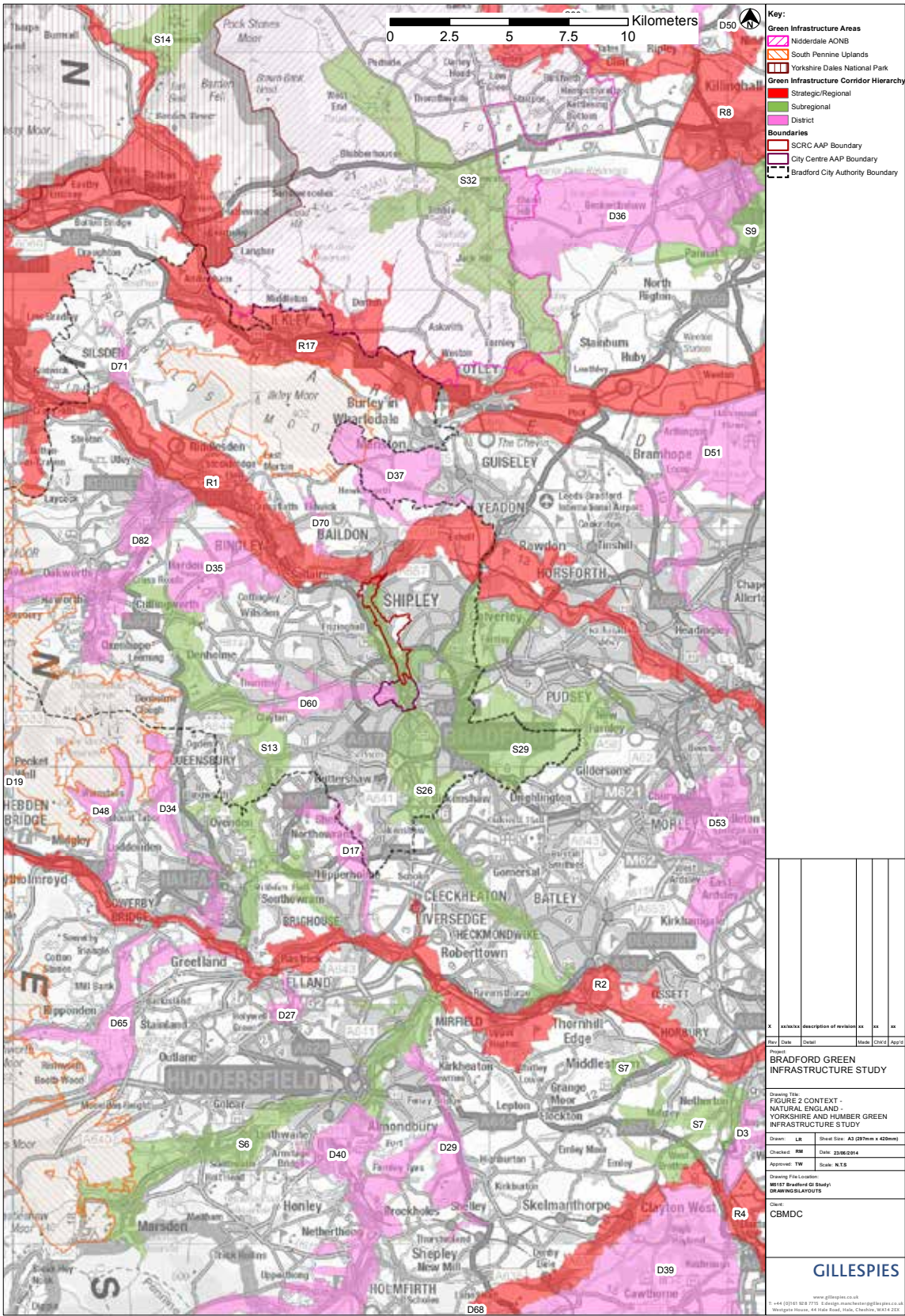


Figure 2- Natural England - Yorkshire and Humber Green Infrastructure Study

Natural England’s ‘Yorkshire and the Humber GI Corridors’ Report 2010

The Yorkshire and Humber Green Infrastructure Mapping Project was carried out by Natural England in order to help local authorities protect and create Green Infrastructure through their Local Development Frameworks (LDFs). It offers a starting point for more localised and detailed Green Infrastructure studies. The corridors which have been mapped are mapped in terms of their regional, sub-regional and district importance.

The SCRC contains and links to a number of GI corridors identified by Natural England and these are shown on Figure 2. To the north of the corridor, and following the course of the River Aire in a broadly east-west direction, is the regionally important GI corridor (R1 – Aire). This corridor connects the remote rural areas of the Yorkshire Dales and the large urban areas of Leeds and Bradford. Its potential to flood has meant that it is largely undeveloped and that it contains a number of important wildlife sites. Along the length of the corridor, running in a broadly north-south direction, is the Sub-regionally important Spen Valley Greenway and Canal Road corridor (S26). This corridor links the river Calder (R2 - a further regionally important corridor) to the south and the river Aire to the north. To the south of the corridor, but also of note, is the District important Corridor D60 Pitty and Clayton Becks which runs from the city centre to the west. The steep topography has restricted development and it provides an import link between agricultural land to the outskirts of Bradford with urban woodland and nature sites. To the east lies a further sub-regionally important corridor, S29 Tong/Calverley which almost connects with S26, it being separated predominantly by the junction of the A658 and A658. S29 contains large areas of woodland and farmland and it includes parts of the West Leeds Country Park in addition to the Leeds Country Way footpath.

8.40 The emerging approach in respect of Green Infrastructure and flood risk is based on the creation of a Linear Park, restoring the natural character of the Bradford Beck, retaining areas of natural floodplain, introducing new areas and enhancing existing areas of greenspace and incorporating sustainable drainage within new development.

8.41 The strategy aims to reduce downstream flood risk and create an attractive green and natural setting, forming a Linear Park along the Corridor, stretching from Bradford City Centre to Shipley Town Centre. The aim is to introduce walking and cycling routes along the Linear Park as part of the Canal Road Greenway and to improve the environment of the Bradford Beck as much as possible, so that the Beck sits within an inter-connected chain of green environments.

8.42 The proximity of the Corridor to other significant green spaces, including Lister Park, Boars Well Nature Reserve, Peel Park and the Leeds-Liverpool Canal, also creates the opportunity to link these spaces together, forming a more cohesive open space network for the District.’

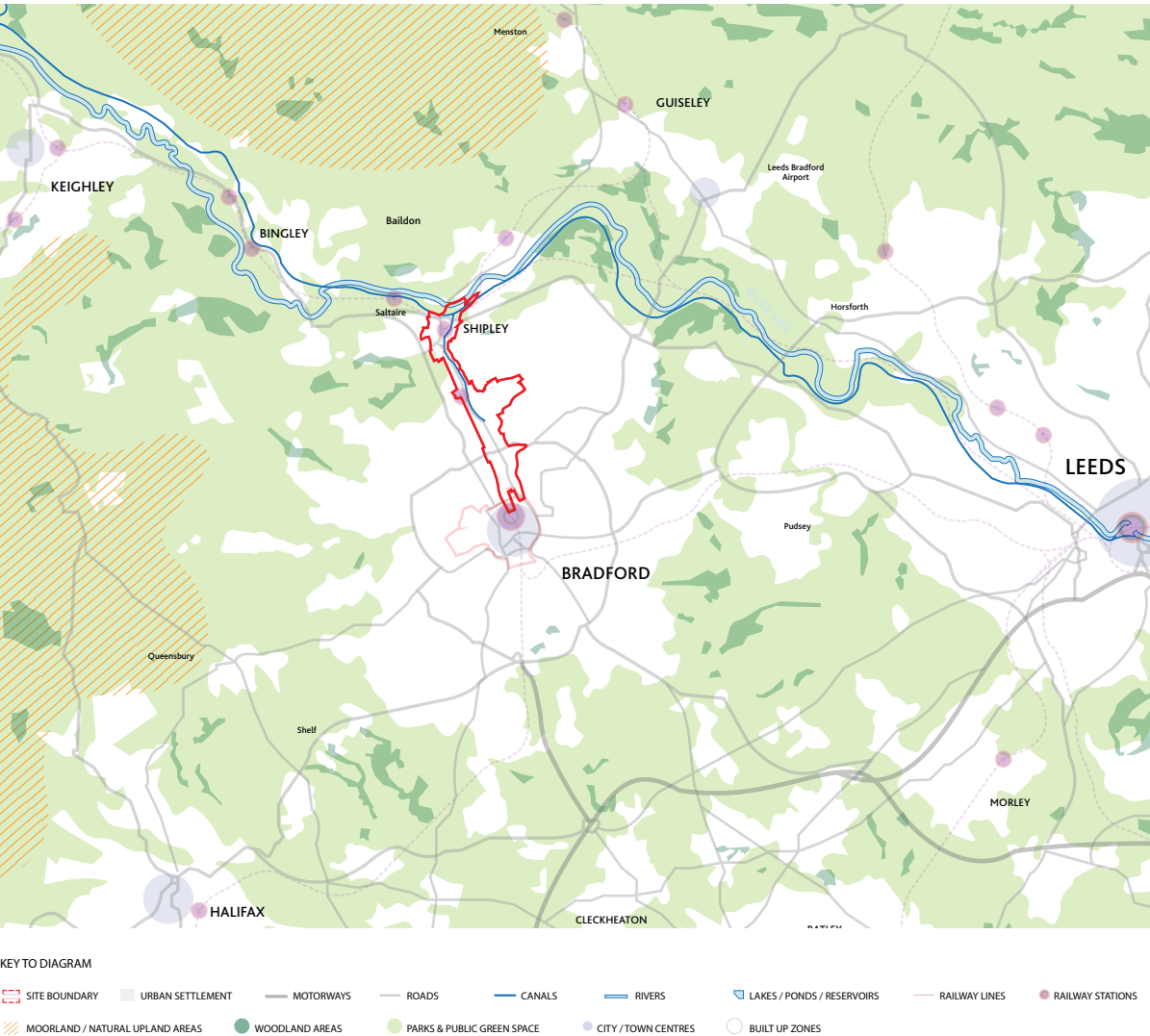


Figure 3 - Location of district wide GI assets

1.4.3 Local Level

This study will form part of the local planning policy for Green Infrastructure within Bradford district. The GI responds to the Core Strategy Publication Draft (2014) and also the ‘Vision’ and ‘Strategic Objectives’ of the Shipley and Canal Road Corridor Area Action Plan Issues and Options document.

The Bradford District Core Strategy (2014)

Strategic Core Policy 6 (SC6) Relates to Green Infrastructure. It acknowledges that Green Infrastructure provides a ‘common thread’ that links other important issues within the Core Strategy such as climate change, flood issues, sustainable housing and transport, tourism and health.

SC6 identifies opportunities to improve GI via key areas of change. Those areas include the Bradford Shipley Canal Road Corridor Urban Eco-settlement, Bradford City Centre, Leeds-Liverpool Canal Corridor and key beck corridors.

Shipley and Canal Road Corridor AAP, Issues and Options Report

Within the Shipley and Canal Road Corridor AAP, Issues and Options Report, in relation to Strategic Green Infrastructure it is stated:

8.39 An integrated approach to flood risk and Green Infrastructure along the whole Corridor will be required. A Green Infrastructure strategy which enables the delivery of enhanced linked green spaces along the Corridor is a key element of the strategy for delivering sustainable development.



Figure 4 - The AAP areas within the Bradford District

Context

2.1 Bradford area context

The report ‘Understanding Bradford District’ (UBD) prepared by CBMDC provides a comprehensive analysis of Bradford District in order to highlight key issues and opportunities for the District. Information of relevance to this study includes the following three themes of population, social and health:

2.1.1 Population

Over the last decade the District’s population growth has been much faster than the national average, growing at a rate of 11.1% compared to 7.1% nationally. GI becomes increasingly important as this growth puts pressure on the environment. Furthermore, good quality Green Infrastructure can support the sustainable development necessary to accommodate this growth whilst simultaneously improving the health and quality of life of the growing population.

Bradford is the youngest English city outside London. Nearly a quarter of the population is aged under 16 (23.5%). Green Infrastructure has the potential to address the needs of this age group by providing space for play, sport and educational opportunities.

At 13.7%, Bradford’s proportion of older people (65 and over) is the lowest in West Yorkshire and below the average for England. However, as part of the national trend the elderly population is predicted to increase over the next 10 years. Staying active can reduce a person’s biological age and enhance their quality of life expectancy. Those who are inactive are more likely to suffer falls or other injuries. The life span of older people increases when they live near parks and tree lined streets. For every increase in green space there can be a reduction in community health complaints equivalent to 5 years of age (Natural England: Nature Nearby)

2.1.2 Social

There are high levels of volunteering in Bradford when compared to the national average, including in regular volunteering and civic participation in the local area. This has relevance for the potential management of community Green Infrastructure projects.

In Bradford, 77.3% of the working age population is able to access key employment centres across West Yorkshire within 30 minutes using the core public transport network. Car or van ownership levels are generally lower in Bradford than national average levels. Green Infrastructure has the potential to encourage use of sustainable modes of traveling such as walking, cycling, bus and train travel through the promotion of good and safe routes.

There are around 10,000 jobs in Bradford’s environment sector accounting for a quarter of all primary environmental sector jobs in the Leeds City Region. Green Infrastructure can provide employment opportunities.

2.1.3 Health

All Cause Mortality represents the cumulative effect of risk factors and the effectiveness of interventions and treatment. Differences in levels of all-cause mortality reflect health inequalities between different population groups, including deprived and more affluent communities. An increasing number of studies support the association between health and green space, illustrating that populations with access to

the greenest environments also have lowest levels of health inequality related to income deprivation. All age all cause mortality varies throughout the district, with higher than average rates seen in the more deprived wards of Manningham and Bowling and Barkerend. These ward boundaries are shown on Figure 14 (page 39).

Bradford has the second highest number of infant mortalities in England. The Born in Bradford project (BiB) is a long term study of 13,500 children born at Bradford Royal Infirmary between March 2007 and December 2010, whose health is being tracked from pregnancy through childhood and into adult life in order to aid research into the many influences which affect many aspects of life such as health, life choices and the environment. This is to support other studies which show that populations of greener areas are found to have lower risks of obesity, cardiovascular disease, respiratory disease, adverse birth outcomes, poor general and mental health as well as lower risks of mortality. The main causes for this are thought to be that green space provides 1) increased opportunities for physical activity, 2) facilitates social contact and 3) provides psychological restoration. (www.Phenotype.eu)

The percentage of reception aged children who are obese or overweight in Bradford is 22.9%. This is higher than the England average of 22.6%. The percentage of Year 6 age children who are obese or overweight is 35.0%. This is also higher than the 33.9% England average. The associated health and social risks of childhood obesity include high blood pressure, type 2 diabetes, asthma, deterioration in mental health (low self-esteem, anxiety and depression), bullying, social exclusion and increased risk of obesity, premature death and disability in adulthood. Access to good quality green space and safe walking routes to school for instance can help reduce obesity and encourage an active, healthy lifestyle.

Large areas of Bradford enjoy some of the best air quality in the UK. However, in line with other major conurbations, the urban areas of Bradford experience significant air quality problems, largely due to road transport emissions. Whilst there has been a gradual reduction in CO2 emissions, 5.3% of all deaths in Bradford can be attributed to poor air quality and it is currently estimated that air pollution can cut 7-8 months from our annual life expectancy with an estimated equivalent health cost of up to £20 billion per annum:

Green Infrastructure has an important role to play in reducing CO2 in terms of supporting sustainable transport and also absorption and filtering of particulate.

2.2 The SCRC AAP area context

As illustrated within Figure 4, the Shipley and Canal Road Corridor is located within the main urban area of Bradford. Its southern boundary adjoins the City Centre AAP area and the northern boundary is formed by the river Aire. The corridor follows the route of Canal Road which is a major strategic route connecting the city centre with Shipley and beyond. The area is characterised within the corridor by three distinct areas; 'Shipley' to the north, 'The Centre Section' and 'The City Centre Fringe' to the south.

Topographically, the area is fairly flat, with land rising steeply to the east forming the valley side of the Bradford Beck which is a defining characteristic of the corridor.

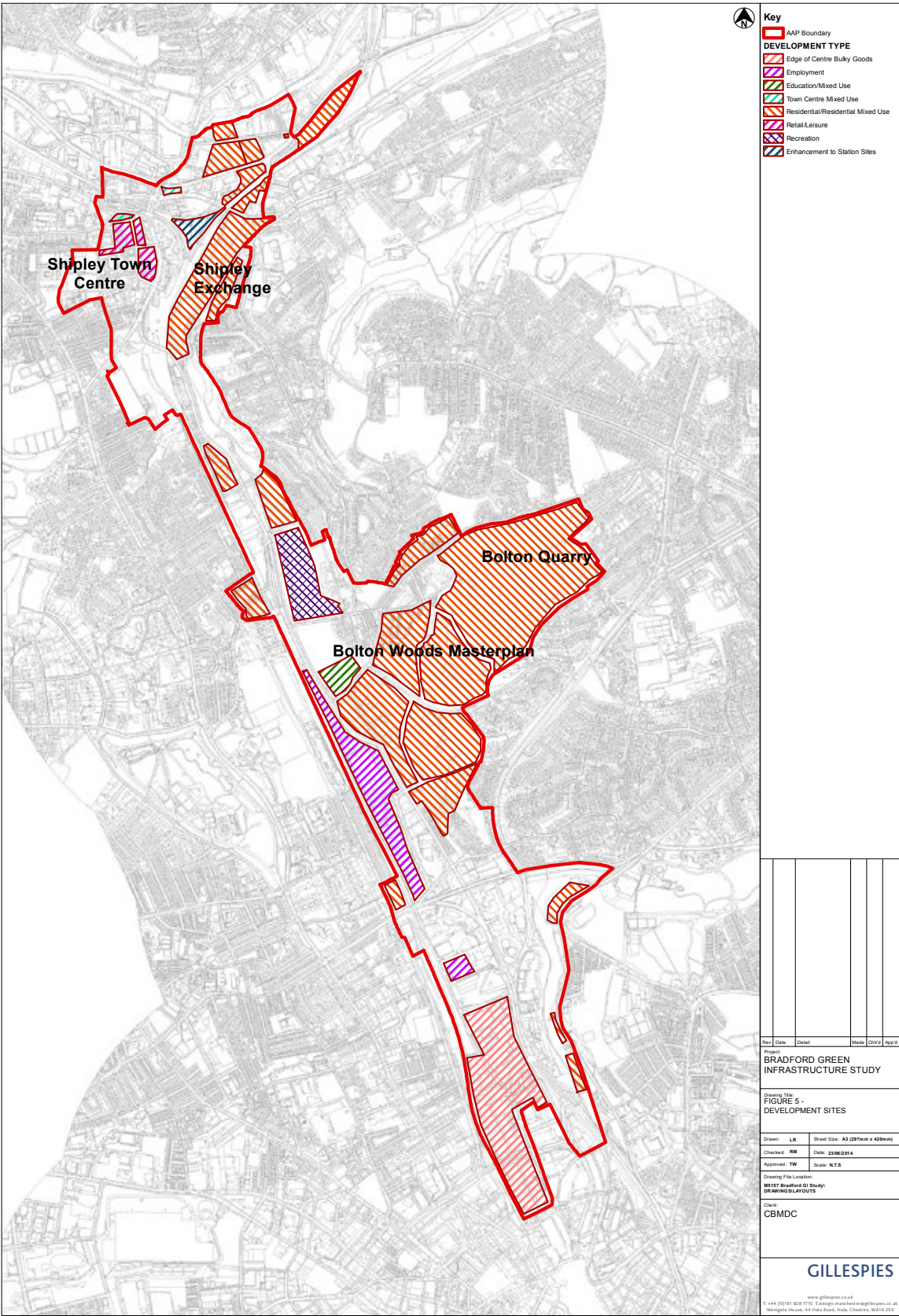


Figure 5 - Development Sites

2.2.1 Future residential allocations

Future development within the SCRC will be focused in three areas of opportunity and these are discussed at length within Shipley and Canal Road Corridor AAP Issues and Options report (2013) and identified within table 2.1 below. These emerging development options have been mapped and residential allocations are shown within Figure 5 – Development Sites. The corridor is included within the Bradford-Shipley Canal Corridor Urban Eco Settlement which has the aim of delivering a significant number of new homes in a sustainable manner.

Table 2.1 - Future development areas

Area of Opportunity	Potential Residential Units
Shipley	
Shipley Town Centre	50-100 units
Shipley East	100-150
Dockfield Road	300-400
The Centre Section	
New Bolton Woods	1000-1500
Bolton Woods Quarry	1000-1300
The City Centre Fringe	
City Centre Fringe	100-150
Total	2550 - 3600

2.2.2 Accessible Natural Greenspace Standards

Natural England's 'Standards for Accessible Greenspace' (ANGSt) recommends that everyone, wherever they live, should have accessible natural greenspace both close to home and within sustainable transport distances:

- of at least 2 hectares in size, no more than 300 metres (5 minutes walk) from home;
- at least one accessible 20 hectare site within two kilometres of home;
- one accessible 100 hectare site within five kilometres of home; and
- one accessible 500 hectare site within ten kilometres of home; plus
- a minimum of one hectare of statutory Local Nature Reserves per thousand population.

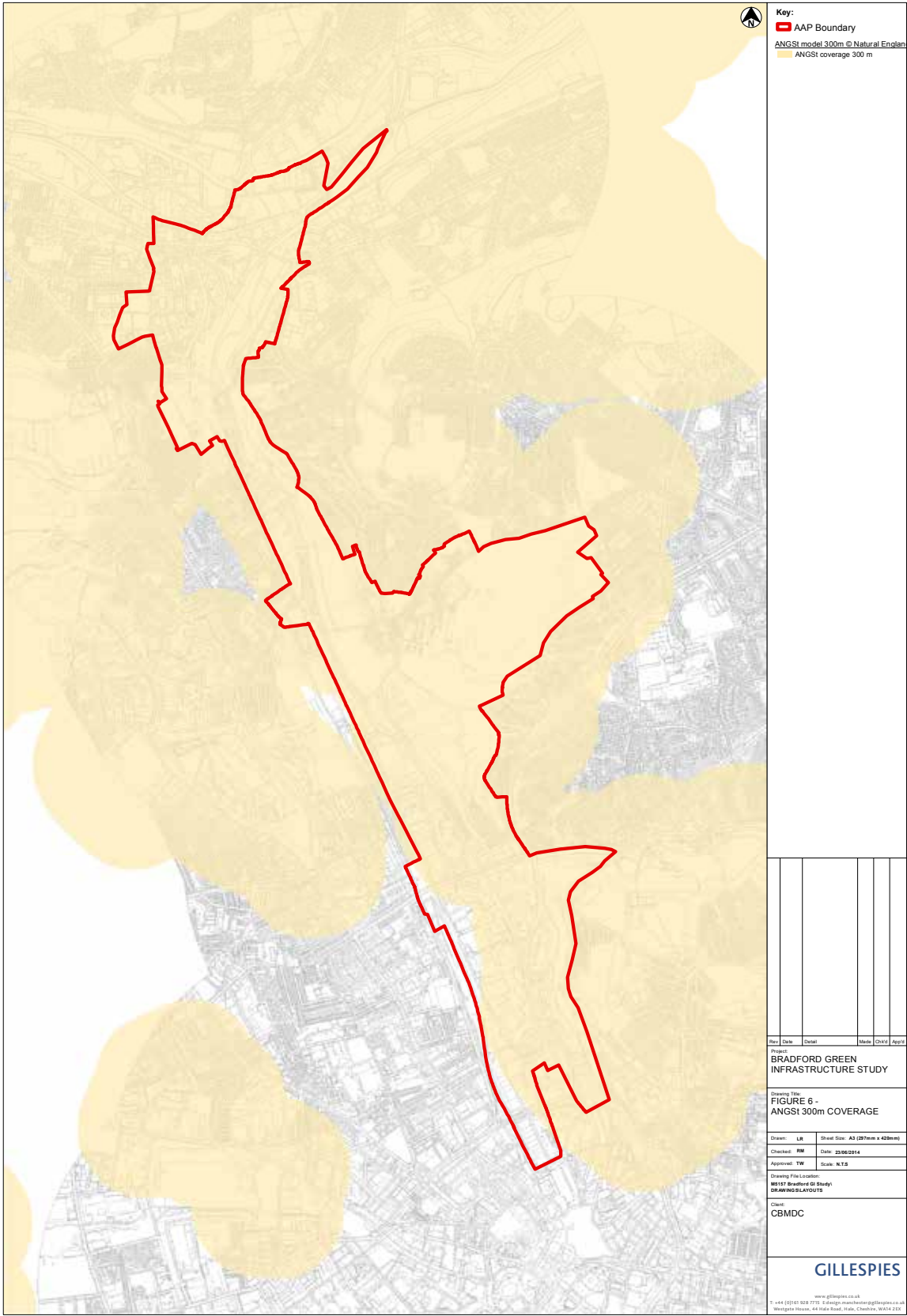


Figure 6 - ANGSt 300m Coverage

Within the study it is also stated that Accessible National Greenspace is delivered to meet a recognised quality standard (the Green Flag award scheme).

ANGSt is based on research into minimum distances people would travel to the natural environment and is a powerful tool in assessing current levels of accessible natural greenspace, and planning for better (future) provision. The three underlying principles of ANGSt are:

- a) Improving access to greenspaces
- b) Improving naturalness of greenspaces
- c) Improving connectivity with greenspaces

Using these principles the standard can be applied for:

- Protection, enhancement and management of existing green spaces;
- Planning new spaces; and
- Protecting vulnerable spaces.

Assessing current provision against ANGSt will help identify where adequate provision is being made for natural greenspace, and where action needs to be taken to deliver appropriate levels of natural space close to people’s homes.

[Ref: NE ‘Nature Nearby’ Accessible Natural Greenspace Guidance]

The 300m and 2km categories are more likely to be accessed by sustainable transport (walking or cycling) than greenspaces in the 5km and 10km categories which would more commonly be accessed by private transport.

Greenspaces closer to residential areas are therefore considered a higher priority GI asset than those further away by this GI study.

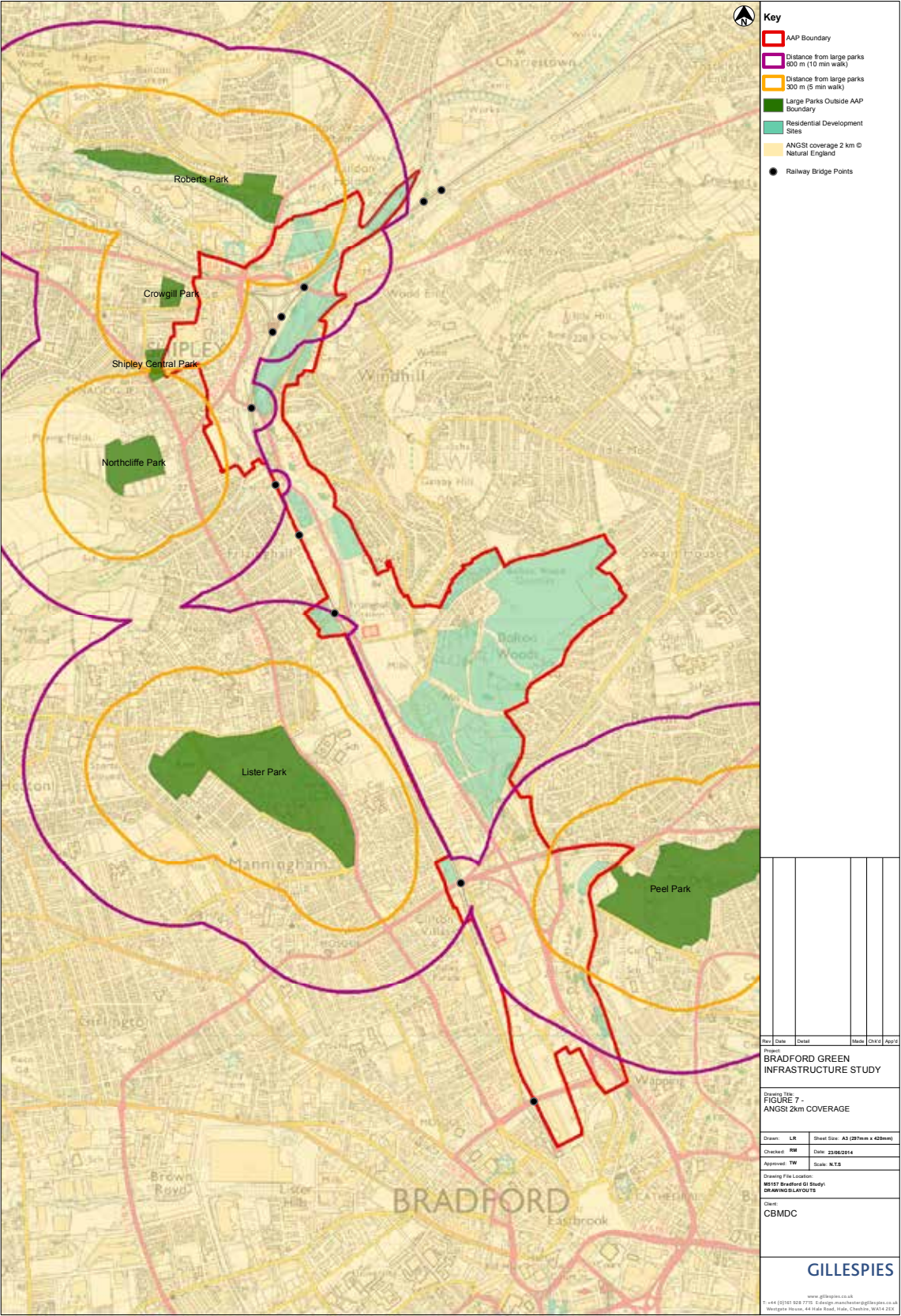


Figure 7- ANG St 2km Coverage

2.3 How does the SCRC AAP area compare against National Greenspace Standards?

2.3.1 ANGSt 300m Coverage

Figure 6 -ANGSt 300m Coverage, shows that current ANGSt provision at the 300m level is very good, with almost the entire SCRC having access to natural green space. The exceptions are two small areas to the south and south west which are currently occupied by industrial/commercial units. These areas of natural green space are not, however, formal parks. There are therefore issues in relation to accessibility and levels of use regarding these spaces.

2.3.2 ANGSt 2 Km Coverage and Greenspaces beyond the corridor boundary

Figure 7 –ANGSt 2km coverage - shows that all areas of the corridor have ANGSt coverage at the 2 km level.

These sites are not as accessible as sites at the 300m level, but are still accessible by walking or cycling.

Four 'significant' public greenspace outside the SCRC boundary provide access to 'large scale' public greenspace. These are Peel Park, Lister Park, Northcliffe Park and Roberts Park. (Lister, Peel and Roberts Park have been awarded the 'Green Flag' standard, which is the benchmark national standard for parks and green spaces in the United Kingdom). It is therefore important to consider sustainable transport links to these parks from within the SCRC as these provide the closest greenspaces of significant size and quality. Figure 7 also illustrates 300m and 600m buffers to illustrate those areas in 5 and 10 minute walking distances from the parks. These 'buffers' have been modified to reflect the fact that access is often restricted by the location of links across the railway.

Figure 7 therefore illustrates that, whilst there are a large number of formal, high quality green spaces within a 10 minute walking distance of much of the corridor, there is a distinct lack of coverage to the central section of the corridor, particularly to the east. There is also a small area to the south of the corridor although this is predominantly in employment use and therefore proximity to large formal green space is less of an issue.

As has been discussed earlier within this section, and as is shown by Figure 7, a significant amount of development is envisaged for the corridor area. Whilst these development sites have full coverage at the ANGSt 2 km level, there are relatively large areas to the central and east of the corridor where there is no coverage in terms of good quality formal parks.

2.3.3 Wildlife Sites and other ecological assets

A detailed ecological survey of the SCRC has been carried out and the findings can be found in West Yorkshire Ecology's report Ecological Assessment for the Shipley-Canal Road Corridor and Bradford City Centre Area Action Plans. A summary of the SCRC's key existing ecological assets are illustrated within Figure 8 and discussed below. It illustrates that the SCRC is well served by existing ecological assets and that there is significant potential to improve and link these assets, creating a high quality GI network with real ecological benefits.

The Leeds-Liverpool Canal

The Leeds-Liverpool Canal is a Site of Ecological or Geological Importance (SEGI) as a result of its diverse range of communities and a number of nationally rare plants including flowering rush and arrowhead. Additionally, a number of protected species including Water Vole and white-clawed crayfish have been recorded. The canal provides an important wildlife corridor, linking a number of SEGIs within Bradford and the wider area.

The River Aire

This is an important corridor with potential to link habitats. It is the focus of the Leeds City Regions 'Fresh Aire' initiative and the Wildlife Trust's Aire Valley Living Landscape projects, both projects highlighting the river corridor in the context of wildlife and Green Infrastructure. The Environment Agency have introduced thousands of native fish which in turn will boost the health of predator populations such as otter.

The Bradford Beck

This is an important blue-green corridor running north-south through the heart of the SCRC. Its importance is discussed in detail within West Yorkshire Ecology's report. It is also subject to aspirations

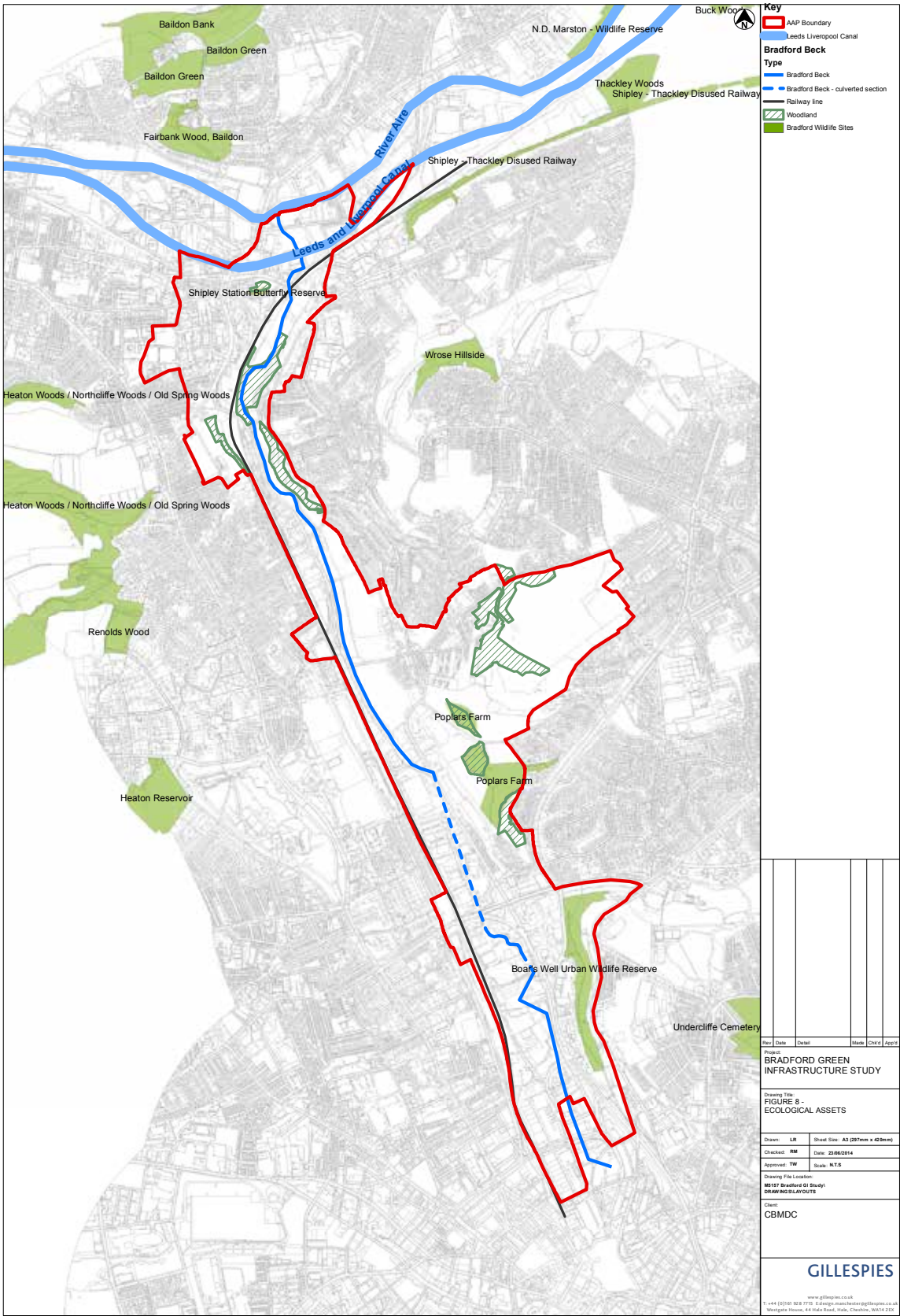


Figure 8 - Ecological Assets

for improvement contained within the Bradford Beck River Restoration Catchment Management Plan (Friends of Bradford's Becks, 2013).

The railway line

The railway line provides a green corridor, linking habitats and enabling mobility with no public access. It simultaneously has the potential to provide a green and attractive experience for passengers.

Bradford Wildlife Areas

There are three locally designated Bradford Wildlife Areas located within the corridor boundary; Shipley Station Butterfly Reserve, Poplars Farm, and Boars Well Urban Wildlife Reserve.

Shipley Station Butterfly Reserve is a tiny meadow (approximately 30m x 10m) located in the heart of the train station between platforms 2, 5 and the car park. The reserve is owned by Network Rail and managed jointly by the Bradford Urban Wildlife Group and Leeds Groundwork Trust. It is an example of how a small piece of land can be managed for the benefit of wildlife and people. It is mown once a year and yet this minimal effort has produced an effective and popular reserve in the heart of a busy station.

Poplars Farm is designated as an important wildlife corridor.

Boars Well Urban Wildlife Reserve is located to the east of Canal Road to the south of the corridor. The land is council owned and managed by the council and Bradford Environmental Education Service (BEES). It is a popular site for butterflies and birds.

The South Pennine Moors SAC/SPA

The South Pennine Moors, (illustrated by Figure 9) consisting of Rombalds Moor to the north of the district and Haworth Moor to the west of the district have been designated as Special Protection Area (SPA) due to the international importance of their breeding bird population and are therefore considered to be a significant environmental resource. The South Pennine Moors site is also designated as a Special Area of Conservation (SAC) under the EC Habitats Directive. In accordance with the Habitat Regulations, the council is required to assess its planning policy to ensure that there are no adverse effects on these internationally important sites. The Core Strategy (Strategic Core Policy SC8) therefore seeks to protect the South Pennine Moors and their zone of influence. The SPA/SAC is located approximately 5km to the north of the SCRC north boundary and therefore the northern half of the corridor therefore falls within Zone Bii as identified within the Policy SC8 (being located between 2.5 km and 7 km from the SPA/SAC). As a significant amount of development is planned for this portion of the corridor, those developments will be required to make contributions which will deflect pressure from moorland habitat which includes the provision of additional natural greenspace and long-term maintenance and management of that greenspace. Such provision should be included within the Green Infrastructure strategy for those developments.

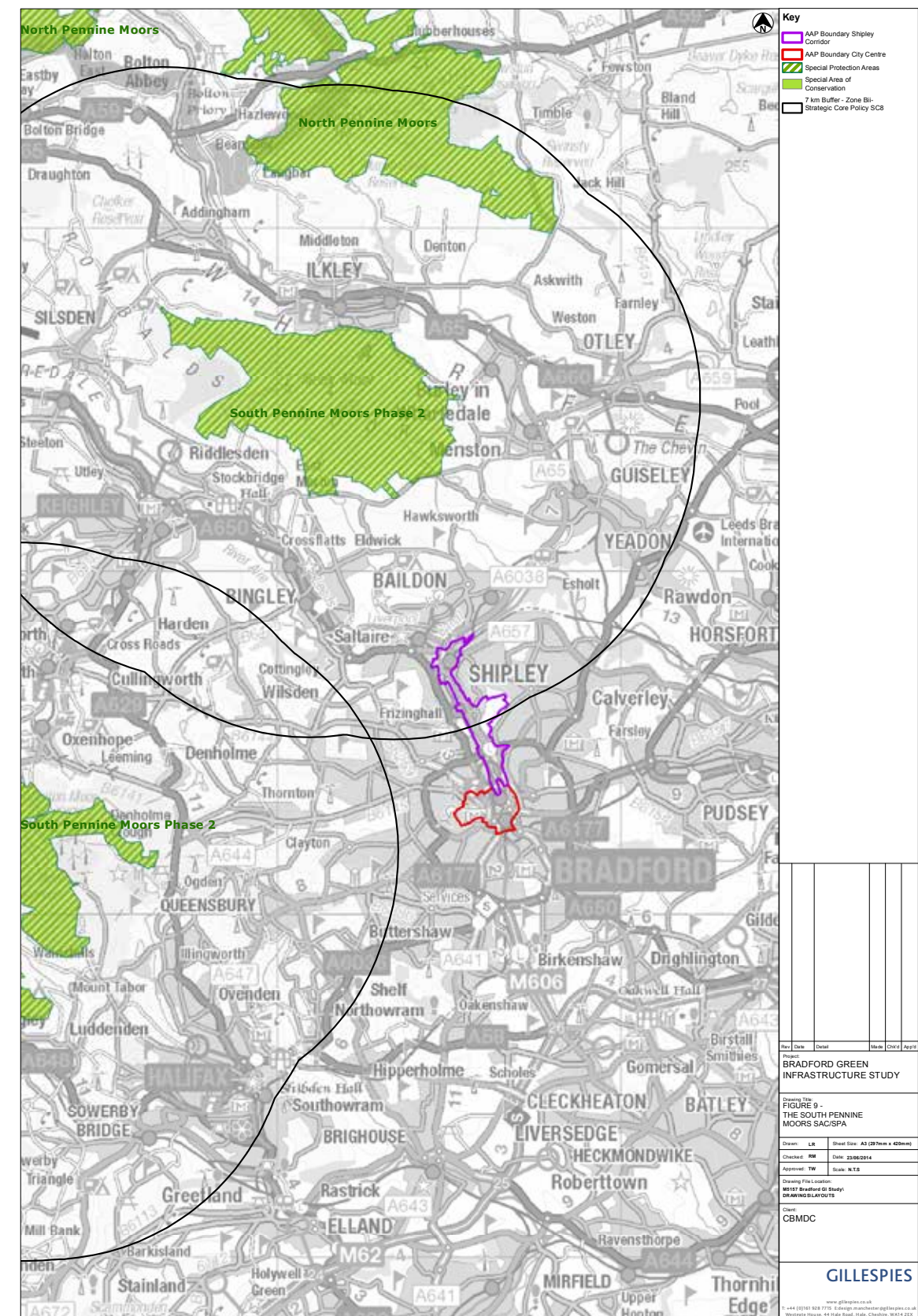


Figure 9 - The South Pennine Moors SAC/SPA

2.3.4 Existing Blue Infrastructure and Flood Risk

Figure 10 illustrates that the SCRC is well served by existing blue infrastructure both within and in close proximity to its boundaries. Those are:

- The Bradford Beck which runs from the River Aire in the north to the City Centre.
- The Leeds- Liverpool Canal which runs in a broadly east-west orientation to the north of the corridor boundary.
- River Aire; which again runs in a broadly east-west orientation to the north of the corridor and which is at the heart of a Regionally important Green Infrastructure Corridor as identified by Natural England. (see section 1.4.2)
- Former Bradford Canal. Finally closed in 1922 and now filled in. Formerly linked the Leeds Liverpool canal with Bradford City Centre. A remnant can still be seen at the junction with the Leeds Liverpool Canal. Plans to reopen it are currently on hold and would appear unlikely to materialise in the short to medium term. Ideas to instead reference the route of the Canal within the landscape are advocated by the AAP and emerging Strategic Development Framework.
- Formal bodies of water such as Lister Parks boating Lake.
- Carr Mires Beck to north east (windhill).
- Small body of water to the west of the corridor and just south of Shipley (between Northwood Avenue and Wharnccliffe Road).
- Two becks to the west which are culverted prior to entering the corridor (Northcliffe Dyke and Red Beck).

Figure 10 also illustrates areas of flood risk as mapped by the Environment Agency. Flood areas are classified into zones, zones 2 and 3 being medium and high probability respectively. Zone 2 is comprised of land which is assessed as having between a 1 in 100 and a 1 in 1000 annual probability of river flooding (1% - 0.1%). Zone 3a is comprised of land assessed as having between a 1 in 100 or greater annual probability of river flooding (> 1%).

The AAP illustrates how flood zones 2 and 3 follow the course of the Bradford Beck and river Aire.

Green Infrastructure can have an important role to play in reducing the likelihood of flooding. Providing space for water to permeate the ground and/or be stored temporarily, it reduces run off and slows the passage of water through the catchment. This prevents rain water reaching rivers quickly and in large volumes, thereby decreasing the likelihood of a flood event. Simultaneously, these 'blue' assets have the capacity to provide ecological habitat and attractive, restorative features for people.

The Flood and Water Management Act (FWMA) is awaiting approval but will seek to establish SUDs Approving Bodies (SAB) to be set up within lead local flood authorities (LLFAs) and Bradford is leading a SAB group for LLFAs in Yorkshire. The Act will require SAB approval of all new drainage systems for new and redeveloped large sites and highways and that the proposed drainage system meets new National Standards for Sustainable Drainage. This offers opportunities to increase Blue-Green Infrastructure across the corridor and to control the quality and location of these schemes through the Planning process.

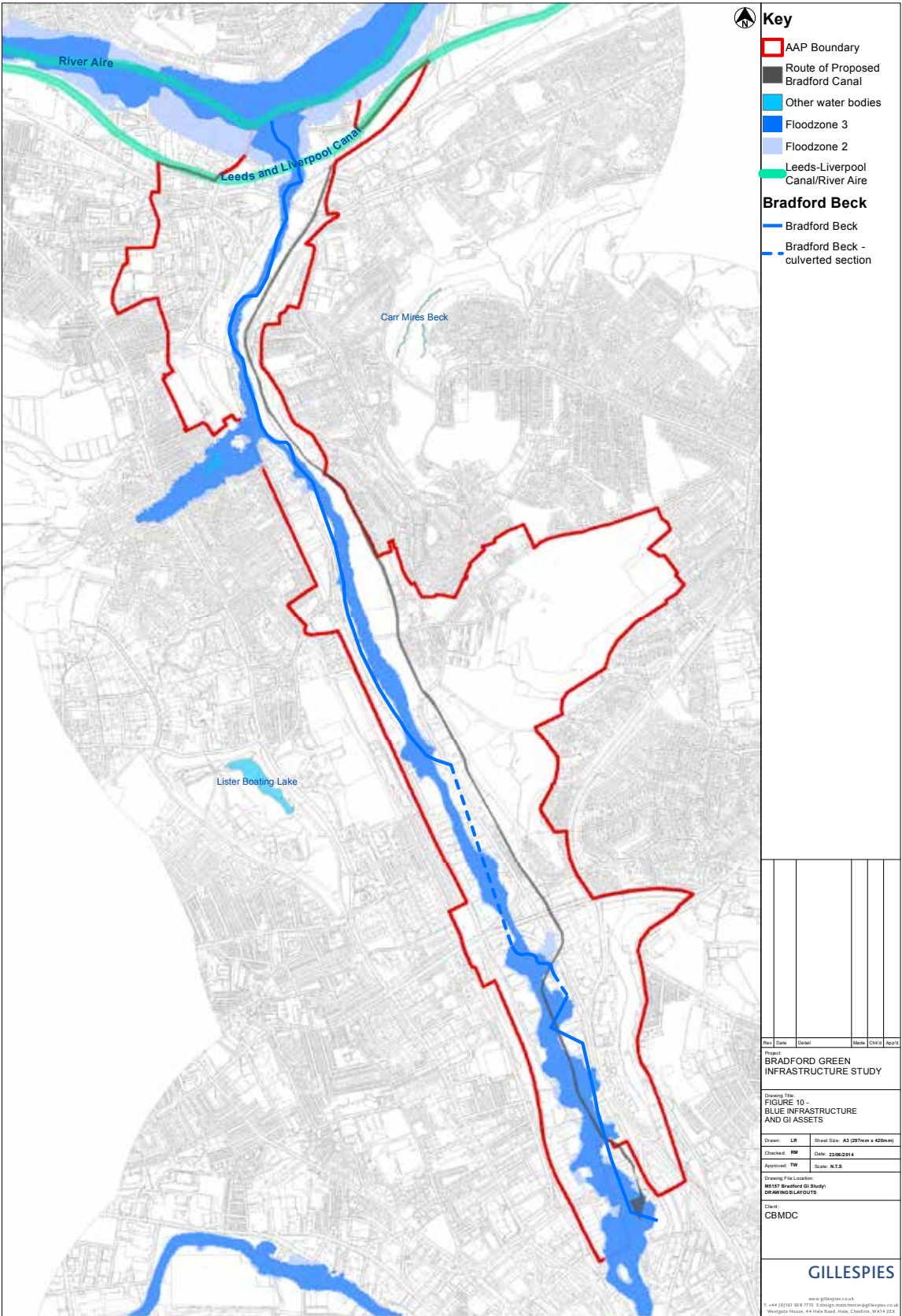


Figure 10 - Blue Infrastructure and GI Assets

2.3.5 Air Quality

Four areas have been identified within the Bradford District which are not achieving the UK air quality objective for nitrogen dioxide. These areas are shown on Figure 11. Exhaust emissions are largely responsible, particularly heavy freight and buses. The council has a duty to designate these locations as Air Quality Management Areas (AQMAs) and to develop an action plan setting out the measures that it will adopt to make progress towards the achievement of the air quality objectives which are set out within the Bradford Air Quality Strategy 2011.

Whilst none of the four AQMA's are located within the SCRC boundary, the Manningham Lane AQMA is located just outside the western boundary and affects potential routes to GI assets located outside of the boundary.

As discussed previously under section 1.3.3, Green Infrastructure has the potential to mitigate emissions by filtering and absorbing particulate.

2.3.6 Links

There are several key existing and proposed links which are relevant to this study:

- Sustrans Route 66 and The Greenway
- The Linear Park
- Connections with the above
- The Dales Way Link
- The Leeds-Liverpool Canal
- The River Aire
- The train line and foot/road bridges across it
- Links to the train stations
- Bus routes – key stops
- Links to local amenities: schools, sport and recreation, religious, visitor attractions, key employment areas, the city centre and Shipley
- Large parks and informal spaces outside of the corridor

Providing good walking and cycling routes is a key to sustainability. If Green Infrastructure accompanies these routes, it can provide a safe and pleasant environment and promote use. Promoting such connections is seen as key to the success of the regeneration of the SCRC and much work has already been done to ensure that new and existing development is well linked.

Sustrans Route 66 and The Greenway

As illustrated in Figure 12, the current Sustrans route 66 runs along the southern half of the SCRC. There is then a gap until it commences once again at the Leeds-Liverpool Canal towpath. Sustrans have therefore proposed a new cycle route to connect route 66 where there is currently a gap in provision. This proposed new route or 'Canal Road Greenway' links the Leeds-Liverpool Canal towpath (Airedale Greenway) and the City Centre and has been designed to be wide, avoid steep gradients and to be the most direct, continuous and as convenient as possible. This has led to a route which is located to the bottom of the valley, following the route of Canal Road, the former Bradford Canal and the Bradford Beck.

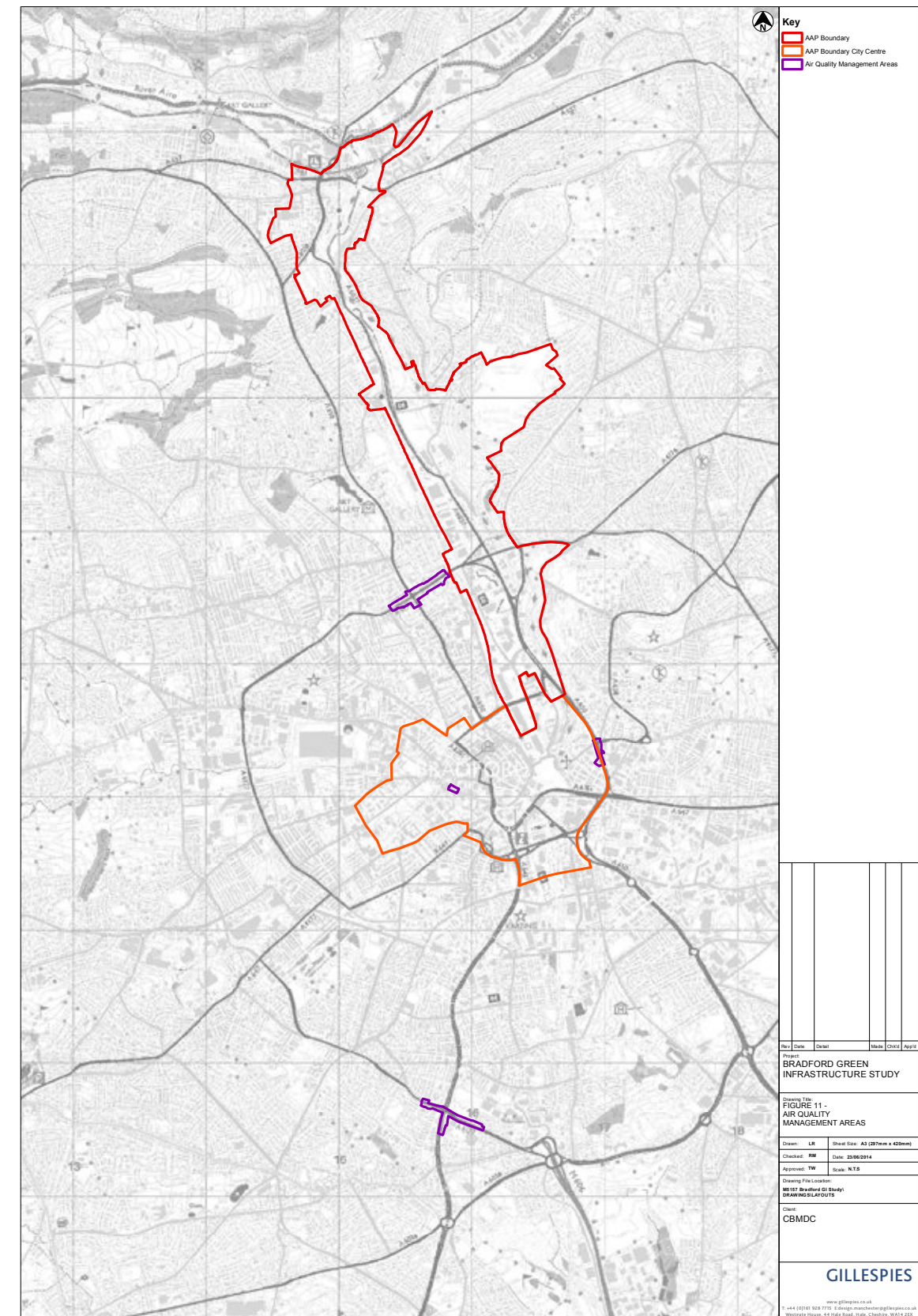


Figure 11 - Baseline Air Quality Management Areas

In addition to the main north south route, the AAP Issues and Options report envisages additional links which largely follow an east west orientation and which provide an important link between surrounding neighbourhoods and the main Sustrans 'Greenway' route.

The linear Park

In conjunction with the 'Greenway', is the aspiration of the AAP is for a linear park consisting of linked green spaces and infrastructure which adjoin Canal Road and incorporate the 'Greenway' and Bradford Beck where possible. This linear park would stretch from Shipley to the City Centre and would aim to encourage walking, cycling, sport and recreation, thereby improving health and wellbeing.

The 'Greenway' and the Linear Park provide a north south route between Shipley and the City Centre, linking existing and proposed development along the route. In addition to this, the AAP promotes a number of inter-connecting routes which are broadly orientated east-west and connect the surrounding neighbourhoods to the Greenway, Linear park, Bradford Beck and potentially the re-opened Bradford Canal. There is also the potential to promote these east-west links to formal and informal green space beyond the SCRC boundary. This has the potential to encourage even wider sustainable routes for people but also the potential to create wildlife corridors between the corridor and wider GI assets such as Leeds Liverpool Canal, the wide open areas of green space to the east and west and the moors to the north.

The Dales Way Link

The Dales Way is a long distance footpath, approximately 128km in length. It runs from Ilkley to Bowness-on-Windermere, often following riverside paths and travelling from urban West Yorkshire to the Lake District. The Dales Way Link provides a route from Bradford city centre, travelling north through the corridor to Ilkley where it picks up the main Dales Way to Bowness on Windermere. The Dales Way Link enters the corridor at its southern boundary and follows its eastern boundary for a short while before passing through Boars Well Urban Nature Reserve. It then turns westwards, travelling up Hollin Close Lane before entering Brow Wood where it follows a footpath northwards until it reaches Chesnut Grove, just west of Bolton Woods quarry. The route then travels northwards by avoiding the busy Canal Road, instead following Powell Road and Poplar Crescent, crossing open semi natural amenity greenspace and following the course of the railway line until it reaches Briggate (the A657). The route travels along Briggate briefly before crossing the River Aire at Otley Road. The route is then able to turn westwards and follow the quieter route of the River Aire footpath.

Whilst not as flat and direct as the proposed Greenway and Linear Park, the Dales Way does offer an attractive walking route which has the potential to take the user from central Bradford north to the River Aire from where the user can travel large distances in relative tranquility. This route passes through the proposed developments of the Bolton Woods Masterplan and the Shipley Exchange supermarket site and is incorporated within the respective masterplans. Enhancement of the route using existing Green Infrastructure has the potential to benefit both the user and provide a far reaching wildlife corridor.

The Leeds and Liverpool Canal

The Leeds Liverpool Canal is approximately 204km in length and connects the cities of Liverpool and Leeds where it connects with the Aire and Calder Navigation. Passing through East Lancashire, it crosses both the Pennines and the Yorkshire Dales before reaching Leeds. As such, it's potential as a far reaching GI corridor is great as is recognised by its inclusion within the Aire (R1) Regionally important GI Corridor

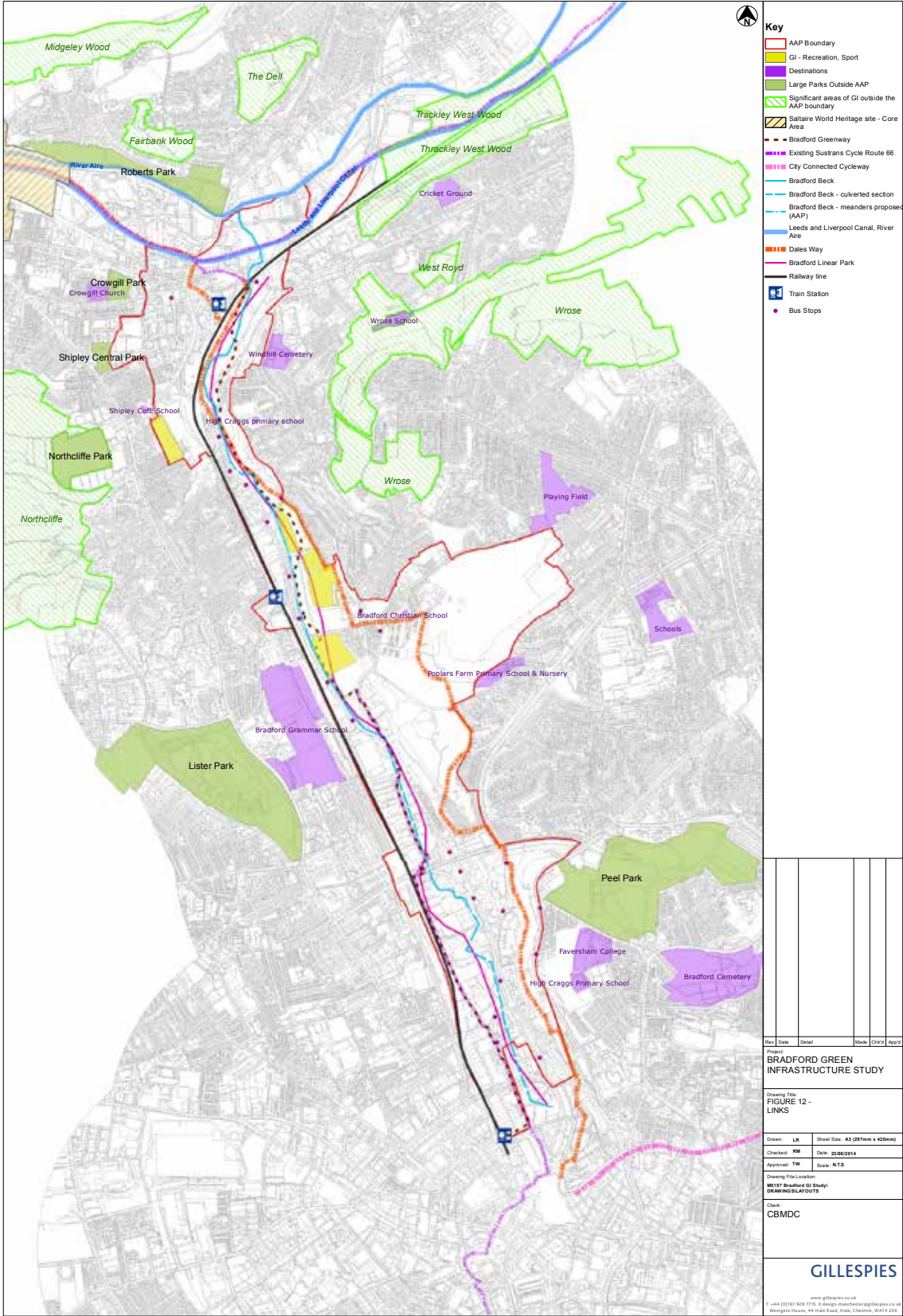


Figure 12 - Links

as identified by Natural England. (See section 1.4.2). The footpath which runs alongside it also offers a great opportunity for people to travel great distances in relative tranquility.

The River Aire

The River Aire commences at Malham in the Yorkshire Dales National Park, running across the region and connecting small and large urban areas such as Gargrave, Skipton, Leeds and Bradford before reaching Goole on the east coast. As discussed in section 1.4.2, it has been identified as a regionally important GI corridor. It is also subject to a number of regeneration projects including the Airedale Partnership, Aire Valley Leeds and the West Leeds Country Park.

Train line

The Bradford to Shipley train line runs north south through the centre of the corridor. Commencing at Forster Square within the adjoining City Centre AAP, the train line stops at Frizinghall and Shipley Train Stations before travelling east to Leeds and west to Skipton. As such, it offers an important sustainable transport route but the railway sidings also offer wildlife corridor opportunities. Reference is made to the Ecological Assessment of the SCRC which describes the railway network as a key corridor for wildlife, encouraging mobility and the linking of habitat through linear corridors where human access is limited.

Train Station Links

Improving links to the train stations is one of the objectives of the AAP. There are proposals pending in relation to both Frizinghall and Shipley Train Stations.

Bus Routes and key stops

The SCRC is well served by bus routes, primarily along the Canal Road although there are parts of Canal road which could be improved. There are additional stops within adjoining neighbourhoods and a bus station hub at Shipley's Market Square. Again, the AAP aims to improve links between rail and bus in order to promote sustainable travel within and out of the SCRC. Green Infrastructure located around these transport hubs, to include key bus stops and along key routes would assist these objectives.

Key local Amenities

Figure 12 shows some of the key local amenities which include schools, sport and recreational grounds, religious and community buildings, key employment areas and potential visitor attractions such as the Leeds Liverpool Canal, the river Aire and Saltaire World Heritage Site. Green Infrastructure located along key routes to these assets could help promote sustainable travel.

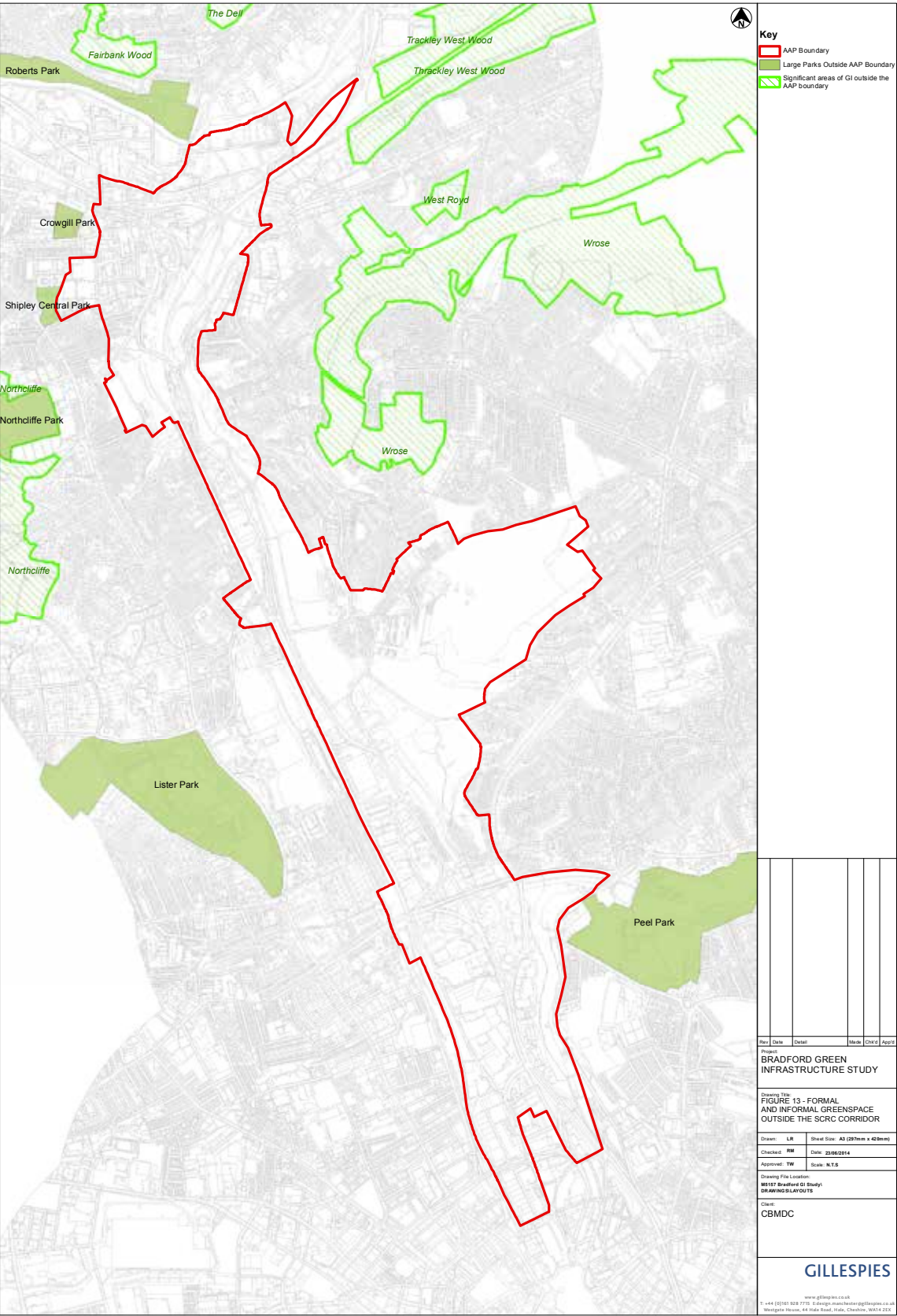


Figure 13 - Formal and Informal Greenspace Outside the SCRC Corridor

2.3.7 Formal and informal greenspace outside the SCRC

As figure 12 and 13 illustrate, the SCRC benefits from a number of formal and informal green spaces. Lister, Peel, Northcliffe and Roberts parks are all large parks located within easy reach of the corridor boundary. As is described within the section 2.2.4, these large parks are amongst the green space which is more likely to be accessed by sustainable transport (walking or cycling) than by private transport. It is therefore important to consider sustainable transport links to these parks from within the corridor .

There are further large areas of informal green spaces which link the corridor directly to open countryside. To the north east, green space in and around Windhill links the corridor to Green Belt which separates Bradford from neighbouring Leeds. To the west, blocks of informal woodland intersperse the more formal Northcliffe Park and neighbouring golf courses, this Green Infrastructure stretching to the west and again joining directly to open countryside. To the north, often wide belts of Green Infrastructure pass in and around the settlement of Charlestown, linking the corridor directly to the open countryside to the north and ultimately to the Dales.

2.3.8 The Habitat Regulations and the South Pennine Moors SAC/SPA

As discussed under section 2.2.5 (Wildlife Sites and Other Ecological Assets) above, the South Pennine Moors, (illustrated by Figure 9) consisting of Rombalds Moor to the north of the district and Haworth Moor to the west of the district have been designated as both Special Protection Area (SPA) and as a Special Area of Conservation (SAC) under the EC Habitats Directive. The Core Strategy (Strategic Core Policy SC8) therefore seeks to protect the South Pennine Moors and their zone of influence by ensuring developments make contributions which will deflect pressure from moorland habitat. This includes the provision of additional natural greenspace and long-term maintenance and management of that greenspace. Such provision should be planned to connect into and strengthen the GI network and should be included within the Green Infrastructure strategy.

2.3.9 Index of Multiple Deprivation

The Indices of Deprivation provide a measure of deprivation in small areas (known as Lower Super Output Areas - LSOA) across England. It is based upon 38 indicators which are grouped into seven domains, each of which represents a different aspect of deprivation. The domains are; income, employment, health, education, crime, access to services and the environment. Scores are ranked in order that a direct comparison can be made between areas. The LSOA within the corridor which are classified as the 5% most deprived areas are illustrated on Figure 14.

It can be seen that a large proportion of the south and west of the corridor includes such deprived areas. This area includes Forster Square and Valley Road retail area and Hillam Road Industrial Estate. There is a further area to the north of the corridor which incorporates much of Windhill.

Green Infrastructure can have a positive effect on the environment, creating an attractive setting which in turn boosts property and land markets and encourages investment and wider regeneration. If those areas of Green Infrastructure are also connected and of a high quality, this can attract business investment and skilled workers (LI Green Infrastructure Position Statement – p 9).

According to Defra, people in deprived areas are six times less likely than those in affluent areas to describe their areas as 'green'. Green Infrastructure within a person's environment can lower stress levels, encourage exercise and bring people closer to nature, thereby increasing the quality of life.

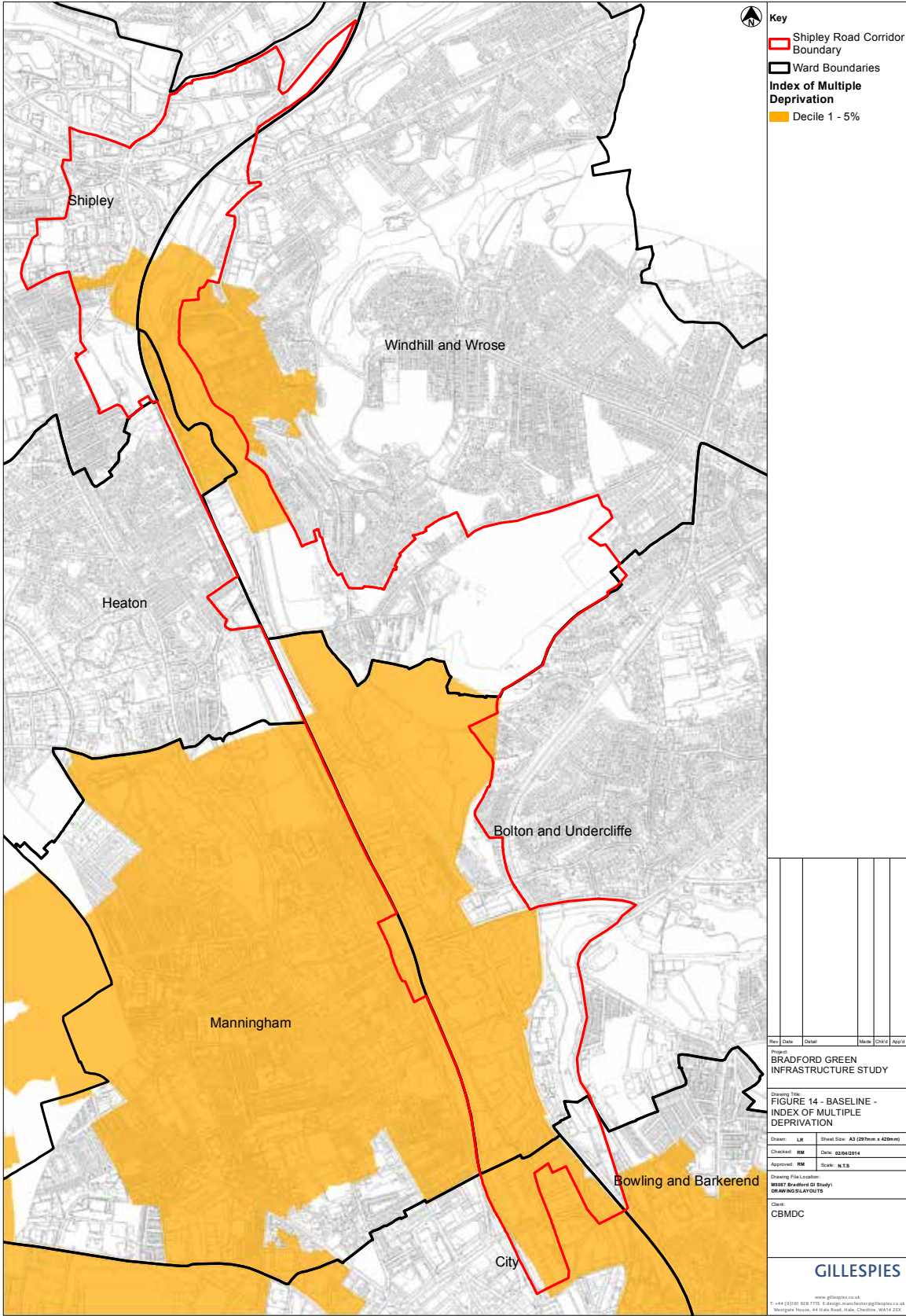


Figure 14 - Index of Multiple Deprivation

2.3.10 Heritage Sites

As can be seen from figure 15, the corridor incorporates a large area to the north which is classified as the setting of the Saltaire World Heritage Site and as such is of international, national and local importance. The corridor also contains a section of the Leeds-Liverpool Canal Conservation Area to the north with a further three Conservation areas lying just outside the western and southern boundaries respectively.

The quality of the Green Infrastructure located within or adjacent to these areas can have an impact upon the setting of these important sites and is therefore of relevance to this report.

2.4 Shipley and Canal Road Corridor GI assets, functionality and benefits

2.4.1 GI asset typology within the SCRC

The classification of the SCRC’s spaces into GI Asset ‘typologies’ was carried out through analysis of precedent studies from other areas and the analysis of Bradford’s spaces with reference to GI functions on site.

List of Shipley and Canal Road Corridor GI Asset typologies:

- Natural / semi-natural / designated habitat
- Public space (parks and other accessible open space)
- Civic spaces (street/small squares)
- Private gardens
- Institutional grounds (community buildings/religious)
- Recreation/sports grounds
- Amenity greenspace
- Allotments / orchards
- Greenspace associated with the road network
- Greenspace in the rail corridor
- Existing blue infrastructure (canal, river, beck)
- Derelict land / brownfield
- Significant street trees
- Woodland

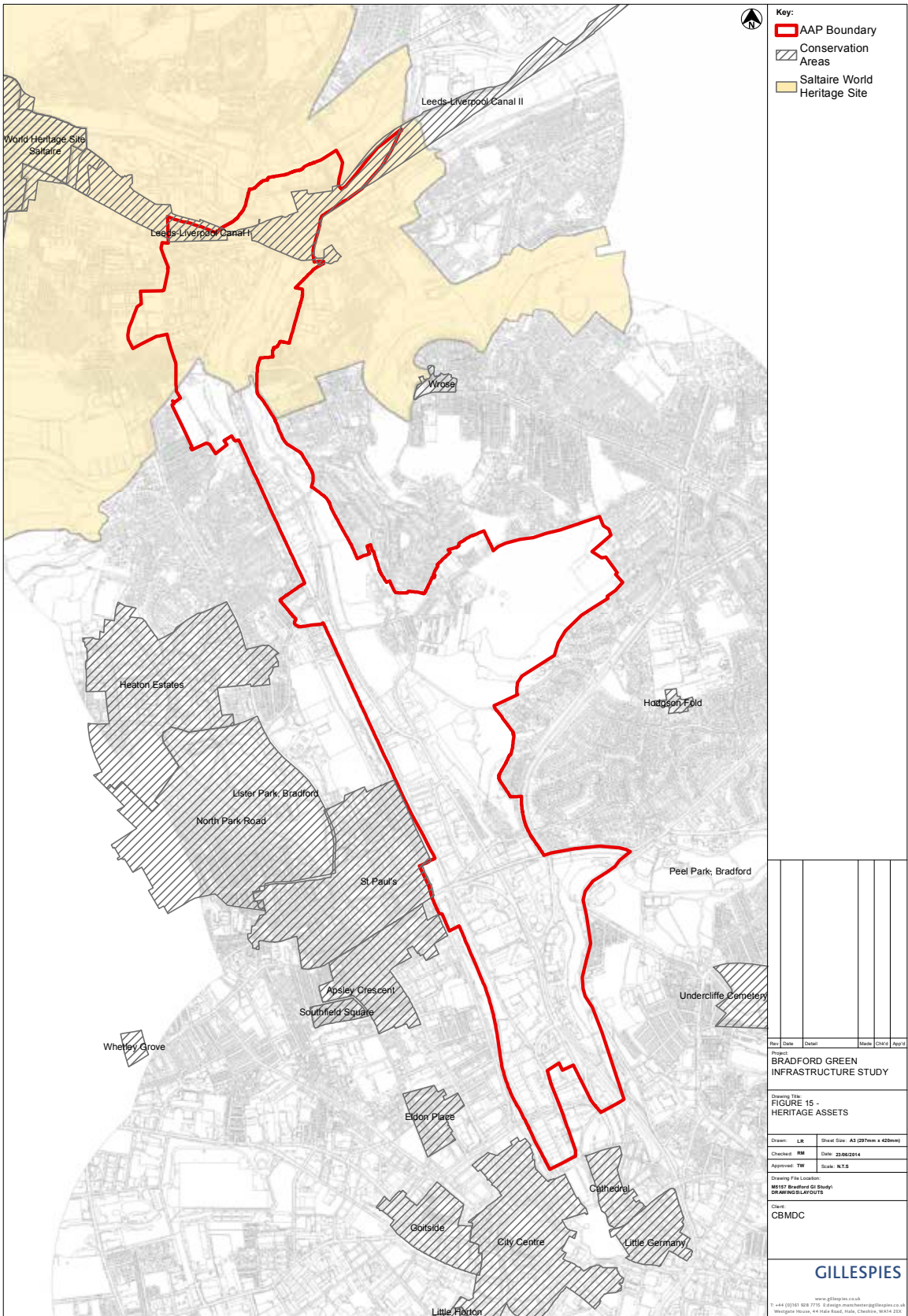


Figure 15 - Heritage Assets

2.4.2 Green Infrastructure functions within the SCRC

These functions were determined through analysis of existing documents (including the GI Valuation Toolbox) and an analysis of Bradford green spaces.

- A. Provide safe and attractive links (cycling / walking routes to / between) residential areas, employment areas and Community facilities (schools and public transport nodes)
- B. Provide opportunities for social interaction
- C. Provide opportunities for physical health and well-being for all ages
- D. Provide opportunities for mental health and well-being for all ages
- E. Provide attractive places for living
- F. Provide attractive places for working / studying
- G. Provide attractive places for securing inward investment
- H. Provide attractive places for recreation (open spaces, play facilities, cycling, walking and boating etc)
- I. Provide attractive places for tourism
- J. Provide attractive places for increasing land / property values and demand
- K. Reduce urban run-off and reduce flood risk (through increasing natural 'water storage' / infiltration capacity)
- L. Urban cooling
- M. Improve air quality
- N. Carbon sequestration
- O. Provide wildlife corridors (to help facilitate species migration caused by climate change)
- P. Provide local food and energy production
- Q. Provide a local environmental resource for education and skills development
- R. Provide an attractive setting for townscape / cultural heritage assets
- S. Provide habitat / ecological network of habitats
- T. Additional SuDS functionality: Provide multi-functional 'Blue / Green Infrastructure' areas (e.g. temporary flood storage on areas mainly used as public greenspace)

2.5 What are the benefits of investing in Green Infrastructure and how does this relate to Shipley Road Corridor AAP?

The Green Infrastructure functions described above lead to tangible benefits.

Well designed, planned and managed Green Infrastructure can offer multi-functional approaches to achieving sustainable economic development and address genuine practical challenges.

These benefits include:

2.5.1 Supporting growth and stimulating investment:

By contributing to sustainable economic growth GI can contribute to attracting inward investment, visitors and residents to an area and contribute towards an increase in land and property prices. Well-designed green spaces and landscaping can enhance the urban environment, influencing business location decisions and leading to new inward investment and employment opportunities.

Investment in Green Infrastructure initiatives – for example enhancing a river corridor with footpaths, an improved river edge and opportunities for water-based activities – provides opportunities for tourism, attracting visitors, increasing income and employment. As well as providing opportunities for recreation, it can also enhance health and boost productivity for users and onlookers. (GI valuation toolbox user guide)

There is good evidence that GI contributes to the attractiveness of a local area and an attractive natural environment and urban GI is a significant attractor of tourist and recreation expenditure. ('Microeconomic evidence for the benefits of Investment in the environment – review' Natural England 2012)

GI Functions: A, C, D, E, F, G, H, I, J, K, L, M, N, P, Q and R contribute to supporting growth and stimulating investment.

2.5.2 Climate change adaption and resilience

Supporting climate change mitigation and adaption measures can reduce the effects, damage and cost caused by climate change. Open spaces used both as playing fields and flood plains can provide effective temporary stores of flood water, protecting residential and business property – as well as providing resources for exercise and health benefits.

GI Functions: A, K, L, M, N, P, S andT contribute to climate change adaption and resilience

2.5.3 Improving health

Green lungs in urban environments, like public parks, green routes and trees close to offices, can provide resources for healthy lifestyles for employees and residents alike - as well as helping to reduce summer urban temperatures and supporting biodiversity. (GI valuation toolbox user guide)

There is good evidence linking access to, and views of greenspace to improved physical and mental

health outcomes. Logically this should lead to improved productivity and reduced worker absence. Additionally, there is suggestive evidence of a more immediate relationship between views of plants and productivity. Mental and physical ill-health impose enormous cost on area and businesses as has been discussed in section 1.3.5. (Microeconomic evidence for the benefits of Investment in the environment – Review Natural England 2012)

GI Functions: **B, C, D and H** contribute to improving health

2.5.4 Improving Biodiversity

A biodiverse environment provides a number of natural services including ecosystem services, such as protection of water resources, soils formation and protection, nutrient storage and recycling, pollution breakdown and absorption, contribution to climate stability, maintenance of ecosystems; Biological resources, such as food, medicinal resources and pharmaceutical drugs, future resources, diversity in genes, species and ecosystems; and social benefits, such as research and education, recreation and tourism and cultural values.

GI Functions: **D, E, K, L, M, N, O, Q, S and T** contribute to improving Biodiversity

2.6 How do these functions and benefits tie into the SCRC AAP?

These functions and benefits can also be shown to support the specific objectives of the SCRC AAP as discussed below:

2.6.1 Shipley and Canal Road Corridor Area Action Plan, Issues and Options Report

The current suggested Vision for the AAP is:

'By 2028 the Shipley and Canal Road Corridor has truly become an area of extensive transformational change, which is regarded as an exemplar Urban Eco Settlement between Bradford city centre and Shipley town centre. The Corridor has born witness to the delivery of over 3000 new homes supported by office, retail, sporting and leisure facilities connected by a green corridor of the linear park and Canal Road Greenway running from Bradford city centre to Shipley.'

Shipley has enhanced its role as an important town centre, through the expansion of its retail, leisure, office and housing market offer and much improved links to Saltaire and the Leeds Liverpool Canal. This redevelopment has created an area worthy of its location in close proximity to the World Heritage Site of Saltaire and been managed in a way which has enhanced both Shipley and the World Heritage Site, creating a better offer for visitors and residents alike.'

In order to achieve this vision, a number of strategic objectives are identified. The provision of Green Infrastructure can support the following objectives:

5. Support and enhance the vitality and viability of the city and town centres of Bradford and Shipley as thriving places for shopping, leisure, tourism and business. [Benefits 1, Functions \(A\), \(E\), \(F\), \(H\), \(I\), \(P\)](#)

7. Protect and enhance biodiversity and Green Infrastructure by establishing and protecting ecological networks and establishing a linear park; consisting of a chain of green spaces and natural environments linked to the Bradford Beck and Canal Road Greenway. [Benefits 2 and 4, Functions \(A\), \(C\), \(D\), \(J\), \(K\), \(L\), \(M\), \(N\), \(P\), \(R\) and \(S\)](#)

8. Reduce the impact of climate change through mitigation and adaptation, particularly through reducing pollution and managing the risk of flooding along the Corridor, including from the Bradford Beck, and using opportunities provided by new development to maximise renewable energy generation and energy efficiency. [Benefits 2, Functions \(A\), \(K\), \(L\), \(M\), \(N\), \(O\), \(P\), \(U\)](#)

9. Maintain and improve Canal Road as a key strategic transport link and promote sustainable transport options by developing critical road and public transport infrastructure including; improvements to Shipley and Frizinghall train stations, developing public transport opportunities and creating safe and attractive cycle and pedestrian routes linked to the Linear Park and Canal Road Greenway, connecting Shipley and Bradford. [Benefits 1 and 2, Functions \(A\), \(C\), \(E\), \(H\), \(M\),](#)

10. Enhance resident's health and education outcomes through improved access to good quality homes, jobs, high quality open space, recreation and community facilities and managing air quality along the Corridor, particularly in identified Air Quality Management Areas. [Benefits 1, 2, 3, Functions \(A\), \(B\), \(C\), \(D\), \(E\), \(F\), \(G\), \(H\), \(J\), \(M\), \(N\), \(O\), \(Q\)](#)

2.6.2 Bradford 2020 Vision and Community Strategy:

The Community Strategy strategic aims which are most relevant to the AAP are identified within the Shipley and Canal Road Corridor Area Action Plan Issues and Options Report.

- **Economy:** Drive economic growth and deliver economic development and wellbeing. [Benefits 1, Functions \(A\), \(E\), \(F\), \(H\), \(I\), \(P\)](#)
- **Inclusive and strong communities:** Foster safe, self-reliant, and resilient communities and neighbourhoods that people take pride in. [Benefits 1 and 3, Functions \(A\), \(B\), \(C\), \(E\), \(F\), \(G\), \(H\), \(I\), \(P\)](#)
- **Improving health, wellbeing and quality of life:** Close the health inequalities gap, while raising wellbeing levels across the whole district. [Benefits 1 and 3, Functions \(A\), \(B\), \(C\), \(D\), \(E\), \(F\), \(G\), \(H\), \(I\), \(P\),](#)
- **Making Bradford a more attractive district:** Create a greener, cleaner and more sustainable environment which makes best use of our resources and positively affects climate change. [Benefits 1, 2 and 3 Functions \(A\), \(B\), \(C\), \(D\), \(Q\)](#)
- **Enhance transport and connectivity across the district** while protecting biodiversity and natural environment. [Benefits 1 and GI function \(A\), \(B\), \(C\), \(S\)](#)
- **Increase in the quality, quantity and affordability of sustainable housing** in the district. [Functions \(C\), \(D\), \(E\), \(P\)](#)

Amenity Greenspace accounts for over 21ha (16%) of the GI asset total area. Such areas are often referred to as 'green deserts' in that there are again few or no paths or basic facilities and yet the way in which they are managed means there is also very little habitat present. That said, they can form an important part of community facilities such as informal meeting and 'kick about' areas. Such areas are found throughout the SCRC, particularly around public housing and other buildings.

Derelict land is found to the very north of the corridor, located between Otley Road and the Leeds and Liverpool Canal. Centrally, there are small pockets of derelict land located between Stanley Road and the fringes of Brow Wood. To the south of Queens road, there are a number of derelict sites which are located amongst current commercial and industrial buildings. There are a total of 35 derelict spaces identified within the SCRC covering 2.65% of the land area.

There are 5 sports and recreation grounds occupying over 11ha (9%). These are located to the central and northern areas of the corridor.

At 4, there are a relatively large number of allotments located within the SCRC, occupying almost 6 ha (5%). One of those allotments located to the east of Frizinghall Station has been found to lie on contaminated ground and will therefore shortly cease to be allotments, creating potential to enhance its value as a GI asset.

Private greenspace accounts for just over 6ha. The value of private gardens should not be undervalued as these can often provide an uninterrupted link across large areas. The SCRC currently has a relatively low number of residential gardens. However, future residential development will increase this type of asset.

The Bradford to Shipley railway line provides a number of Rail Greenspaces along its length amounting to just over 5 ha.

Roadside Greenspaces are limited and associated in small sections along Canal road and Valley road. It accounts for only 1 ha of land.

Areas of Institutional greenspace are also limited to approximately 1ha, being those small areas associated with Bolton Woods Community Centre and a church to Westcliffe Road in Shipley. There are also the remnants of Bethel graveyard located to the north of Shipley Station.

There are no overt SUDs schemes within the corridor but there are significant stretches of blue infrastructure in the form of the Bradford Beck, the River Aire and the Leeds Liverpool Canal. These assets amount to just over 4ha. Whilst the area is not significant, the fact that these are linear assets crossing the full extent of the SCRC enhances their value due to their corridor potential.

Public greenspace is limited to one small (0.16ha) area, this being a small section of Shipley Central Park, only the very eastern extent of which is included within the corridor boundary and should therefore effectively be discounted. Public Space is therefore notable by its absence, particularly bearing in mind the size of the corridor. This is an issue which should be addressed by the GI Strategy.

There is also one notable civic space identified, that being Shipley's market square which occupies an area of approximately 0.75ha. The AAP identifies Market Square and the pedestrianised Wellcroft that leads to it, as an area where the retail experience can be enhanced with a desire to encourage new development, create a more attractive and engaging square and improve links with the surrounding areas. Green Infrastructure has the potential to increase the attractiveness of the square and give it an enhanced sense of place. This experience could be extended to the wider area by enhancing pedestrian

and key transport links. The wide Kirkgate for instance hold some potential to extend the GI network.

Summary Points - Existing Green Infrastructure

- Almost 50% of the SCRC is comprised of GI assets making this a very 'green-blue' corridor
- Natural/semi Natural Greenspace accounts for almost 50% of those GI assets with a further 16% being Amenity Greenspace.
- There is no formal public open space.

3.2 Multi-functionality

Figure 17 illustrates the level of functionality currently provided by the individual typologies. To determine this, the typologies are assigned to a category of Multi-functionality:

- Assets with > 11 GI functions are considered to have **Very High** levels of multi-functionality
- Assets with 9 – 10 GI functions are considered to have **High** levels of multi-functionality
- Assets with 7 - 8 GI functions are considered to have **Medium** levels of multi-functionality
- Assets with 5 - 6 GI functions are considered to have **Low** levels of multi-functionality
- Assets with < 4 GI functions are considered to have **Very Low** levels of multi-functionality

GI Assets are assigned to these multi-functionality categories in the Appendix - Table 1 and their distribution is mapped in Figure 17.

The GI Assets listed in Appendix 1, table 1 illustrates the total numbers of functions which are delivered by the GI assets in the SCRC – the Table below shows the summary of this.

Table 3.1: Summary of Functionality Totals

This table shows the total number of each function contained within the SCRC.

Function	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Score	56*	19	23	74	33	8	6	9	4	209	193	158	10	26	84	4	123	52	79	0

*Street Trees provide an attractive link between facilities. These have not been counted as individual trees but as one asset

This study has not involved detailed on the ground site survey and these numbers should therefore be treated as indicative. Some gardens, for instance, will provide habitat /ecological networks whereas others will not.

Functions with limited (less than 10) or no coverage in the Shipley Road Corridor are:

- (F) Provide attractive places for working/studying
- (G) Provide attractive places to secure inward investment

- (H) Provide attractive places for recreation
- (I) Provide attractive places for tourism
- (N) Carbon Sequestration
- (P) Provide local food and energy production
- (T) SUDs (none)

It is also worth noting that all coverage statements are relative – as there is no comparative study of another similar area to compare the results to. This means that the number of 'high / very high' multi-functionalities are not relevant (as they may in reality be a low number in comparison if a similar exercise was carried out elsewhere).

As explained earlier, higher levels of GI multi-functionality results in greater benefits and this level of existing benefit is illustrated by the darker green areas on Figure 17 – Current Multi-functionality

Figure 17 illustrates that there are a number of large areas of high and very high multi-functionality spaces occurring throughout the SCRC, a significant proportion of which are classified as 'semi-natural greenspace' and are located to the east of the boundary and including Boars Well, Brow Wood, Bolton Woods and land adjacent and east of Valley Road.

Areas of very low multi-functionality are located to the very north between Otley Road and the Leeds Liverpool Canal and again towards the south within the 'city fringe' areas commercial and industrial buildings, these being areas of derelict land or very low quality amenity green space.

Large areas of medium multi-functionality are found to the central sections of the corridor where there are expanses of amenity green space and recreational/sports grounds. There are also a significant number of flats and commercial/employment building which are surrounded by medium multi-functionality amenity greenspace.

Summary Points - Multi-functionality

Whilst some caution should be applied in reviewing these results, functions with limited (less than 10) or no coverage in the Shipley Road Corridor are:

- (F) Provide attractive places for working/studying
- (G) Provide attractive places to secure inward investment
- (H) Provide attractive places for recreation
- (I) Provide attractive places for tourism
- (N) Carbon Sequestration
- (P) Provide local food and energy production
- (T) SUDs (none)

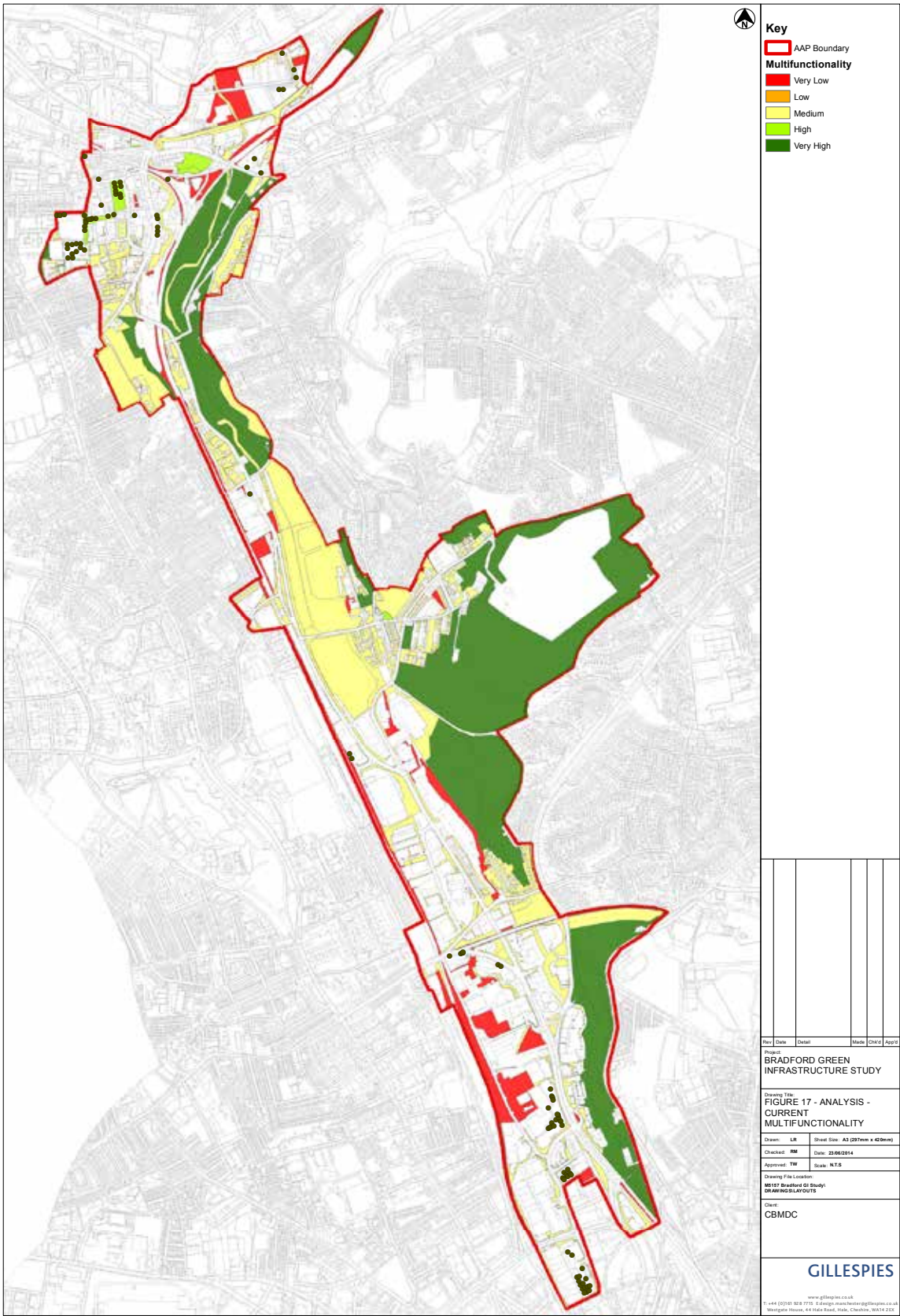


Figure 17 - Current Multi-functionality

04

Analysis

4.1 Potential multi-functionality

The analysis in section 3.2 above identifies the degree of multi-functionality achieved by the current GI assets in the SCRC, but what is the potential functionality of these assets? What additional functions could the GI asset typologies carry out?

Table 2 within the Appendix identifies the additional functions the typologies could fulfill if the typologies met their full potential.

This level of **potential multi-functionality** which the SCRC’s exiting GI assets could deliver is mapped in Figure 18.

This illustrates that the capacity to increase multi-functionality to high and very high across the SCRC area is great. Only the areas of rail side greenspace remain low in terms of multi-functionality and benefits (largely due to its inaccessibility) although the potential increase is still noteworthy. Furthermore, as this is a linear resource with great connectivity and habitat potential, its potential should not be undervalued.



4.2 GI Assets with Greatest Potential to increase multi-functionality

Table 2 within the Appendix illustrates that the typology categories with a potential to significantly increase their multi-functionality (and benefits) are:

- Amenity Greenspace (AG);
- Roadside Greenspace (RG);
- Derelict Land (D);
- Civic Spaces (CS)
- Allotments (A)
- Potentially Derelict / neglected Train Greenspace (TG) (through negotiation with Network Rail)

Such areas are distributed fairly evenly across the SCRC. Large gaps in this coverage are accounted for by the currently large areas of natural and semi/natural greenspace located to the east of the corridor at the Shipley Exchange Site, Bolton Woods/ Bolton Woods Quarry and Boars Well which already have high levels of multi-functionality.

Summary Points - Potential Multi-functionality

With effective planning, design and management, capacity to increase multi-functionality to high and very high across the corridor is great.

4.3 Committed development on existing Green Infrastructure

Development sites are proposed across the SCRC and the intended end use is set out within the AAP Issues and Options Report. A simplified summary showing those which have the potential to impact upon GI assets are shown in figure 19. 'Residential' as primary use makes up the majority of the proposals which illustrates the large number of new residents planned for the area. Large areas are located to the central eastern and northern sections of the corridor. In terms of other uses, a large area identified for 'bulky goods' is located to the southern boundary. Areas primarily of retail and leisure are located to the north in the centre of Shipley. A large area designated for recreational use is located to the central section of the corridor. The remaining primary uses consist of mixed use, education and station enhancements.

Figure 19 illustrates that there is capacity for significant redevelopment across the SCRC and that large areas of these sites coincide with existing GI assets. It will be key that important GI assets are preserved and enhanced within future development proposals and it is the aim of this document to assist such aspirations. This is discussed further within sections 6 and 7.

In view of their size and/or status within the planning process, there are three development sites which should be discussed in greater detail:

- Urban Eco Village – Bolton Woods Masterplan
- Shipley Exchange
- Bolton Woods Quarry

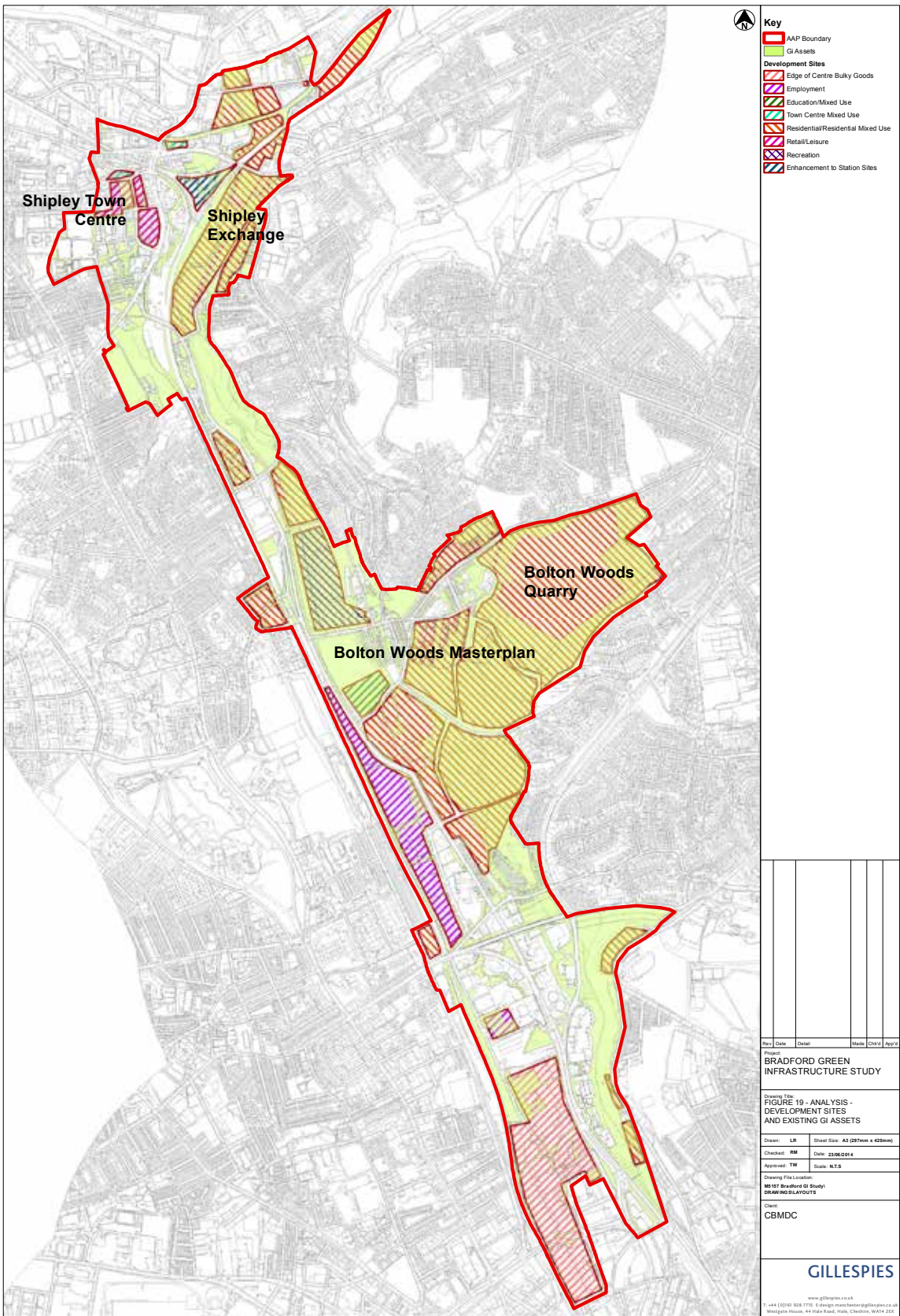


Figure 19 - Development sites and existing GI

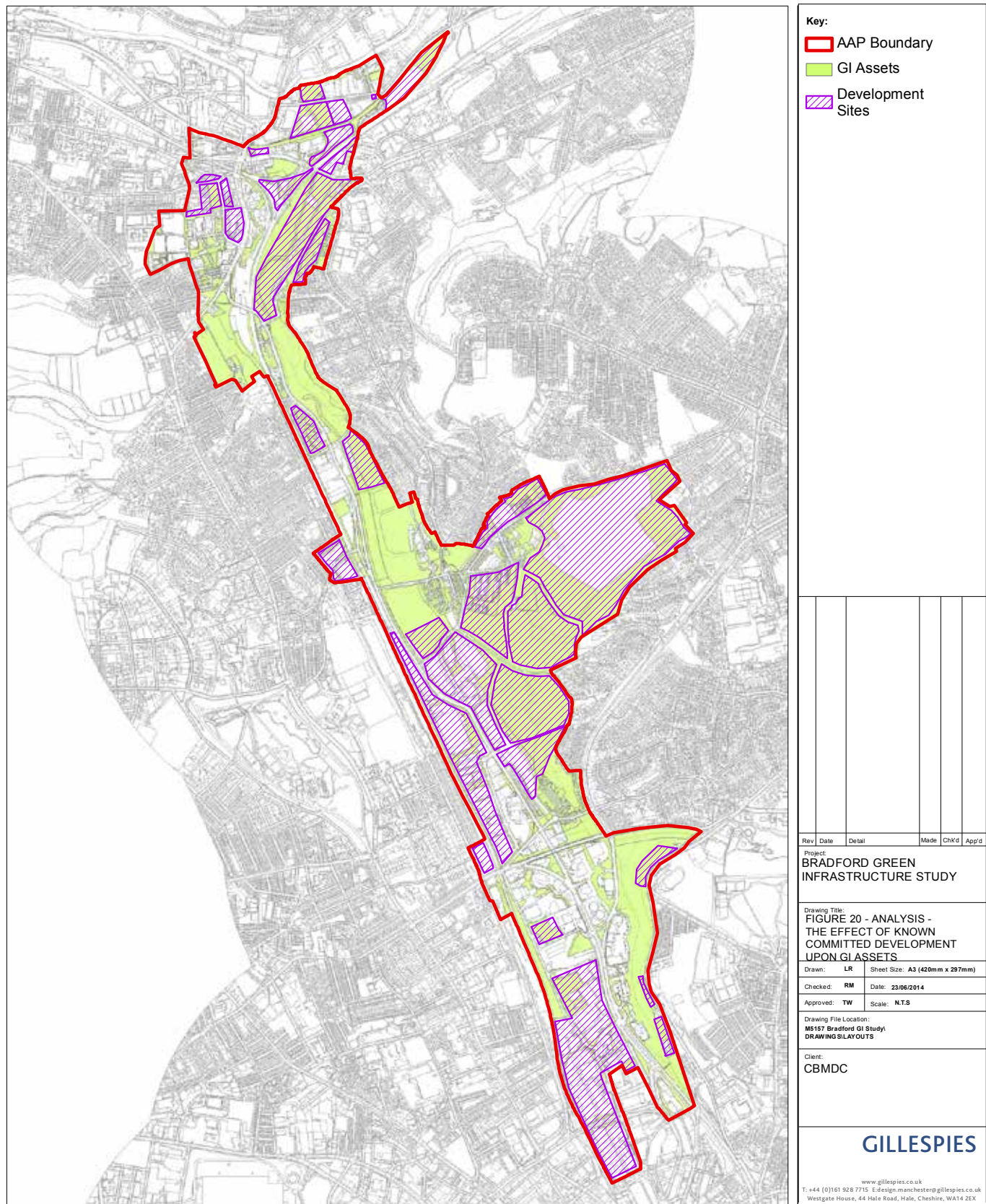


Figure 20 a - GI assets before known committed development

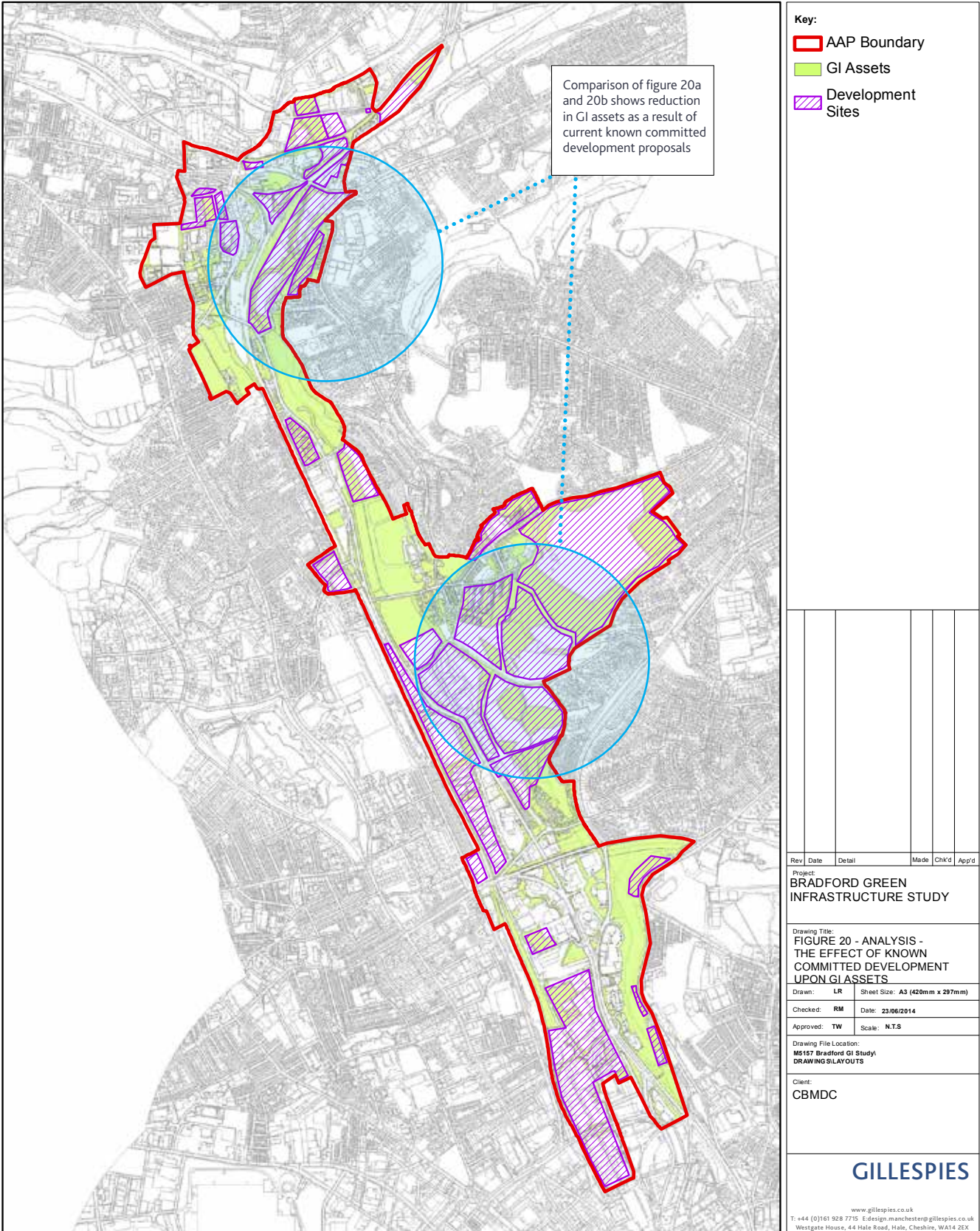


Figure 20 b - GI assets after known committed development

4.3.1 Urban Eco Village – Bolton Woods Masterplan

The full Bolton Woods masterplan has yet to have a planning application submitted (outline due late summer 2014). However the Masterplan has been approved as a material consideration and is included within the AAP. It includes provision for 1000-1500 residential units along with retail, community (including a new primary school) and business uses.

4.3.2 Shipley Exchange/Shipley East

100-150 residential units and a supermarket site located to the east of Shipley station and also incorporating the greenway and enhancements to the environs of the Bradford Beck. Planning permission has been granted.

4.3.3 Bolton Woods Quarry

This site envisages the creation of a new sustainable neighbourhood on the site of the current quarry. It envisages the creation of approximately 1000 homes and has the potential to create Green Infrastructure where there is currently none.

The AAP is clear in that development must incorporate Green Infrastructure and this can be seen in the current proposals for Bolton Woods Masterplan and Shipley Exchange (there are no outline plans as yet for the quarry site). A primary objective of this study is to link the Green Infrastructure from those developments to existing GI assets outside of their boundaries and maximise functions and benefits across the GI network, both within and outside of the SCRC area boundary. The Green Infrastructure envisaged to exist after development of Shipley Exchange and Bolton Woods masterplan have also therefore been mapped and are shown within figure 20. The reduction in GI assets can be seen which accounts for a reduction of approximately 17ha (13%). It is therefore essential that multi-functionality and quality is increased in order to maximise the potential of remaining GI assets.

Summary Points - Committed development on existing Green Infrastructure

- Significant development is planned for the corridor, a large proportion of which is residential. Current and new residents would benefit from a well planned and managed GI network
- A large area of planned 'recreational use' consisting of all weather pitch and open space is located at the playing fields to north Gaisby Lane to the centre of the corridor.
- The current Green Infrastructure assets will reduce by approximately 17ha(13%) to 111 ha after the known development has taken place. The extent of GI will only inevitably decrease further with future development. It is therefore essential that multi-functionality and quality is increased in order to maximise the potential of remaining GI assets.

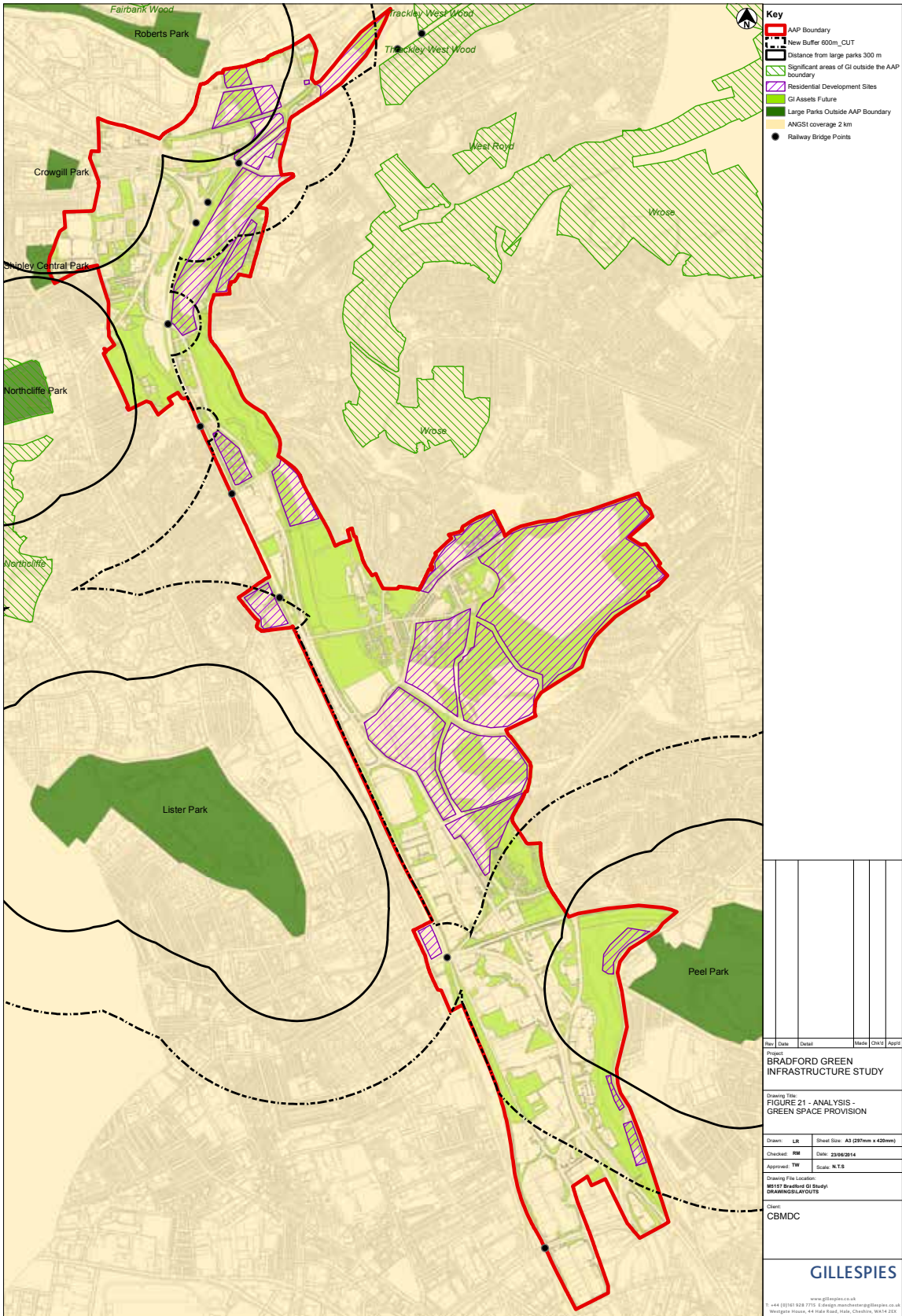


Figure 21 - Green space provision

4.4 Significant GI Assets outside of the SCRC boundary

As discussed within section 2.2.3 and 2.2.4, Natural England’s ANGst green space standards make recommendations as to the distances in which green space should be accessible by sustainable means, i.e. walking, cycling or public transport. Those standards recommend that there is good quality green space of at least 2 hectares in size, no more than 300 metres (5 minutes walk) from home and at least one accessible 20 hectare site within two kilometres of home.

Figure 21 shows the good quality formal large parks in the area (details of which were discussed within section 2.2.9). Buffers reflecting a 5 and 10 minute walk have been applied but taking into account the restrictions imposed by locations of bridges across the railway line. As can be seen, whilst much of the occupants of the corridor are able to access these large parks within 10 minutes, there is a significant proportion which cannot. This includes the large residential areas planned for the central section of the corridor, namely Bolton Woods Masterplan and Bolton Woods Quarry. Figure 21 therefore illustrates a large physical gap in formal green space provision.

In addition to the GI assets located within the corridor, the Figure also shows the large informal spaces outside of the corridor. There is significant potential to create links across the wider area in order to create a meaningful GI network for the benefit of both wildlife (habitat linking) and people (aesthetics, safe sustainable routes etc). This is discussed in the two following sections (sections 4.5 and 4.6).

Summary Points - Significant GI assets outside of the SCRC boundary

- Whilst the corridor is well covered in relation to access to informal, more natural green space, a large proportion of the corridor lacks easy access (10 minutes walking distance) to good quality formal public open space. This gap in provision coincides with the location of the Bolton Woods Masterplan and Bolton Woods Quarry development sites.
- There is potential to create and enhance a far reaching GI network utilising the GI assets both within and beyond the SCRC boundary.

4.5 Creating Links with existing GI assets – people

Figure 22 shows the locations of some of the important destinations within and just outside of the corridor boundary. These include; the three train stations, important bus stops, local schools, large parks and areas of informal greenspace outside of the corridor boundary. The figure also shows the key existing and proposed routes and linking features which have been set out within the AAP documentation, namely the Greenway, the Bradford Beck, the Dales Way Link, the railway line and Canal Road.

It can be seen that the corridor area is well connected along its north-south orientation. East-west links are less obvious but potential is there to enhance both via the use of Green Infrastructure.

Figure 22 also maps GI assets (to incorporate future known development). It is therefore possible to see where there is a correlation between existing GI assets located on or adjoining these routes but also where there are obvious gaps in the network.

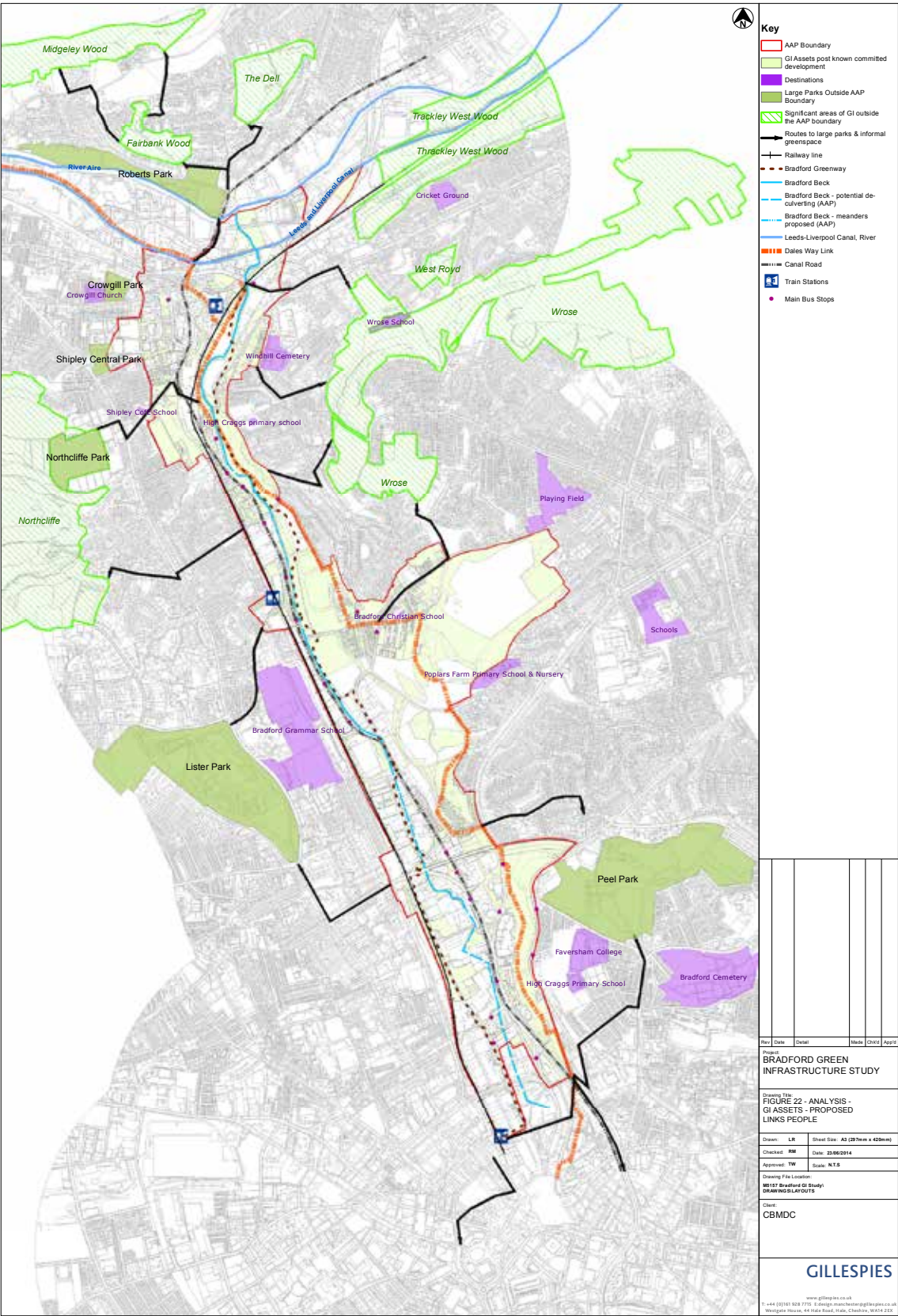


Figure 22 - GI Assets - Proposed Links People

Summary Points - Creating links with existing GI assets - People

- The corridor has strong existing north-south links and there is potential to create further strong east-west links to wider GI assets located outside of the boundary
- There are a significant amount of GI assets located along or adjoining these links which have the potential to enhance the routes (Benefits 1, 2, 3 and 4 - functions A, C, D, E, G, I, J, O, R, S)

4.6 Creating Links with existing GI assets - Ecological

Figure 23 shows the SCRC’s key ecological assets which were identified within section 2.2.5. In addition, the SCRC GI assets (taking into account future known development) has been mapped. It can again be seen that the potential to link these areas and provide a meaningful GI network are strong, particularly on a north-south orientation. However, there are also substantial habitat potential located outside of the corridor boundary to the north, east and west which the corridor’s GI network could link into. The Ecological Assessment for the Shipley and Canal Road Corridor and Bradford City Centre AAPs provides further detail on ecology concepts, enhancements and habitat networks.

As has been discussed within section 2.2.5, the Habitat Regulations will enable the creation and long term management and maintenance of informal greenspace within the northern section of the corridor to include Shipley Exchange and the Bolton Woods and Bolton Woods Quarry development sites.

Summary Points - Creating links with existing GI assets - Ecological.

- The corridor has a strong existing network of ecological assets which have the potential to be strengthened and linked with green/blue infrastructure
- There is potential to create new, well managed informal greenspace through the Habitat Regulations
- Reference is made to West Yorkshire Ecology’s report Ecological Assessment for the Shipley-Canal Road Corridor and Bradford City Centre Area Action Plans

4.7 Heritage and Green Infrastructure

As discussed in section 4.7 and illustrated within Figure 24, the SCRC contains a section of the setting of the Saltaire World Heritage Site and a number of conservation areas either within or directly adjoining the SCRC boundary. The quality of the Green Infrastructure located within or adjacent to these areas should reflect the status of their location. Those GI assets located along primary tourist routes to Saltaire should also seek to improve the aesthetic qualities of the route.

Summary Points - Heritage and Green Infrastructure

- Green Infrastructure located within the setting of the Saltaire World Heritage Site should reflect the high quality of its setting
- Routes to Saltaire WHS and through conservation areas should also seek to enhance the qualities of their settings.

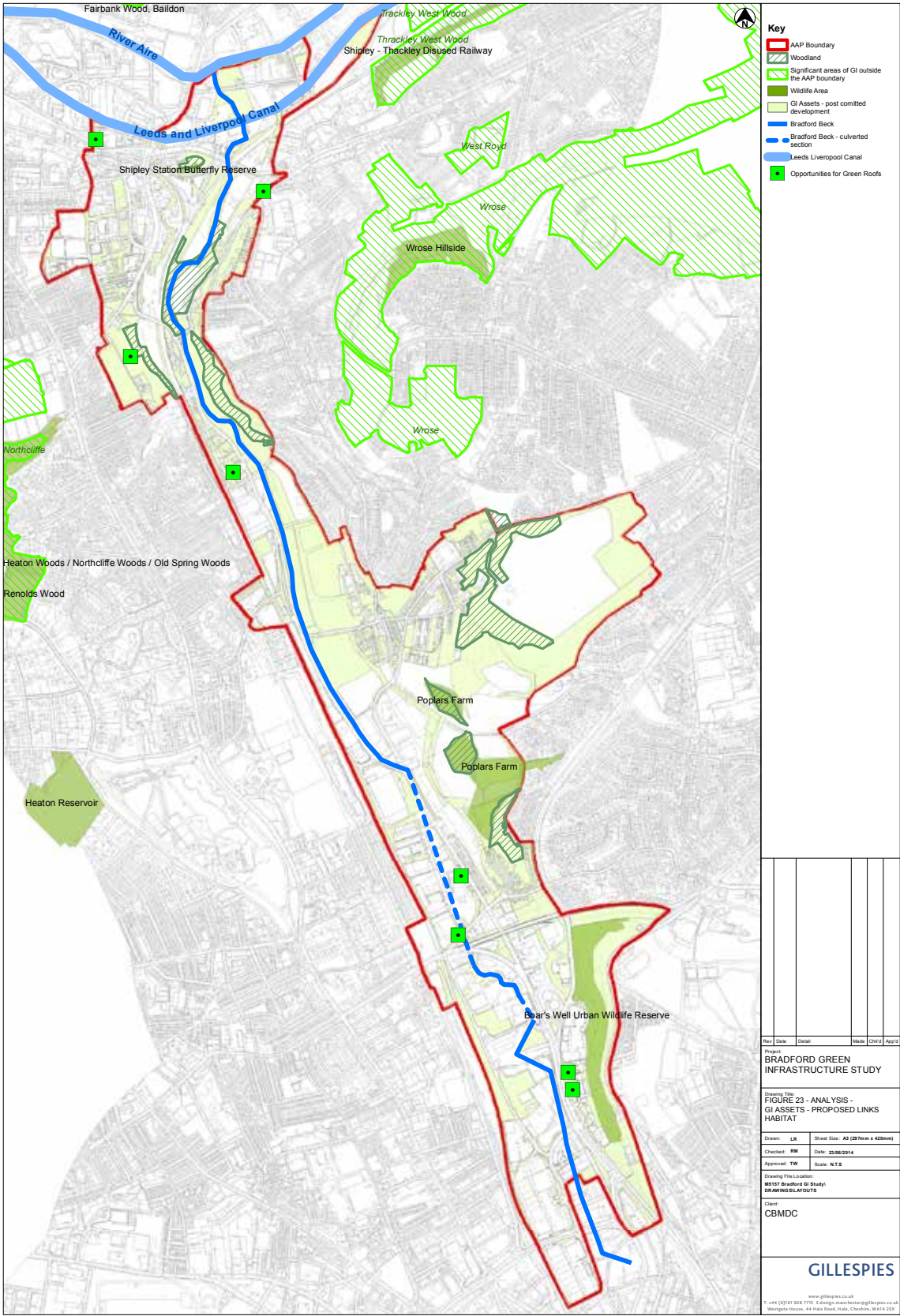


Figure 23 - GI Assets - Proposed Links - Habitat

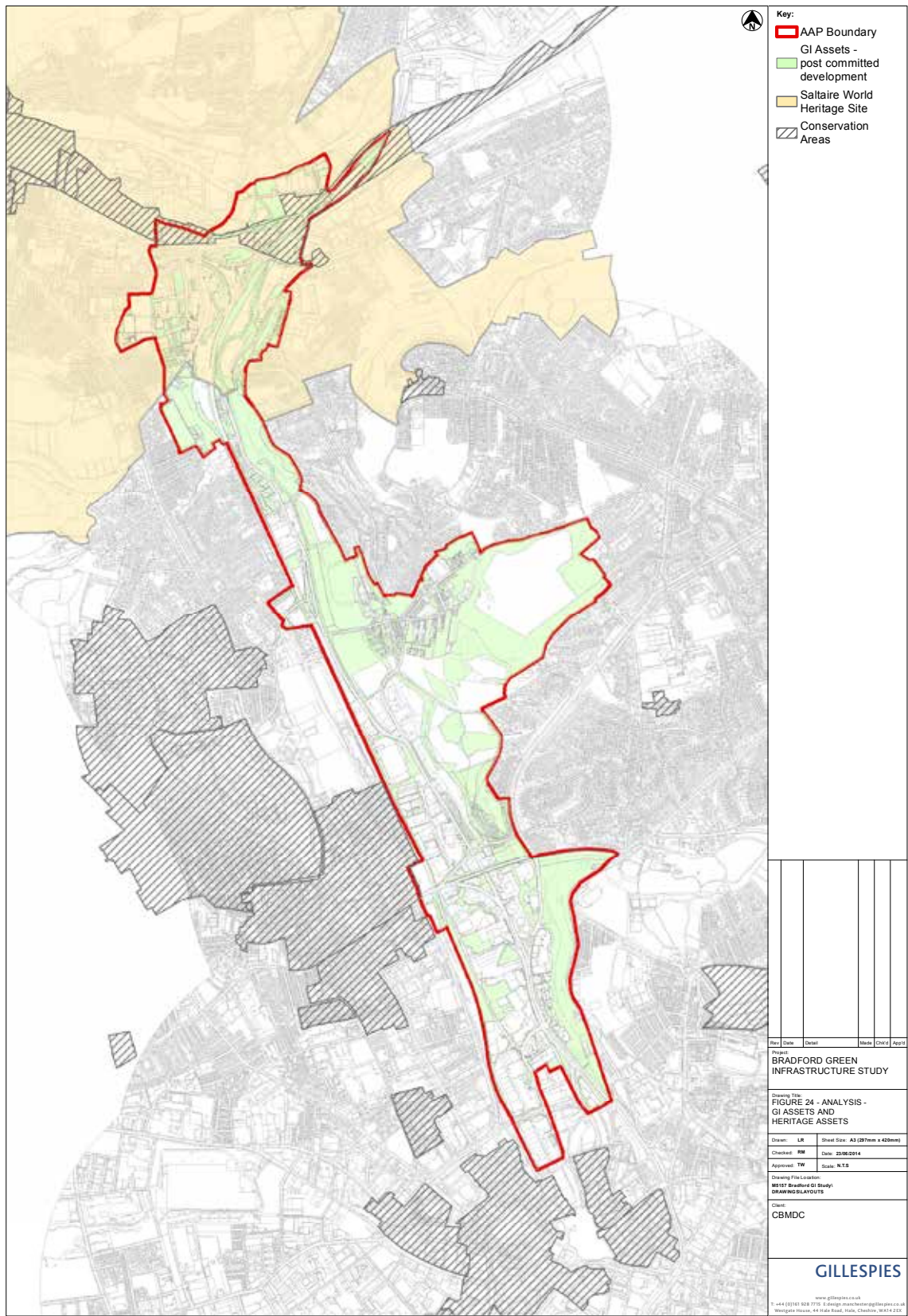


Figure 24 - GI Assets and Heritage Assets

4.8 Blue/Green Infrastructure

As discussed within section 4.8, the SCRC has a relatively significant amount of blue infrastructure both within its boundaries and being located within its immediate surroundings. These assets are illustrated on Figure 25 and include Bradford Beck, The Leeds-Liverpool Canal and the River Aire. The former Bradford Canal also once ran the length of the corridor before it was filled in in 1922.

The AAP Baseline Evidence Report (section 11.9) discusses in detail the flood issues which effect Bradford and the corridor. The SCRC is at risk of both fluvial flooding from the Bradford Beck (and Shipley from the River Aire) and also from pluvial flooding which is rainfall generated surface run off, sometimes worsened by water discharging from the sewer system.

Figure 25 illustrates the extent of Flood Zone 2 and 3 within the corridor and that there is current and proposed development lying within these zones. This is a complex issue and beyond the technical expertise of this report. Reference is again made to the AAP Baseline Evidence Report which discusses potential mitigation.

Green/Blue infrastructure can play an important role in alleviating flood events. SUDs schemes can attenuate run off but also can help improve the quality of the run off before it discharges into local rivers/groundwater. Measures such as green roofs, permeable paving, rainwater harvesting, swales, infiltration ponds, basins and wetlands are all measures which can help alleviate flood measures, but, if designed and managed correctly can also achieve a number of other functions and benefits such as making a place more aesthetically pleasing, increasing biodiversity or storing water for use in flood production. The number of SUDs schemes will increase as a result of the Flood and Water Management Act discussed in detail within section 2.2.6.

Green Infrastructure can help to mitigate and adapt to climate change. For instance when development is brought forward in areas which are vulnerable to flooding, such as the SCRC, risks can be managed through measures such as Green Infrastructure planning.

In the areas of highest flood risk space can be created for flooding though safeguarding areas of open space and Green Infrastructure. With regard to the best location for flood storage solutions, this subject requires technical knowledge and is therefore beyond the scope of this report. A separate Flood Risk Strategy and assessment is being produced to support the AAP in this regard. The GI assets which correspond with these areas have been highlighted within Figure 25.

De-culverting or naturalising the Bradford Beck is also an issue which has been put forward within current AAP strategic development studies in order to give the Bradford Beck room to flood and yet simultaneously provide a more natural river setting which can enhance the corridor and stimulate many functions and benefits. However, the foul and surface drainage systems are connected and therefore large amounts of untreated sewage currently discharge into the Bradford Beck during large storm events. This has obvious repercussions in terms of the Beck as a multi-functional GI asset.

To implement such a measure would require a great deal of investment and multi party co-operation. However, it can still remain an aspiration and 'Green Infrastructure and Flood Risk Strategic Approach' as contained within the AAP suggests locations in which the Beck is de-culverted and where meanders are introduced and it is these which are reflected in Figure 25. It also suggests areas where there is a particular emphasis on the use of SUDs and source control measures within development as a result of their location within high risk flood areas or as a need to reduce their impact on flooding elsewhere.

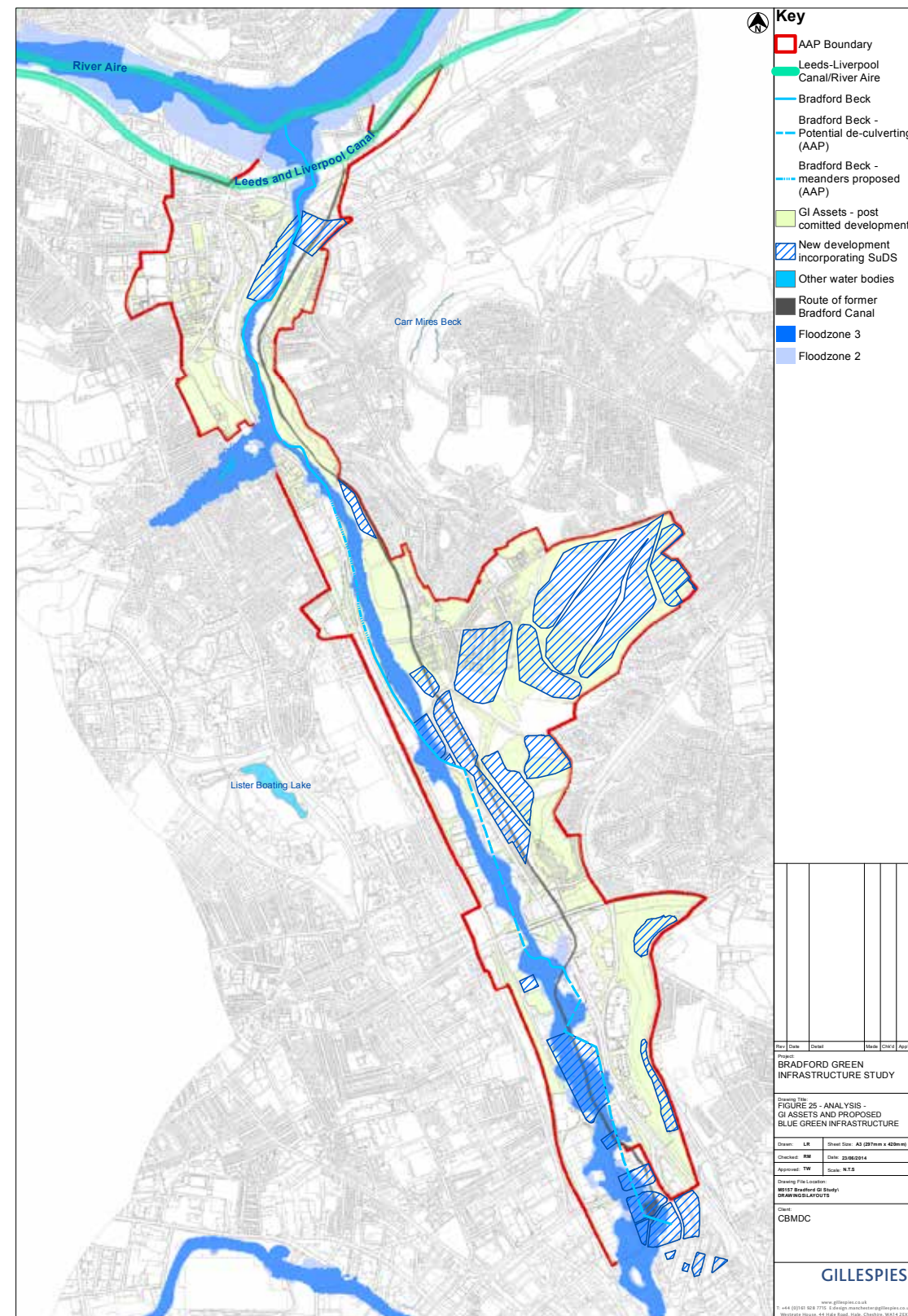


Figure 25 - GI Assets and proposed blue green infrastructure

These issues will be subject to further investigation within the next stage of the AAP. However, these areas are also highlighted on Figure 25.

This study will provide more general guidance and inspiration in relation to smaller impact but no less important measures which can enhance Blue/Green Infrastructure and increase multi-functionality and benefits.. This will be dealt with within section 7 of this report.

Summary Points - Blue / Green Infrastructure

- *Green/Blue infrastructure can form part of flood risk management systems by providing space for managing flooding. Measures such as green roofs, rainwater harvesting, swales, infiltration ponds, basins and wetlands are all measures which can help alleviate flood issues, and, if designed and managed correctly, can also achieve a number of other functions and benefits.*
- *The 'Green Infrastructure and Flood Risk Strategic Approach' as contained within the AAP suggests locations for flood alleviation measures including locations in which the Beck is de-culverted and where meanders are introduced in order to slow flows or give the beck room to flood. These have the potential to alleviate flooding problems downstream but, if designed well, could also create a multi-functional GI asset.*
- *Provision of SUDs schemes within new development will increase as a result of the Flood and Water Management Act (see section 2.2.6). If such schemes are planned strategically, they could further strengthen the corridors blue-green network.*

05

Summary

5.1 Summary of Key findings from Analysis

Key findings from the baseline and analysis sections are noted below and summarised in figures 26-29 which follow.

- Almost 50% of the SCRC is comprised of GI assets making this a very 'green/blue' corridor.
- Natural/semi Natural Greenspace accounts for almost 50% of those GI assets with a further 16% being Amenity Greenspace. There is no formal public open space.
- There are a large number of both formal and informal green spaces outside of the corridor boundary which the SCRC GI network has the potential to link into. This includes a number of regionally and sub-regionally important GI corridors as identified by Natural England.
- Functions with limited coverage across the SCRC are: SUDs, attractive places to secure inward investment, GI for recreation, for tourism, to increase land/property values and demand, GI to provide local food and energy production and GI to provide a local environmental resource for educational/skills development.
- The current Green Infrastructure assets will reduce as future development takes place. The implementation of the Bolton Woods Quarry Masterplan and Shipley Exchange sites alone would reduce the GI assets by 17ha (13%).
- Potential to increase multi-functionality (to 'high' and 'very high') across the corridor is great. (Approximately 83% of the GI assets have the potential to become high or very high in terms of multi-functionality)
- A large proportion of the corridor lacks easy access (10 minutes walking distance) to good quality formal public open space. This gap in provision coincides with the location of the Bolton Woods Masterplan and Bolton Woods Quarry development sites.
- The corridor has strong existing north-south links and there is potential to create further strong east-west links. All of these links could connect to wider GI assets located outside of the corridor boundary.
- Strategic Core Policy SC8 could enable high quality, multi-functional GI to be created within those development sites which fall within Zone Bii (7km of the SPA/SCA)
- There is a large amount (21 ha - 16%) of GI assets located within the Saltaire WHS setting and the Leeds-Liverpool Canal Conservation area.
- The SCRC has ambitions for the Bradford Beck highlighted within the AAP's 'Green Infrastructure and Flood Risk Strategic Approach' which could include de-culverting and naturalisation.
- The Flood and Water Management Act (FWMA) has the potential to incorporate significant SUDs schemes within new developments.

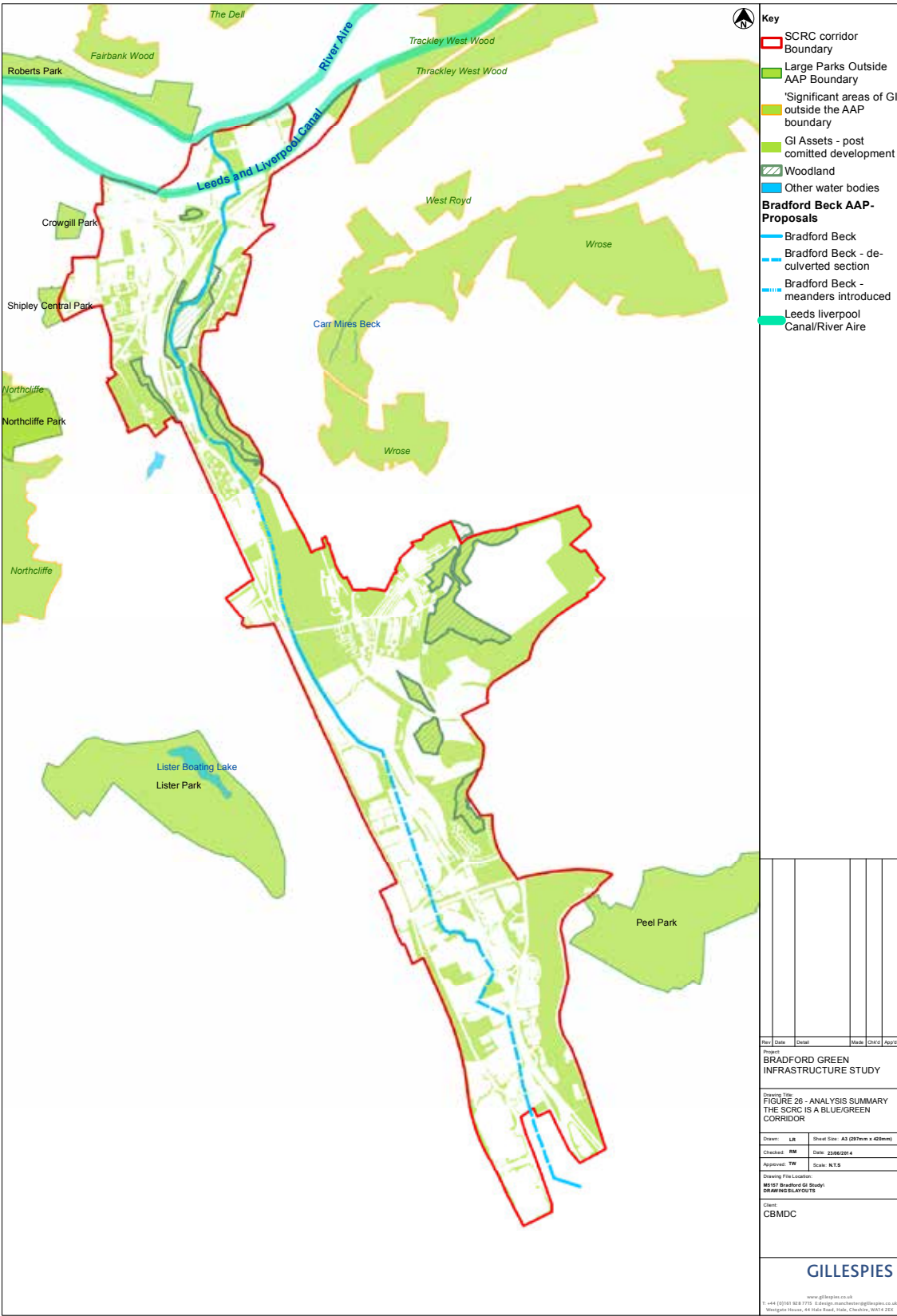


Figure 26 - Analysis Summary - A blue/green corridor

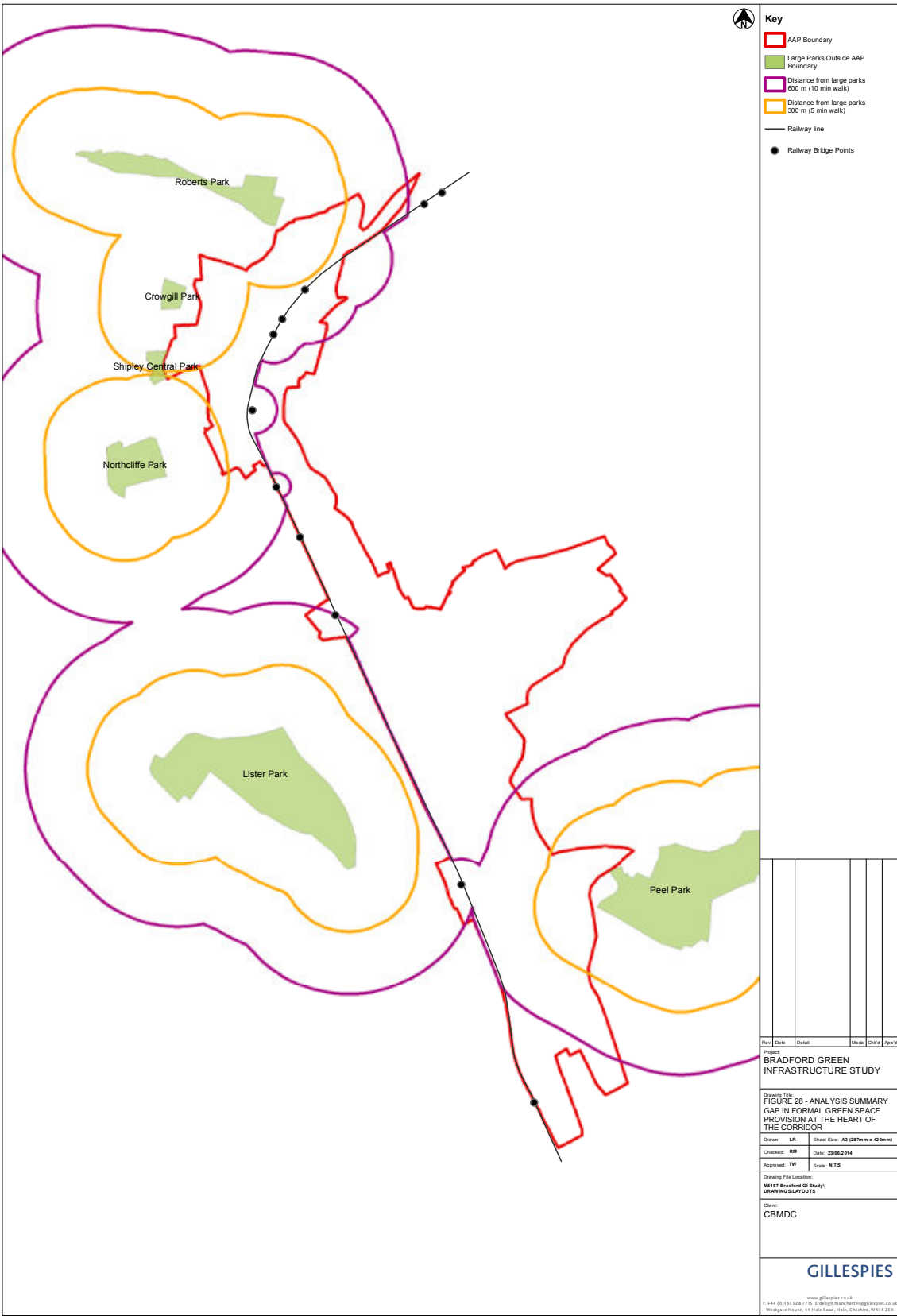


Figure 27 - Analysis Summary - Gap in walkable formal green space provision at the heart of the corridor



Figure 28 - Analysis Summary - Potential to increase multi-functionality is high



Figure 29 - Analysis Summary - Good existing and potential links

06

Towards a Framework

6.1 How do we get from the analysis to the concept plan?

Section 5 identified the key issues which can be identified as a result of the analysis. Those issues can be simplified by breaking them down into five themes. Those themes are identified below, setting out the potential that arises from each one for the creation of a high quality, multi-functional, far reaching GI network:

6.1.1 The SCRC is a blue/green corridor

The analysis has shown that the SCRC benefits from a large number of GI assets within its boundary (comprising almost 50% of its total area) along with a further large network of GI assets which lie outside of its boundary. Many of these assets currently or potentially provide good habitat. The corridor also contains sections of the Leeds-Liverpool Canal, the River Aire and the Bradford Beck, the latter of which the AAP has ambitions for improvements including de-culverting and naturalisation. There is also the potential for significant future SUDs within new development as part of the FWMA. The potential is there to create a large, extended network of high quality, multi-functional Blue/Green Infrastructure.

6.1.2 Lack of walkable formal green space at the heart of the corridor

Everyone should have quality green space within walking distance of their house. The SCRC has been shown to lack formal green space, particularly at its heart, leaving a gap in provision which will become more pronounced as large residential development takes place at the Bolton Woods Quarry and Bolton Woods Masterplan sites. An area of formal greenspace located at the heart of the corridor would address this deficiency but would also coincide with the area in which proposals exist to naturalise a section of the Bradford beck. This could add real character to such a public green space.

6.1.3 Potential to increase multi-functionality is high

The analysis has shown that the potential to increase multi-functionality is high. The majority of GI assets have the potential to be classified as either 'high' or 'very high'. Such an increase in the quality of Green Infrastructure would compensate for the inevitable loss of GI as a result of future development. Further Green Infrastructure could possibly be created through the planning process on development site locations. These could be enhanced by (a) short term temporary treatment to increase their GI functionality until they are developed and/or (b) enable and control the implementation of GI functionality through the preparation of GI frameworks for sites and subsequent implementation through the imposition of planning conditions. GI proposals for green/ blue infrastructure networks could be incorporated into development allocations for key sites.

Of the functions which are poorly represented within the corridor (SUDs, attractive places to secure inward investment, GI for recreation, for tourism, GI to increase land/property values and demand, GI to provide local food and energy production and to provide a local environmental resource for educational/ skills development), new Public Open Space could provide at least six of these functions.

Additionally, areas of non-GI could be given GI functionality. For example, areas of impermeable surfacing associated with the road network could have planters installed and/or tree planting incorporated into parking areas. Nectar-rich (and potentially lower maintenance) native wildflower meadow or 'pictorial meadow' planting could be introduced into roadside verges and 'rain gardens' introduced into civic spaces. Derelict land could be landscaped to provide multi-functional greenspace (either temporary or permanent) or its boundaries could be treated to reduce the element of 'blight' associated with derelict land. This would be particularly pertinent along key routes such as the Greenway and the Dales Way Link; providing green links where there are currently gaps. This theme has clear links with the ecological networks identified in the Ecology study.

6.1.4 Good Long Distance links

As has been shown by the analysis, the SCRC benefits from good north-south links, namely the Bradford-Shipley railway line, Canal Road, the existing Sustrans Route 66/Greenway and the Dales Way Link. The SCRC also directly connects into the footpaths of the River Aire and Leeds-Liverpool Canal.

The AAP is keen to strengthen the 'Greenway' and utilise Green Infrastructure by creating a linear park which accompanies the route. Green Infrastructure of varying scales has been identified which could accompany the route. However, due to its need to stay as flat and as functional as possible, the route does inevitably follow the route of the busy Canal Road. The Dales Way Link could provide a less direct but more peaceful and attractive long distance alternative with a more rural feel and yet still connect directly with the existing and proposed residential settlements. This would give the SCRC two strong pedestrian/cycle links, connecting new and existing communities with Shipley and the city centre.

6.1.5 Heritage setting

The analysis has shown that the north of the corridor is located within both the setting of the Saltaire World Heritage Site and the Leeds-Liverpool Canal Conservation Area. Green Infrastructure located within these areas should reflect the qualities of their setting. This has particular relevance for the redevelopment of Shipley and for key routes between Shipley and the WHS.

6.2 Green Infrastructure Framework Objectives

Objectives for the Green Infrastructure Framework are set out below under their key themes:

6.2.1 Ensure future development enhances GI in the SCRC

Implementation of development sites as identified by the AAP is essential to meet the objectives of the AAP for the growth and regeneration of the area. It will not therefore be possible to retain all of the exiting Green Infrastructure assets, therefore the aim of the study is to ensure that **key Green Infrastructure elements are identified, retained and form part of a strategically planned Green Infrastructure network as part of development proposals** and that, in order to mitigate the loss of some GI assets, new development in the corridor should deliver new and enhanced GI assets.

On key development sites the SCRC AAP should seek to outline any site specific requirements for multi-functional Green Infrastructure provision (e.g. requirements for street trees or small multi-functional green spaces) in new development on the specific sites. This should emphasise that Green Infrastructure should be considered as part of the development strategy for the site's design and should reflect and enhance the area's locally distinctive character and respond to the specific Green Infrastructure needs of the site.

Key development sites for enhancing the GI network in the SCRC include: New Bolton Woods (Bolton Woods Masterplan), Bolton Woods Quarry and land at Shipley East (Shipley Exchange). For those key development sites;

- The AAP document should include general requirements for GI be included within AAP site proposals
- Developers should be required to produce site specific Green Infrastructure Strategies to support planning applications for key sites within the SCRC AAP
- CMDC should produce site specific GI Frameworks/requirements for key sites within the SCRC AAP which reference the Strategic Framework.

Within new development, the council should actively **encourage SuDS** to help reduce the need for additional grey infrastructure and the pressure on existing water management infrastructure. Sustainable Urban Drainage schemes such as permeable surfacing, swales, balancing ponds and green roofs which retain surface water on site should be considered by developers and prioritised within all new developments.

The Flood and Water Management Act (FWMA) is awaiting approval but will seek to establish SUDs Approving Body (SAB) to be set up within lead local flood authorities (LLFAs) and Bradford is leading a SAB group for LLFAs in Yorkshire. The Act will require SAB approval of all new drainage systems for new and redeveloped large sites and highways and that the proposed drainage system meets new National Standards for Sustainable Drainage. This offers opportunities to increase Blue-Green Infrastructure across the AAP and to control the quality of these schemes through the Planning process. It will enable SUDs schemes to be implemented on a strategic level ensuring that they form part of the wider green-blue GI network.

The council can also work with developers / landowners to undertake **temporary low cost treatments to derelict sites**. This could yield either short term economic benefits for the site owner or be low cost

treatments to alleviate the 'blight' caused by derelict / unkempt land and provide GI multi-functionality. Examples of where this has been successfully implemented are discussed in the 'Key GI Interventions' section (Section 7).

6.2.2 Protect existing Green Infrastructure assets in the AAP area

Key Green Infrastructure assets can be protected through planning policy and effective maintenance and long-term management. Whilst it is recognised that some GI assets will be lost through proposed development in the SCRC it will be important that key GI assets are retained to support the creation of sustainable communities.

This study provides evidence to support the AAP in planning for GI in the SCRC. Whilst this study does not examine detailed costs / financial benefits of Green Infrastructure, section 2.4 demonstrates that costs of Green Infrastructure assets can be justified due to the economic, social and environmental benefits that these assets deliver to the SCRC.

If budgets are constrained, then maintenance priority should be directed towards those Green Infrastructure assets with high levels of multi-functionality – in the case of the SCRC these typologies are semi-natural greenspace, civic spaces and street trees.

Potentially managing sites for Green Infrastructure benefit can be more cost effective than a high intensity mowing regime.

Planning applications received for sites which contain key areas of Green Infrastructure should look to retain key Green Infrastructure assets within the development proposals as is discussed above.

6.2.3 Enhance existing Green Infrastructure assets in the AAP area

Priority for enhancement should be directed towards projects which deliver most benefit (in terms of stimulating growth and investment, climate change resilience and adaption, improving health and improving biodiversity) balanced with potential feasibility (technical and financial) and potential available funding.

These priority spaces / projects are detailed in the project sheets which follow in section 7.

6.2.4 Create new Green Infrastructure assets within the AAP area

The analysis has shown that even though the Corridor is relatively green/blue, there are gaps in certain types of GI, including formal green space. There is potential within the SCRC to create new high quality GI assets to mitigate any losses and fill identified gaps. This will be enabled primarily through GI being implemented as part of further growth e.g. through future development and infrastructure schemes.

6.2.5 Link existing and new Green Infrastructure assets to create a GI network

Rather than deliver Green Infrastructure projects in isolation, schemes need to be linked to create maximum benefit. For example, a number of schemes to enhance greenspace should be focused along the routes of the Greenway, the Dales Way Forest Park, the Habitat Highways and routes for suggested improved pedestrian and cycle links as identified within section 7. These would improve the walking/ cycling experience for users.

6.2.6 Enhance links to Green Infrastructure assets outside the SCRC boundary

Enhance the links to Green Infrastructure outside of the SCRC boundary as identified in section 4.4 to 4.6. There are significant high quality GI assets located outside the AAP boundary which are accessible for communities within the SCRC. Enhancing links to these assets will improve access for new and existing communities to high quality GI assets outside the AAP boundary.

Case Study : An example of a Green Infrastructure Framework for a development site

The Harrogate Borough Council 'Green Infrastructure SPD' 2014 provides case studies to help demonstrate how the council expects applicants to consider Green Infrastructure within the design process. The case studies show how different types and scales of development can improve and create good quality Green Infrastructure. All of the case studies are identified as draft allocations within the emerging Harrogate District Sites and Policies DPD.

An example for a brownfield housing allocation site is the Bolton Woods and Bolton Woods Quarry Masterplan sites shown in Figure 5.

07

The GI Framework

7.1 The Concept Plan

Figure 30 presents the concept plan for the SCRC. The objective is to draw together all of the key points and issues set out within 6.1.1 to 6.1.5 above and illustrate how these can be turned into a Green Infrastructure Strategy for the corridor.

The concept plan can be broken down into five key project interventions:

- 1 The Eco-Settlement Park
- 2 The Dales Way Link Park
- 3 The Greenway
- 4 Habitat Highways
- 5 Pedestrian/Cycle Links

These are discussed in detail over the following pages:

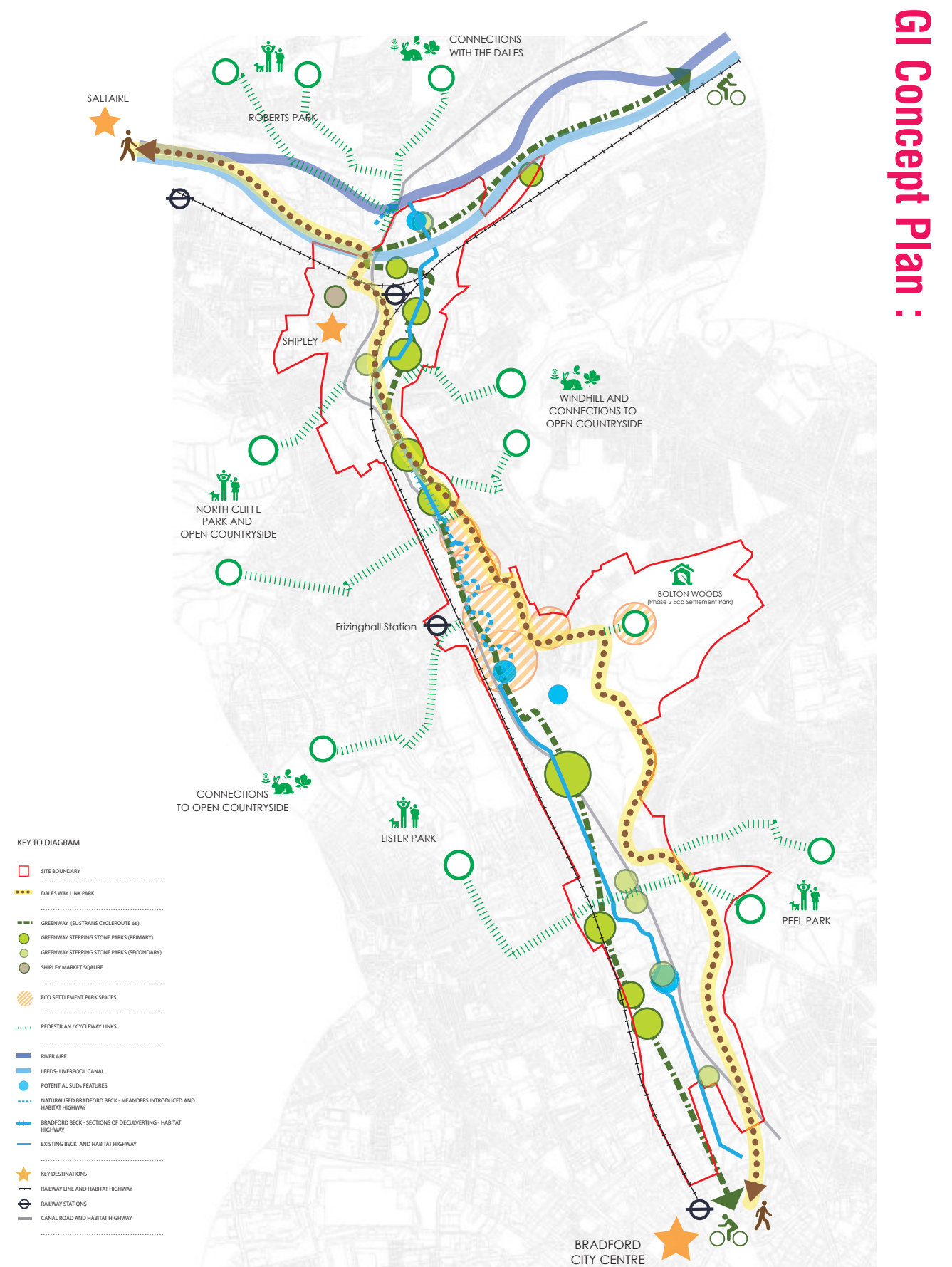


Figure 30 - SCRC Concept plan

PROJECT 1

The Eco-Settlement Park

7.1.1 The Eco-Settlement Park

The Eco-Settlement park is comprised of a collection of formal green spaces at the heart of the corridor. It could provide a high degree of multi-functionality with space for sport, informal recreation, space for wildlife and an educational resource, to name just some uses.

Its situation coincides with the location of where proposals exist to naturalise the Bradford Beck which would give the Eco-Settlement Park real character and sense of place. The park would also benefit from being at the convergence of a number of routes and connections, namely Sustrans route 66/The Greenway, the Dales Way Link, Canal Road and Frizinghall train station.

Such excellent connectivity has the potential to stimulate not only the use of the park but also the routes which converge there, creating a self perpetuating network which could have real positive impacts on the regeneration of the corridor.

The park would be high quality, iconic and embody the qualities and principles of the nearby eco-settlement. It carefully balances the functions of ecology and recreation.

Phase two would see the creation of an additional Eco-Settlement park established within the proposed Bolton Woods Quarry development, creating Green Infrastructure where there is currently none and strengthening the network of routes and green spaces further.

This would be a park formed by a series of connected spaces located throughout the development, providing facilities and amenities which modern, sustainable living desires such as access to space for recreation, tranquility, sport and social interaction; access to nature and space for food production, play and education.

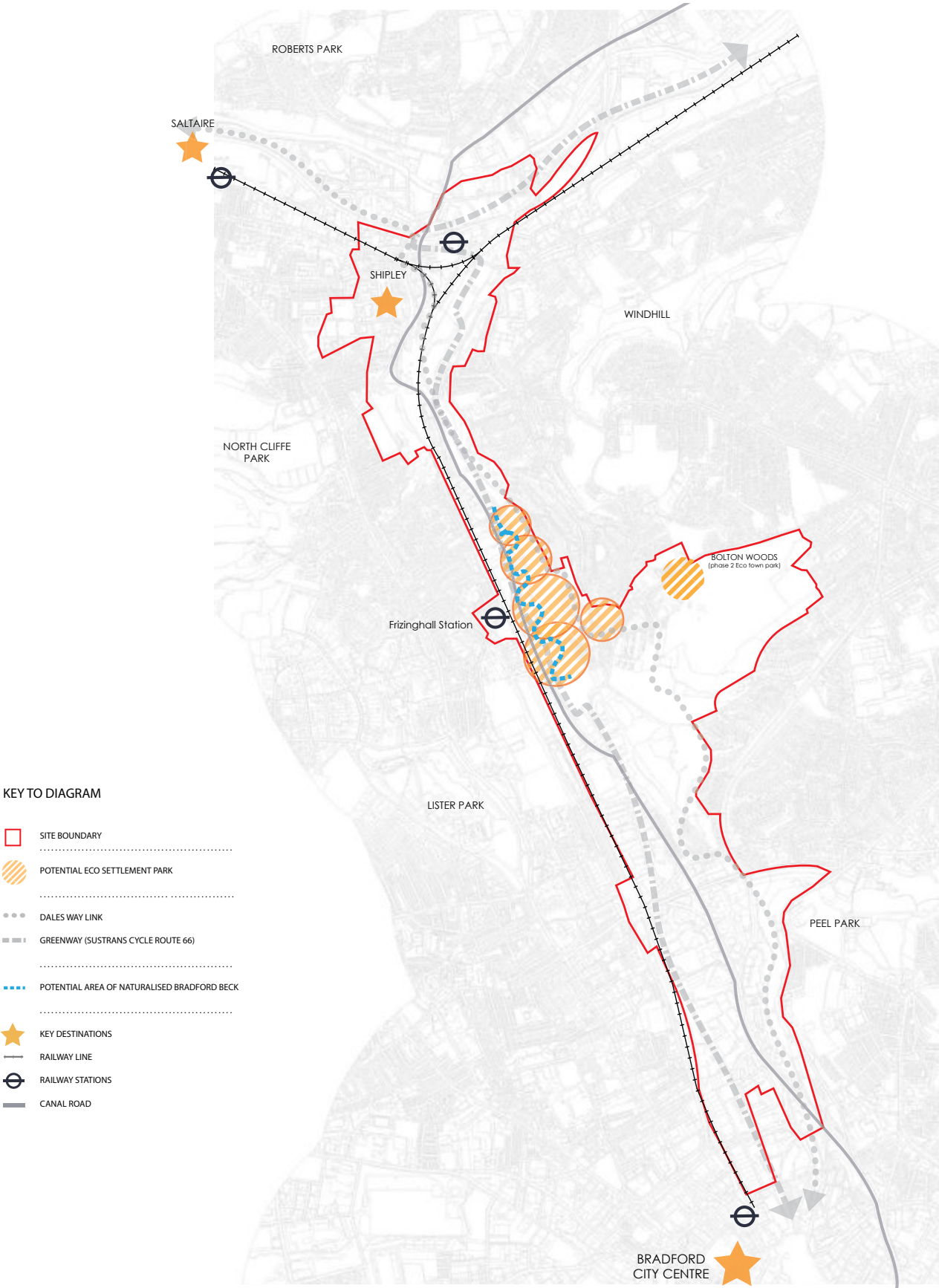


Figure 31 - The Eco-Settlement Park Concept Plan

PROJECT

1

The Eco-Settlement Park (Phase 1)

The location of the Eco-Settlement park would take advantage of the collection of existing green infrastructure assets located broadly to the west of Bolton Woods Quarry. These GI assets are currently comprised of playing fields, disused allotments, amenity grassland and woodland, all located along the route of the canalised Bradford Beck. Current multi-functionality in these areas is generally medium. The creation of a park, with well managed enhancements, could increase this multifunctionality to 'very high' and create a distinctive and iconic park, supporting the regeneration of the area.

GI Framework Objectives

- Create new GI assets within the AAP area
- Enhance existing GI assets in the AAP area
- Link existing and new GI assets to create a network

What are the benefits?

- Supporting Growth and stimulating investment
- Climate change adaption and resilience
- Improving health
- Improving Biodiversity

Feasibility

- Cost: High / Medium
- Permissions: Planning / Landowner / EA
- Potential funding: Council/European/Grant funding
- Maintenance costs: High / Medium

Delivery timescale:

- (short 0-5 years, medium 5-10 years, long 10-15 years)
- Medium/Long

Key projects/sites include:

- Ecology Study concept 'the otters domain'
- Re-naturalisation of Bradford Beck demonstration project
- New Bolton Woods

Potential delivery partners

- CBMDC
- EA
- Aire Rivers Trust / Friends of Bradford Beck
- Local Community Groups
- Canal Road Urban Village JVC:

Case Studies :

Sheffield Manor-Fields Park

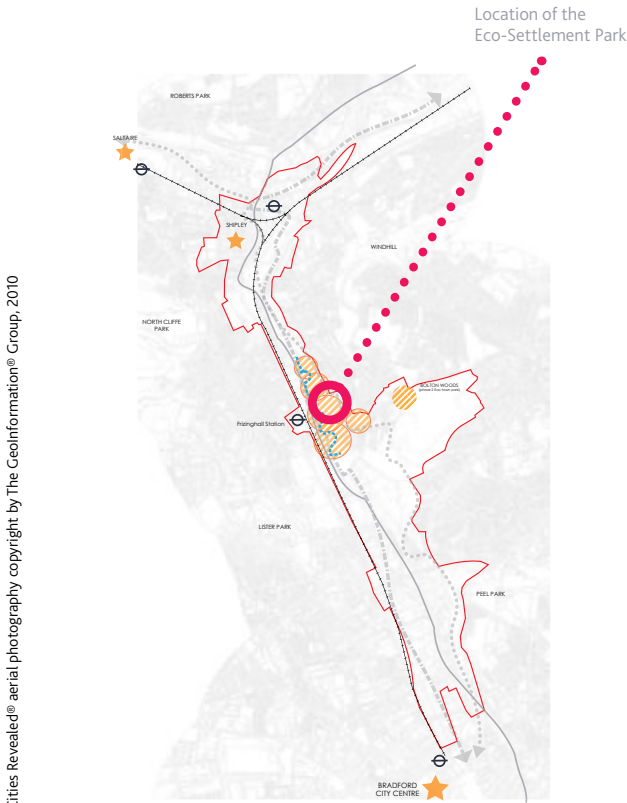
Sheffield Manor-Fields Park is both a district park and now a Site of Interest for Nature Conservation. The park covers 17 ha and is key to the regeneration of the area.

Developed incrementally, the park has shown that the capital investment required is not too costly and that the benefits are recouped through the multi-functional benefits it provides. Natural vegetation was retained and new management practices have encouraged wild habitats within a structured park setting. The result is a beautiful asset which brings countryside to the heart of the city and seen significant regeneration of the area. The park incorporates playgrounds, streams and ponds, event arenas, a climbing wall, wildlife, colourful planting schemes, 4km of accessible footpaths and SUDs as water features.

This case study demonstrates that a park at the heart of the corridor could deliver multiple benefits, that habitat and recreation can sit side by side and be key to the corridor's regeneration. It also shows that such a space can be delivered over time, allowing costs of implementation to be spread out.



The Eco-Settlement Park - a collection of green spaces Located at the heart of the SCRC Corridor forming an iconic park of the future



River Quaggy

Flood alleviation plans to canalise further sections of the river Quaggy near Lewisham were opposed by the local community. Instead, the river was naturalised in key sections in order to restore its flood plain at Sutcliffe Park, thus creating a well used community asset and reducing flooding issue down stream. Restoration of the river included releasing the river from its canalised river channel and restoring its meanders which allows the river to flood onto its original flood plain (now Sutcliffe Park) in times of heavy rainfall. This reduced flood events down stream but simultaneously has created an attractive park where the river is a key feature. The river is now part of a landscaped park with educational facilities and places for every member of the family.

This case studies is a good example of how naturalisation of the Bradford Beck could form a key element of a new Eco Settlement Park, giving the park a strong identity whilst simultaneously providing a multi-functional resource for new and existing communities whilst simultaneously providing a cost effective flood alleviation measure.



PROJECT 1

The Eco-Settlement Park (Phase 2)

Phase 2 of the Eco-Settlement Park is located within the heart of the Bolton Woods/Bolton Woods Quarry development proposals, creating new green infrastructure assets where there are currently none, embracing SUDs as a feature within the heart of the park and reflecting the identity and needs of the surrounding residents, incorporating uses such as play, recreation, education and food production. The creation of such a multi-functional GI asset would help to counteract the loss of GI assets to development elsewhere.

- What are the benefits?
- Supporting Growth and stimulating investment

Climate change adaption and resilience

Improving health

Improving biodiversity
- GI Framework Objectives
- Create new GI assets within the AAP area

Link existing and new GI assets to create a network
- Feasibility
- Cost: medium/low

Permissions: Planning / Landowner

Potential funding: Funded by developer S106

Maintenance costs: Maintained by developer/residents

Delivery timescale:

(short 0-5 years, medium 5-10 years, long 10-15 years)

Long

Key projects/sites include:

One site or series of connected green/blue spaces through the Bolton Woods Quarry development. Could include play spaces, SUDs, allotments, open space and orchards. Links to the Ecology Study concept of 'Urban Oases'

Potential delivery partners

Landowner/CBMDC

Case Studies :

Norfolk Park Green Homes, Sheffield

The scheme involved the creation of 47 residential units on a brownfield site in South Sheffield. The scheme was created in partnership between Sheffield City Council and the Environment Trust. The site focused on genuinely sustainable and affordable homes set within a landscape design which includes SUDs and public open green space. The scheme won a Building for Life award in 2009.

This example shows how GI assets can become an important part of new developments and that affordable housing can still incorporate meaningful and multi-functional green space.



The Eco-Settlement Park, Phase 2 a series of spaces located across the of the Bolton Woods Quarry development, connecting to GI assets across the development and wider network



North West Bicester Ecotown

North West Bicester is one of four towns given 'Ecotown' status by the government in 2008. Planning approval for the first phase was received in 2012 which will see the creation of 6000 new homes. The first residents are due to move in in 2015.

40% of the scheme is comprised of open green space in accordance with 'Ecotown PPS' principles. Existing hedgerows and river corridors have been included and enhanced within the scheme, providing a network of green and blue spaces with the aim of providing a net gain in biodiversity. Each house built will have its own fruit tree and every garage will have a green roof. Allotments are provided within the masterplan and their use will be actively encouraged. Childrens play areas are designed around the natural landscape and public open space is incorporated through the development.



This example shows how new high quality GI can be delivered through significant new residential development. The scheme shows how the Eco-Settlement park (Phase 2) could be multi-functional and connected to the wider GI network rather than an isolated green space within a development.

PROJECT 2

The Dales Way Link Park

7.1.2 The Dales Way Link Park

A series of informal green spaces accompanying the Dales Way Link which provides a more tranquil alternative to the ‘The Greenway’.

The emphasis is on a habitat corridor which gives the route a more ‘rural feel’. Whilst the route acts as a habitat corridor, the interconnecting spaces also reflect the identity and requirements of nearby residents. Spaces therefore have functions such as natural play, educational resource, food production, wildlife reserve or temporary pop up spaces located on development sites.

The user is led through interconnecting green spaces such as Boars Well Urban Wildlife reserve, northwards through Poplars Farm Wildlife Area, through the Bolton Woods Quarry site (see Eco-Settlement Park Phase 2), northwards again where it accompanies the naturalised Bradford Beck, passing through the Eco-Settlement Park and following the beck northwards until it connects with the footpaths of the Leeds- Liverpool Canal and the River Aire.

The scheme would include well surfaced paths with good signage. Markers and maps located along the route would improve legibility and encourage use. Seats would be provided at key vantage points and tree planting used to screen less attractive views in order to improve the user experience and enhance the route.

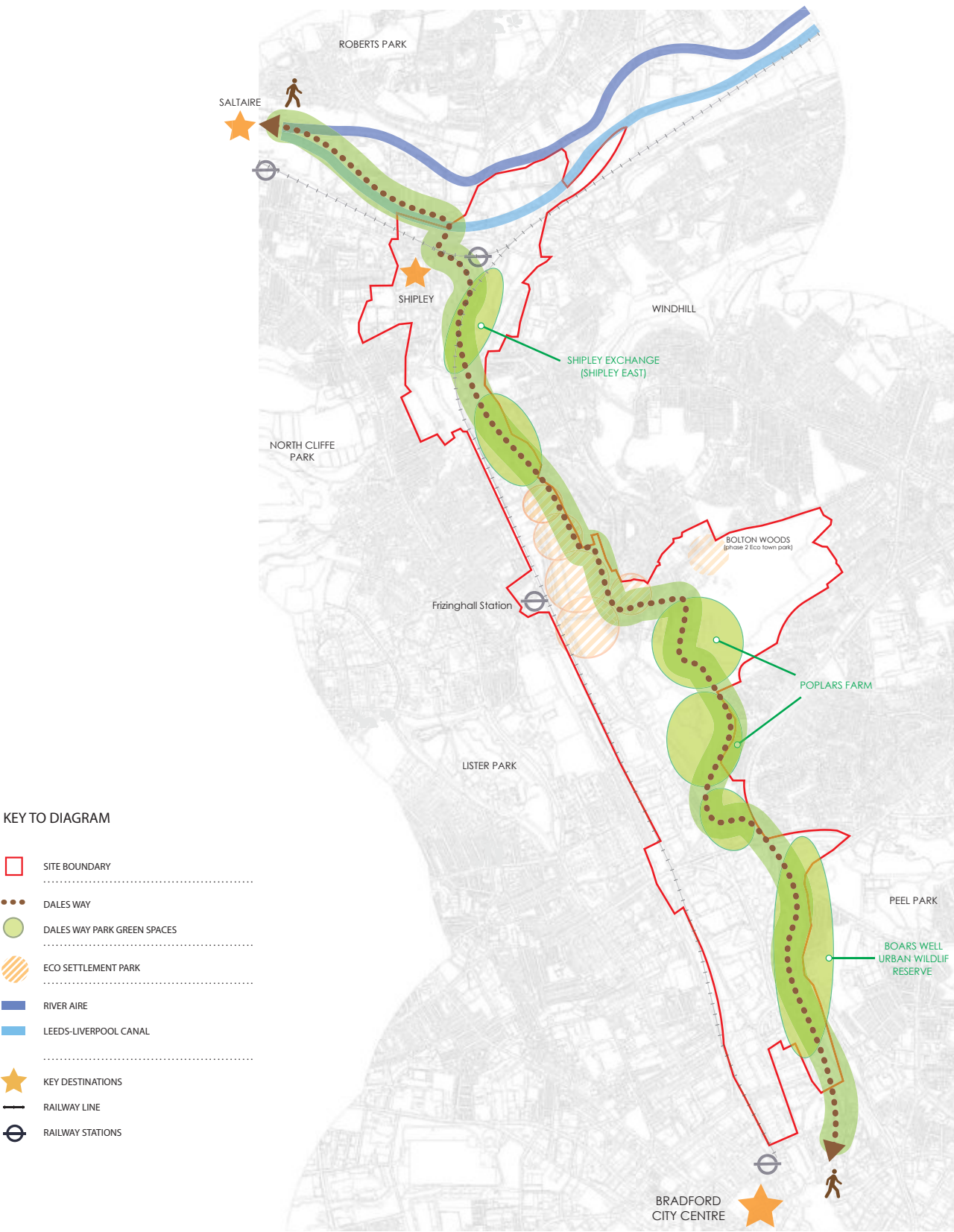


Figure 32 - The Dales Way Link Park

PROJECT 2 The Dales Way Link Park

The route connects a number of existing large green infrastructure assets such as Boars Well Urban Nature Reserve, Poplars Farm Wildlife Area and the large areas of recreational and semi-natural green spaces which accompany the Bradford Beck and Canal Road to the north of the corridor. The route varies from grass track to busy road and is frequently unmarked. Improvements could therefore be made to access and signage in addition to improving the quality of the GI assets which accompnry the route. Where there are gaps in GI such as where the route follows roads to the north of the corridor, simple measures such as street trees and planters could continue to promote and strengthen the route and GI network and strengthen its link with assets located outside of the AAP boundary.

GI Framework Objectives

- Protect existing GI assets in the AAP area
- Enhance exisiting GI assets in the AAP area
- Create new GI assets within the AAP area
- Link existing and new GI assets to create a network
- Enhance links to GI assets outside the SCRC boundary

What are the benefits?

- Supporting Growth and stimulating investment,
- Climate change adaption and resilience
- Improving health
- Improving Biodiversity

Feasibility

- Cost: Medium
- Permissions: Planning / Landowner
- Potential funding: Council/European/Grant funding
- Maintenance costs: Medium / Low

Delivery timescale:

(short 0-5 years, medium 5-10 years, long 10-15 years)

Medium/Long

Key projects/sites include:

- Links to Ecology Study concept 'The Green Lungs of Bradford'
- Bolton Woods Masterplan and Bolton Woods Quarry development sites, Re-naturalisation of Bradford Beck demonstration project

Potential delivery partners

- CBMDC, EA, BEES, Aire Rivers Trust, developers
- Local Community / Walking / Wildlife groups
- Canal Road Urban Village JVC
- Groundwork / BTCV

Case Study :

Wyke Beck Valley, Leeds



The park as playground



Close community involvement in creation and management

An example of a section of route to the north:
A wooded oasis to the east of Varley Road



An example of a sefction of the route to the south
Boars Well Urban Wildlife Reserve



Cities Revealed® aerial photography copyright by The GeoInformation® Group, 2010

The Wyke Beck Valley is the largest city owned green valley in Leeds. It runs for 5 miles between Roundhay Park in the North and Rothwell Country park to the south. The Wyke Beck Valley Pride Project ran from 2010 to 2013. The £500k project was funded by Natural England through the lottery Changing Spaces programme, Leeds City Council and Green Leeds and was run as a partnership between the community groups, Leeds City Council, BTCV, Groundwork Leeds, Leeds Voice and Leeds Ahead. The Valley is now being managed by the Councils Parks and Countryside department in close collaboration with the Wyke Beck Friends Association and has a 10 year management plan.

The interconnected greenspaces include five newly designated Local Nature Reserves, a network of paths and cycleways including the newly created Sustrans Wyke Beck Valley Way and a new bridge across the Leeds Liverpool canal and River Aire which links the scheme with the Trans Pennine Trail. The Wyke Beck has been improved as part of a river restoration flood alleviation programme and the valley has become a popular resource for the area.

The scheme shows how, through partnership working, interconnected green spaces can take on an identity and attract funding in order to achieve real improvements.

WYKEBECK VALLEY



Increased biodiversity



Bug-hunt. Local Nature Reserves as educational resource

PROJECT 3

The Greenway :

7.1.3 The Greenway

The GI strategy builds upon the AAP vision for the Greenway. The aim is for it to become a green route, utilising existing GI assets to keep the route off main roads where at all possible.

Stepping Stone Pocket Parks

Where larger GI assets exist, these become a series of 'stepping stone' pocket parks which accompany the route, providing a place to stop and rest, the main site being that of the 'Eco-settlement Park'.

Where the stepping stone parks coincide with SUDs and sections of de-culverted Bradford Beck, that 'blue' feature becomes an asset which defines that space.

The pocket parks require small environmental improvements in order to make them more useful to the local community and give them greater multi-functionality in GI terms. These improvements could be achieved with the support of local businesses and communities in order to support both their design and maintenance and give an identity relevant to the locality.

Secondary pocket parks located adjacent to rather than on the route of the Greenway serve to extend its influence to the wider area and improve connections to it.

Connecting the Pocket Parks

Where there are no GI assets, the route is 'greened' via the use of street trees, planters, 'green' hoarding and boundary treatments.

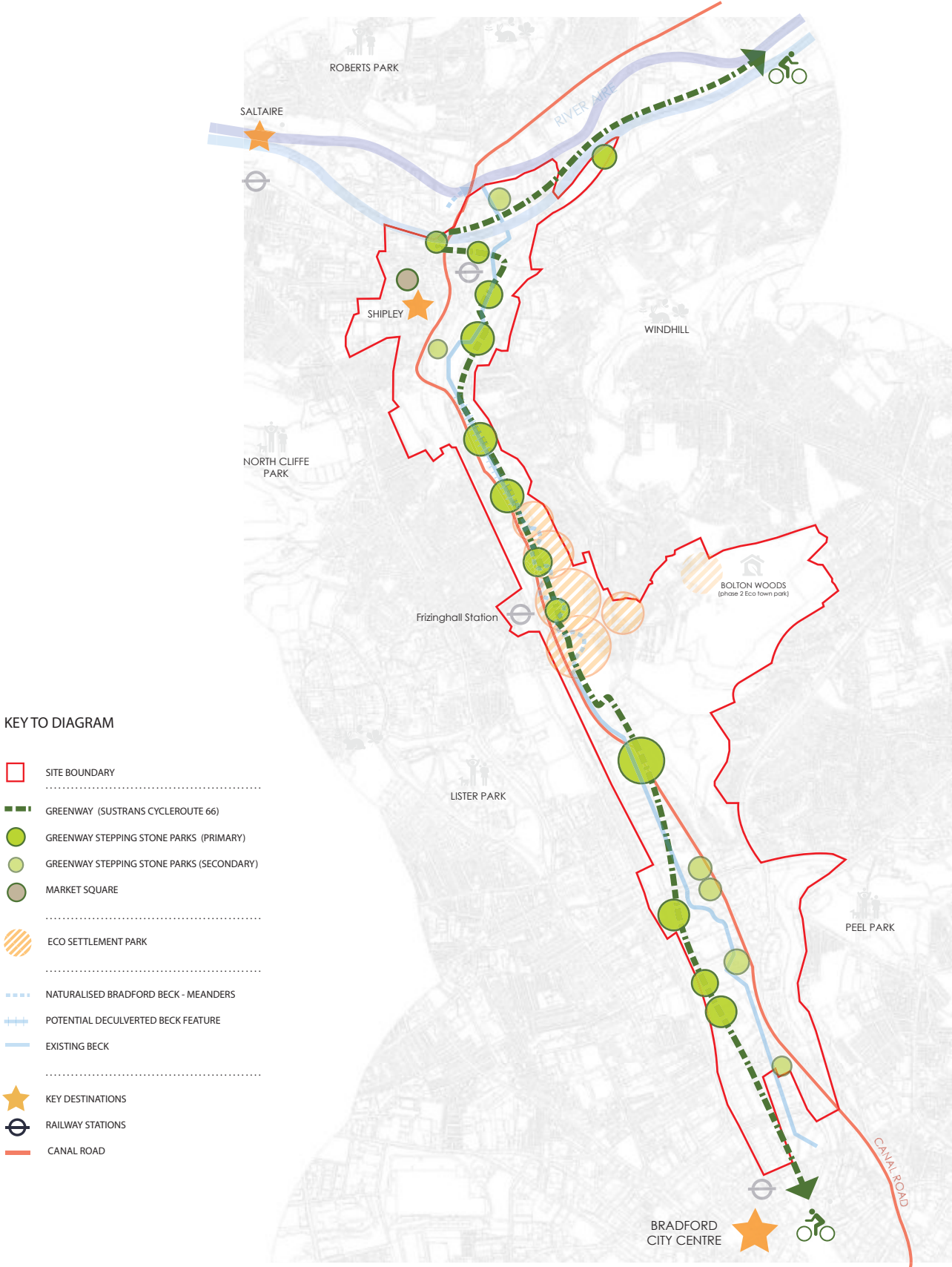


Figure 33 - The Greenway

PROJECT 3 THE GREENWAY
Stepping Stone Parks

Whilst the route currently utilises off road ‘green routes’ where at all possible, there are gaps in provision to the very north and to the south of the route where users are forced onto the road network. The aim is therefore to utilise existing large, linear GI assets to keep the route off main roads where at all possible in these areas. Two particular examples are the linear spaces adjacent to the railway, west of Valley Road and the large area of greenspace located to the north of Shipley station. Where small GI assets exist along the routes, these become smaller stepping stone parks where people can stop and rest and which increase multi-functionality.

GI Framework Objectives

- Protect existing GI assets in the AAP area
- Enhance existing GI assets in the AAP area
- Create new GI assets within the AAP area
- Link existing and new GI assets to create a network
- Enhance links to GI assets outside the SCRC boundary

What are the benefits?

- Supporting Growth and stimulating investment,
- Climate change adaption and resilience
- Improving health
- Improving Biodiversity

Feasibility

- Cost: High / Medium
- Permissions: Planning / Landowner / Possibly Network Rail
- Potential funding: Council/Grant funding/Public-Private partnership
- Maintenance costs: Medium

Delivery timescale:

- (short 0-5 years, medium 5-10 years, long 10-15 years)
- Medium/Long
- Land adjacent to Valley Road - short term

Key projects/sites include:

- Ecology concepts ‘The Greener Way’ and ‘Nectar Highway’
- Corner plot to Bolton Lane/Canal Road
- Land at Shipley East (Shipley Exchange)

Potential delivery partners

- CBMDC / Sustrans / Network Rail / private sector / community groups / developers / landowners / Groundwork / BTCV

Case Study :

Bankside Urban Forest



The Shipley East development site includes green space along Greenway route as part of planning permission



Large linear GI assets could be used to take the cycle route ‘off road’



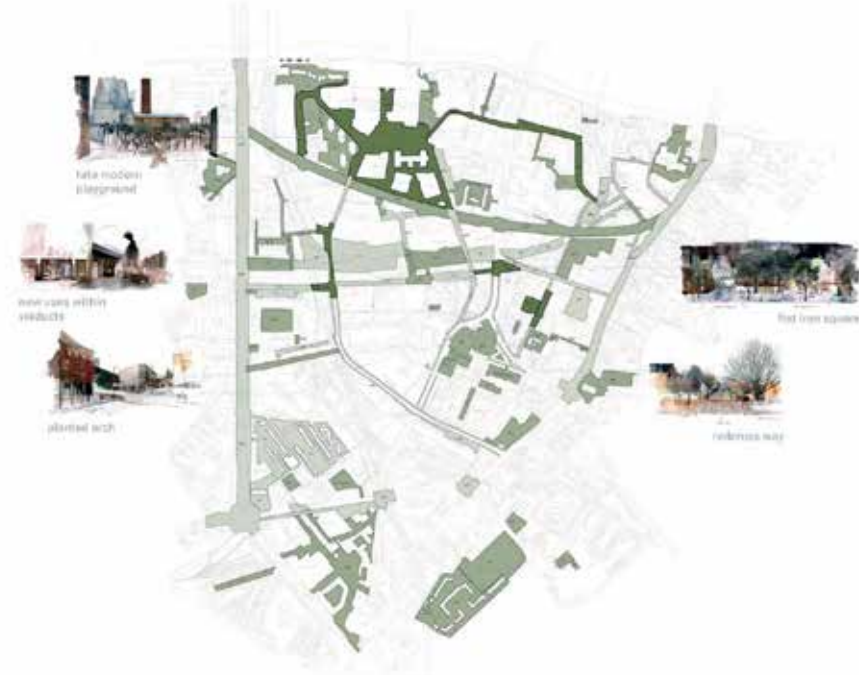
Future development on a derelict space between the Aire and the Leeds-Liverpool Canal could include a green-blue pocket park and important habitat highway as highlighted by ecological studies



Small areas of low performing amenity green space become high multi-functionality pocket parks.



Cities Revealed® aerial photography copyright by The GeoInformation® Group, 2010



The project encourages investment in streets and public space by working in partnership with the private and public sector. It encourages community and developer involvement in collaboration with businesses and landowners. A key aim is the improvement of spaces in order to increase footfall and cycling and introducing projects which green streets and reduce traffic speeds. Local connections between green spaces and local amenities are improved and investment is encouraged to join up the spaces. Since launch in 2007, the project has planted over 250 trees, increased green cover in the neighbourhood by more than 1000m2 and improved over 10,000m2 across the area.

This case study shows how partnerships with many different parties can be used to regenerate an area through good connections and high quality green infrastructure.

PROJECT 3 THE GREENWAY
Connecting the Pocket Parks

The Greenway becomes a series of pocket parks connected by a green/blue route. Where there are existing GI assets which accompany the route, these are made attractive and multi-functional in order to strengthen the identity of the route. Where there are no GI assets, the route is 'greened' via the use of street trees, planters and 'green' hoarding, boundary treatments and green roofs. Nearby communities and companies can become involved in the identity and maintenance of their section of the route. There is even the potential to locate privately sponsored bike hire schemes along the route which would further promote sustainable travel and potentially help fund improvements to the network.

GI Framework Objectives

- Create new GI assets within the AAP area
- Link existing and new GI assets to create a network
- Enhance links to GI assets outside the SCRC boundary

What are the benefits?

- Supporting Growth and stimulating investment,
- Climate change adaption and resilience
- Improving health
- Improving Biodiversity

Feasibility

- Cost: High / Medium
- Permissions: Planning / Landowner
- Potential funding: council/European/Grant funding/company sponsorship/Private-Public partnerships
- Maintenance costs: Medium

Delivery timescale:

- (short 0-5 years, medium 5-10 years, long 10-15 years)
- Medium/Long

Key projects/sites include:

- Ecology concept 'The Greener Way' and 'Nectar Highways'
- Site to west of Valley road (via landowner negotiation)
- Hillam Road improvements

Potential delivery partners

- CBMDC / Sustans / BEES
- Canal Road Urban Village JVC
- Private-Public partnerships

Case Studies :

Greening the Grey

Where there are no existing GI assets, 'green/blue' infrastructure can be introduced via roadside SUDs (which could emphasise the route of the culverted beck or Bradford Canal), by introducing 'living' hoarding with the use of climbers, pictorial meadow verges and even green roofs to key bus stops. More simple measures include street trees, planters and habitat hedgerows.

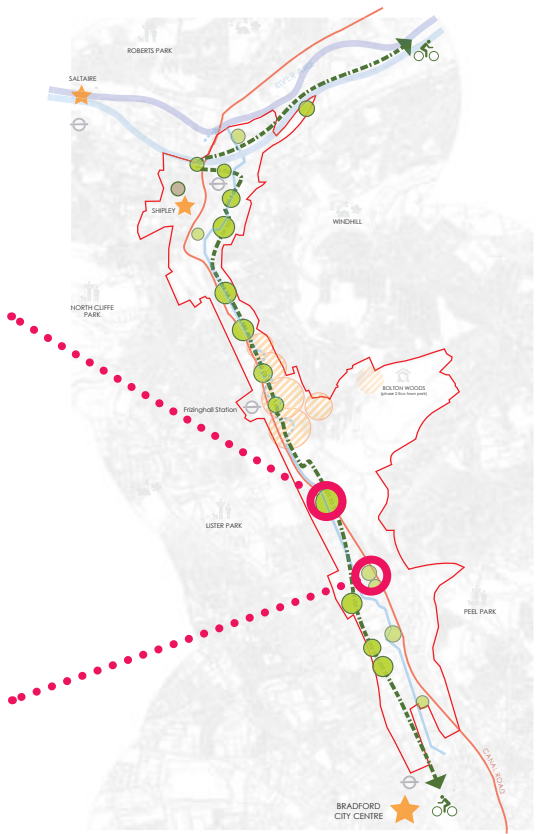
These examples show how it is possible to bring GI to routes where there is currently none. Such projects are seen by many and therefore serve to act as demonstration projects to illustrate what can be achieved with green infrastructure.



Example: Where the route follows Canal road the route is improved. e.g. roadside greenspace enhanced with pictorial meadows, poor quality boundaries 'greened' with living hoarding, hedges, trees and roadside SUDs



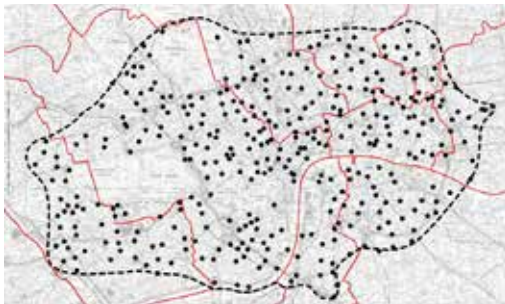
Example: Hillam Road, a possible route for the Greenway. Frontages to business can be improved with street trees, habitat hedgerows and living hoarding. Unused amenity green spaces can be used as pocket parks for employees



Transport for London/Barclays Cycle Hire Scheme

London's self-service, bike sharing scheme allows users to hire bikes from 'docking stations' located in popular destination locations across London. The costs are low, allowing people to hire access to a bike for a day or week which includes unlimited short journeys. This encourages users to use a bike for short journeys where they can simply 'dock' it when finished, avoiding the need to worry about bike storage or carrying on public transport when not in use. The scheme is sponsored by Barclays whose company logo is carried on the bikes in return for supporting the scheme.

The scheme shows how bike use could be actively promoted across the corridor and could potentially fund GI and route creation and management.



PROJECT 4

Habitat Highways

7.1.4 Habitat Highways

The railway, Bradford Beck and Canal road become ‘Habitat Highways’ through the use of existing and proposed GI assets and through the increased use of SUDs. Additional east-west links are created, further strengthening the network. These ‘Habitat Highways’ are managed to facilitate habitat creation and the mobility of species into the wider GI network.

Such Habitat Highways could include wildflower and informal planting along road and rail networks and marginal planting alongside the Bradford Beck. Such themes are explored in more detail within the Ecology Study.

Currently low multi-functional GI assets such as amenity greenspace could be managed differently, encouraging scrub and woodland to develop in strategic corridor areas leading outside of the SCRC, enabling wider habitat networks to form and species mobility.

Such changes should be accompanied by signage in order to explain the benefits of the changing management regime to the public.



Figure 34 - Habitat Highways

PROJECT 4
Habitat Highways

The creation of Canal road, the railway and the Bradford Beck 'Habitat Highways' have been informed by the ecological networks identified in the Corridor's Ecological Study. Whilst habitat creation and species mobility would lie at the heart of the 'Habitat Highway' management plans, it is also possible for them to provide multi-fucntional benefits such as SUDs and increase the attractiveness and health of neighbourhoods.

GI Framework Objectives

- Protect existing GI assets in the AAP area
- Enhance existing GI assets in the AAP area
- Create new GI assets within the AAP area
- Link existing and new GI assets to create a network
- Enhance links to GI assets outside the SCRC boundary

What are the benefits?

- Climate change adaption and resilience
- Improving health (proximity to green space)
- Improving Biodiversity

Feasibility

- Cost: High / Medium
- Permissions: Planning / Landowner / EA
- Potential funding: Council/European/Grant funding/Private-Public Partnership
- Maintenance costs: Medium

Delivery timescale:

- (short 0-5 years, medium 5-10 years, long 10-15 years)
- Medium/Long

Key projects/sites include:

- Ecology concept 'The Nectar Highway'
- Re-naturalisation of Bradford Beck demonstration project
- Canal Rd / Railway sidings
- New infrastructure projects as arise

Potential delivery partners

- CBMDC / Private-Public partnerships
- EA
- Aire Rivers Trust
- Local Community Groups
- Canal Road Urban Village JVC

Case Studies :

Network Rail Business Plan

Network rail is the fourth larges land owner in Great Britain. It owns 22,000 miles of track and over 30,000ha of land. There are dedicated pieces of legislation which enforce the protection of species such as the Natural Environment and Rural Communities Act 2006 which requires statutory undertakers to 'protect and where possible enhance biodiversity'.

In 2014, Network Rail have taken the bold step to include a biodiversity target within their business plan. Within the next 5 year control period, the aim is to 'make a measureable net positive contribution to biodiversity in the UK'.

This shows how the aspirations of both CBMDC and Network Rail can coincide and that increased biodiversity along the rail corridor is realistic and feasible.



Railway sidings as 'Habitat Highways'



Network Rail's Whitemoor Yard illustrates Network Rail's commitment to improving biodiversity

Proposals to de-culvert and naturalise sections of the Bradford Beck (see AAP) would enhance this wildlife corridor further



Existing and potential GI assets along Canal road have the capacity to create a linear wildlife corridor



The railway line is an important wildlife corridor where there is little else, protected from public access. It has the potential to provide more with basic habitat creation and management





Florida Highways

In most places, the public may still largely want their highway margins "to be either tidy or flowery," (Roadside biodiversity report for Scottish Natural Heritage). But in countries around the world, ecologists and highway engineers are increasingly working together to turn roadsides into functional habitat. For example, in Florida, the Department of Transport sells seed and number plates to support it's wildflower implementation programme within the highway. Volunteers enter into a two-year agreement with DOT, during which they agree to conduct litter removal at regularly scheduled intervals. Many miles of highway are adopted statewide by various organizations, allowing civic-minded people to make a difference in their communities.

The scheme shows how innovative partnerships and delivery models can be used to deliver ecological gains, in times of reduced public funding.



The River Somer, Midsomer Norton, Somerset

The scheme involved the improvement of a wide, canalised section of the river Somer as it runs through the Midsomer Norton High Street. The existing flood alleviation scheme was exacerbating the build up of sediment and the channel was an eye sore. The river restoration scheme created berms within the existing channel which reduced sedimentation but could still be topped during high flows, therefore maintaining flows. Since installation in 2012, new plant communities are thriving, providing diverse marginal habitat and aquatic diversity has increased. The berms are intact and undamaged by high flows and the scheme has brought nature into the heart of the town's high street.

Whilst every river is different, the scheme shows that there is potential to 'think outside the box' in terms of flood alleviation measures and that there is potential for the Bradford Beck to become a biodiverse feature and habitat highway.



River Somer before works



River Somer after works



River Somer after scheme matured

PROJECT 5

Pedestrian/Cycle Links

7.1.5 Pedestrian/Cycle Links

Safe, attractive and legible pedestrian and cycle links promote connectivity which can be a significant factor in the successful regeneration of the corridor. These links connect key areas and assets such as the Leeds-Liverpool Canal / River Aire gateway, the Eco-Settlement and its park, Shipley and the City Centre, informal greenspace and formal large parks outside of the corridor and numerous local facilities such as schools, community and recreational amenities. Legible, safe routes, made attractive by existing and new green infrastructure assets are key to the success of such a sustainable travel network.



Figure 35 - Pedestrian/Cycle Links

PROJECT 5 Pedestrian/Cycle Links

Links to key areas and the large GI assets (both formal and informal) located outside the corridor boundary can be created and enhanced. Pedestrian and cycle facilities such as good crossings and cycle lanes should be prioritised along these routes. Where GI assets exist along the route, these are used to enhance it. Where they do not, street trees, planters, signage and promotional information can be used. Where these routes enter the World Heritage Site setting or conservation areas, these measures should reflect the special qualities of their location.

What are the benefits?

Supporting Growth and stimulating investment,
Climate change adaption and resilience
Improving health
Improving Biodiversity

Feasibility

Cost: Medium /Low
Permissions: Planning / Landowner /
Potential funding: Council/European/Grant funding/Public-
Private partnerships
Maintenance costs: Medium / Low

Delivery timescale:
(short 0-5 years, medium 5-10 years, long 10-15 years)

Medium/Long

Key projects/sites include:

Connections with the Leeds-Liverpool Canal and river Aire
Connections to formal parks (Lister, Peel, Roberts, Northcliffe)
Connections to informal green space (Windhill and Northcliffe)
Canal Road Greenway

Potential delivery partners



CBMDC, Sustrans, Local Community Groups
Canal Road Urban Village JVC, developers, landowners

Case Studies :

Bristol Legible City

The projects developed as part of Bristol Legible City are designed to link together the diverse parts of the city with consistently designed information; to make attractions better known and easier to find; to provide the city with a clear and positive identity and reinforce the character of its individual neighbourhoods. At the heart of the project is a system which provides clear, distinctive, recognisable information available at the start of a journey, guidance and support and locational information on arrival as it has been shown that this is the basis for a secure, comfortable journey.

Legibility is often overlooked. However, this study shows how it can be a simple yet essential factor in the promotion of new and existing sustainable transport links and how it could create and reinforce the corridor's identity.



Spen Valley Greenway

An 8 mile route, the cycleway utilised a disused railway running near the River Spen. The river runs through densely populated urban areas, wildlife reserves and a golf course with distant views to the moors. It provides a green link and is accompanied by sculpture and artworks.

The cycleway is a partnership between Kirklees Council, Spen Valley Greenway Forum and Sustrans. It is an award winning green corridor which provides a cycleway, habitat corridor, a venue for art and is a valued asset which links several communities

This case study gives an example of a how a route which runs through densely populated urban areas can be improved to provide high quality green corridors and habitat networks as well as a well used facility for local communities.



The River Aire and Leeds-Liverpool Canal located to the north of the corridor and providing a far reaching gateway to long distance recreational routes. Connections and legibility can be improved, including to the Eco-Settlement Park





Informal green space at Windhill provides access to natural greenspace within walking distance. Routes to natural greenspace should be enhanced and promoted



Lister Park - just one of the high quality formal parks located just outside the corridor boundary. Green infrastructure can be created or enhanced and legibility increased along key routes to this and similar assets



Cities Revealed

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08

Implementation

8.1.1 Implementation of a GI strategy

In view of current pressures on public funding, future development is key to delivering new green infrastructure. It is therefore important that GI principles are embedded into the AAP through robust policies in order to ensure that CBMDC can work with private developers and ensure any future growth can deliver high quality GI through the SCRC strategy.

Implementation of a GI strategy within the SCRC should be led by CBMDC (and ideally a 'champion' within the council), who will need to target resources internally and be prepared to use innovative methods of working and delivery.

Potential examples of this could include:

- Promoting the community food growing sector by helping to establish local food co-ops who either lease land off the council thus reducing maintenance liabilities. There are area of GI with particular potential around council owned residential property;
- Green waste and arisings from mowing regimes to be used to make PAS 100 compost which is used on council sites and sold to the public;

- Maintenance regimes may need to change (for example reducing the number of mowing visits, with perhaps the standard mowing regime only utilised on the edges of grassed areas to maintain a tidy border). Different regimes can also be used to create areas with greater ecological benefits as outlined in the Ecological Study.

Public perception of greenspaces may need to be challenged and this may be central to the success of any new maintenance regimes. 'Pictorial meadows' style planting has proved to be very popular with the public in both Sheffield and at Olympic Park and if the soil is properly prepared prior to seeding this only needs strimming once per year and seeding once per year.

This work to change public perception should go hand in hand with work to promote the benefits of GI to the public who may not be aware of the advantages that GI can bring to Bradford.

It is likely that partnership working will be central to the delivery of the Green Infrastructure Framework and Vision for the SCRC.

Potential partners include: communities and individuals, education and training providers, infrastructure providers (e.g. Yorkshire Water), the health sector, businesses, landowners, social landlords (INcommunities), the environment sector and other council departments.

Working across different sectors will allow objectives, funding and resources to be aligned to achieve holistic benefits.

'Keys' to successful GI establishment

- GI should be strategically planned and managed.
- Leadership from the top: a 'GI champion' within BMDC needs to sell the benefits of GI to politicians and the public and to ensure 'buy in' from all council departments.
- Implementation of **pilot GI projects** which should be monitored, documented and evaluated to provide concrete evidence of benefits.
- Support and facilitation by BMDC to **local partners** to develop schemes, fundraise and take over maintenance of sites.

8.1 Funding options

8.1.1 Potential Council Funding

Section 106

Planning obligations under Section 106 of the Town and Country Planning Act 1990 (s106 agreements) are a mechanism which make a development proposal acceptable in planning terms, that would not otherwise be acceptable. They are focused on site specific mitigation of the impact of development. S106 agreements are often referred to as 'developer contributions'.

These could be used to secure Green Infrastructure enhancements within development sites or potentially up to 5 contributions could be 'pooled' and used to deliver elements of a SCRC wide Green Infrastructure strategy.

Community Infrastructure Levy

The Community Infrastructure Levy (CIL) is a planning charge, introduced by the Planning Act 2008 as a tool for local authorities in England and Wales to help deliver infrastructure to support the development of their area. It came into force on 6 April 2010 through the Community Infrastructure Levy Regulations 2010. Development may be liable for a charge under the Community Infrastructure Levy, if the local planning authority has chosen to set a charge in its area.

The money can be used to support development by funding infrastructure that the council, local community and neighbourhoods want.

BMDC is currently in the process of exploring the potential of introducing CIL within Bradford and GI should be factored into thinking and the decision making process.

Business Rates

Business rate retention – potentially used for Green Infrastructure investment.

A business rates retention scheme was introduced in April 2013. It will provide a direct link between business rates growth and the amount of money councils have to spend on local people and local services. Councils will be able to keep a proportion of the business rates revenue as well as growth on the revenue that is generated in their area. This will provide a strong financial incentive for councils to promote economic growth. Business rates retention is at the heart of the government's reform agenda and will help achieve two priorities: economic growth and localism.

Leeds City Region

A Green Economy is a key ambition of the Leeds City Region Enterprise Partnership.

Delivering improvements to Green Infrastructure to accelerate further growth and investment is identified within the Strategic Economic Growth Plan 2014.

The Strategic Economic Plan provided the base for negotiating the Local Growth Deal which was agreed with Government in 2014. This £1billion Deal, along with other sources of funding, will help deliver Strategic Economic Plan for Leeds City Region.

In addition, the Leeds City Region Green Infrastructure Strategy will important source for growth led GI funding. The SCRC falls specifically under the Urban Eco Settlements programme and includes 'Fresh Aire', one of the city region's investment priorities for Green Infrastructure.

Health Funding

As demonstrated in this report, Green Infrastructure can have multiple health benefits and investment in Green Infrastructure can have health and well being outcomes. Therefore, opportunities may exist to access public health funding for Green Infrastructure.

8.1.2 European Funding

Interreg

Interreg is an initiative that aims to stimulate cooperation between regions in the European Union. It started in 1989, and is financed under the European Regional Development Fund (ERDF). The current programme is North-West Europe 2014-2020 Programme (NWE) NWE Thematic focus for 2014-2020

The NWE Member States have agreed on the following Thematic Objectives:

- Strengthening research, technological development and innovation contribute to the implementation of the smart specialisation strategies of participating regions.
- Supporting the shift towards a low-carbon economy in all sectors. The Programme will invest in the area's climate change mitigation potential, reduction of GHG emissions, energy efficiency and the share of renewable energy sources in the consumption and production mix.
- Protecting the environment and promoting energy efficiency. The Programme will invest in eco-innovation and resource efficiency. The purpose is to reduce the environmental footprint of human activity on the environment, and decouple the growth curve from the material consumption curve.

In the 1st half of 2015 there will be the first Call for Projects.

8.1.3 Grant funding

Many sources of grant funding are still available, though the Local Authority may have to working with other agencies / third sector organisations to deliver schemes.

Water Management

Given that the AAP includes areas of high flood risk there is the potential to access funding for Green Infrastructure where it may have benefits for flood risk management. This could include Environment Agency/Defra grants for flood risk management.

Water quality is an important issue in the Corridor in terms of the Bradford Beck. There are requirements to improve water quality under the EU's Water Framework Directive (WFD).

Lottery funding

Generally applications should be made by not-for-profit organisations and partnerships led by not-for-profit organisations.

Lottery grant streams include: Landscape Partnerships, Heritage grants / Our heritage / Townscape Heritage and Young Roots.

Examples of the larger scale fund examples include the Heritage Lottery Fund and Investing in Communities: growing community assets fund.

The Heritage Lottery Fund is an open programme for any type of project related to the national, regional, or local heritage in the UK. You can apply for a grant of over £100,000.

The 'Investing in Communities: growing community assets' fund is designed to support communities to take more control and influence over their own future through ownership of assets.

Funding of between £10,000 and £1million is available. They want to fund projects that deliver the following four outcomes:

- Communities work together to own and develop local assets
- Communities are sustainable and improve their economic, environmental and social future through the ownership and development of local assets
- Communities develop skills and knowledge through the ownership and development of local assets
- Communities overcome disadvantage and inequality through the ownership and development of local assets.

Examples of smaller lottery grant schemes include the 'Peoples Postcode Trust – small grants programme' which exists to try to make the world a better place through short-term, project specific funding. Funding of between £500 and £10,000 is available. All projects must help in one or more of the following areas:

- To prevent poverty
- To promote, maintain, improve and advance health
- To advance citizenship or community development
- To advance public participation in sport
- To promote and advance environmental protection or improvement"

Landfill tax

The Landfill Communities Fund (LCF) is a tax credit scheme enabling operators of landfill sites to contribute money to organisations enrolled with ENTRUST as Environmental Bodies (EBs). EBs carry out projects that comply with the objectives set out in The Landfill Tax Regulations 1996.

The Government introduced tax on landfill waste in 1996 to reduce the amount of land-filled waste and to promote more environmentally sustainable methods of waste management. The LCF is also a way for Landfill Operators (LOs) and EBs to work in partnership on projects that create significant environmental benefits, jobs and which improve the lives of communities living near landfill sites.

LOs are able to claim a credit (currently 5.1%) against their landfill tax liability. This is 90% of the contribution LOs make to EBs. They then either bear the remaining 10% themselves or can ask an independent third party (usually described as the Contributing Third Party) to make up the difference.

Environmental bodies administering Landfill tax include the SITA Trust who have grant schemes such as the Fast Track Fund which provides grants of up to £20,000, available to not-for-profit organisations with a community leisure amenity improvement project that has an overall cost of no more than £40,000.

Not-for-profit organisations including community groups, parish councils, local authorities and charities can apply.

Other Environmental bodies include WREN. WREN receives the majority of its funding from the landfill tax levied by FCC Environment (formerly Waste Recycling Group). The Main Grant Scheme offers funding of between £15,001 and £75,000 to projects which fall within WREN policy and the Landfill Communities Fund. Where it is for the protection of the environment, the provision, maintenance or improvement of a public park or other public amenity in the vicinity of a landfill site.

Project examples: Village halls, children's play equipment, village greens, museums, country parks, volunteering, community gardens, woodland improvements, cycle paths, towpaths and nature reserves.

8.1.4 Support for project delivery through businesses and the public

This could be direct funding through business sponsorship: why sponsor a roundabout which is only seen by limited numbers of passengers in cars when you could sponsor a rain garden in the High Street or could also be through Pledges of support (which could also be by individuals, schools or community organisations) to promote and raise awareness of Green Infrastructure.

It is also possible that schools or religious / community organisations may become involved in delivering Green Infrastructure at a local level and 'take ownership' of sites and privately fundraise for their enhancement.

Crowdfunding

Crowdfunding has been successfully used for the delivery of funding for public spaces – this is a way of involving local people in project funding and delivery. The Spacehive website is an example of a crowdfunding website that helps communities transform their local public spaces.

Case Study : Stevenson Square Green Makeover - Crowd Funding

Spacehive: <http://spacehive.com/stevensonsquaregreenmakeover>

Support through spacehive raised £39,170.00 towards the costs of implementing this project.

The aim was to transform Manchester's Stevenson Square into a green urban oasis. New street trees, hanging baskets and a green roof will provide a green amenity for residents, businesses, and visitors.

Stevenson Square lies in the heart of the Northern Quarter of Manchester's City Centre. It is currently bereft of any street greenery, making it feel very grey. We want to give this area a green makeover for the people who live and work in and around the square, for visitors, and for those just passing through.

"Exciting plans to give Manchester's Stevenson Square a green makeover are underway after local residents and businesses pledged cash to support the project.

Red Rose Forest is transforming the Northern Quarter square with new street trees, hanging baskets and a 'green roof' on top of the disused public toilet.

The project had received significant funding from Manchester City Council but was £6,000 short of its overall funding target.

A campaign was launched using internet 'crowdfunding', with city centre residents and businesses asked to pledge cash towards the project via the Spacehive website.

Now Red Rose Forest has reached its crowdfunding target - after more than 80 cash pledges were made on the website. And this week the first street trees were planted in the square's pavements.

Under the plans, 11 liquid amber trees will be planted in the pavement and in the square's central reservations. An innovative new paving material made from recycled tyres and supplied by KBI will be placed around the trees, The new pavement will be porous allowing the trees to receive the oxygen and water they need to grow.

A green roof will be installed on the roof of the old public toilets and planted up with, among other things, edible plants chosen by local residents and businesses. Hanging baskets will be filled with flowers and added to the square's lampposts.

The Stevenson Square project has also received support from a number of businesses and organisations including: Experian, The Oglesby Trust, Solar energy company A Shade Greener which held a lottery on its stall at Manchester's Greenbuild Expo to raise funds for Stevenson Square, Manchester's city centre management company CityCo, Local businesses including Philip J Davies Holdings Plc, Argent Group Plc, Reason Digital, Soup Kitchen, Ombler Iwanowski and Tariff Street, KBI who provided half of the resurfacing products in kind to the project, Greenbuild Expo, the sustainability conference held in Manchester in May and A New Leaf - a local residents group set up to make Manchester city centre greener"

Case Study : New trees for Trafford

<http://www.redroseforest.co.uk/web/content/view/312/570/>

Case Study of local residents being involved in project development and fundraising: New trees for Trafford

Nine streets in Old Trafford and Broadheath are being transformed by Red Rose Forest with the planting of more than 100 new trees.

As part of Trafford Partnership, Red Rose Forest is working with local residents on the major street tree project. The trees include ornamental varieties such as mountain ash, serviceberry, sweet gum and whitebeam which have all been chosen by local residents.

In Old Trafford residents set up the Old Trafford Tree Group, an action group which worked with Red Rose Forest to develop their ideas and obtain funding.

Group member Christian Tiede who lives on Fulford Street said: *"The project was very much grassroots led. A group of us began talking about this at a street party last year and decided to see if other local people were interested in improving the neighbourhood through the planting of street trees. We found there was a great deal of enthusiasm for the idea so approached Red Rose Forest for help."*

"It's really important that the local community has taken ownership of this project itself, we consulted with local residents and gave people as much choice as possible about where the trees would be planted and which types we would use."

"It's great to see the trees are now being planted; they're going to make a real difference to the look and feel of the area. People like living in places where there are lots of trees; they make neighbourhoods look much nicer and give everyone a boost."

Funding for the project has come from Old Trafford Community Grants, Trafford Council, the Forestry Commission's Setting the Scene for Growth programme and the Big Tree Plant initiative.

More than 100 trees are currently being planted on eight streets in Old Trafford including Ayers Road, Fulford Street, Thorpe Street, Cranbourne Road, Henrietta Street, Northumberland Road, Alphonsus Street and Norton Street. In Broadheath, 25 trees are being planted on Craven road, complimenting trees planted by Red Rose Forest on adjacent Barlow Road last year.

Community Shares

Community Shares focus on connecting not-for-profit groups and investors looking to provide money for social good.

People buying shares in the projects promoted through the site will recoup their investment through improvements to their community rather than profit. In order to raise community investment, there are four key elements which all community enterprises should consider before launching a community share offer:

- Developing a business case
- Engaging with the community
- Establishing governance
- Drafting a share offer document

Further information of each of the above elements can be found at: <http://communityshares.org.uk/>

Partnership Working

There may be potential Green Infrastructure projects through partnership working, for example with the Local Nature Partnerships and those highlighted in the Leeds City Region Green Infrastructure Strategy. Community groups may also wish to take forward a Green Infrastructure project. Through partnership working, funding opportunities may be explored to help to deliver such projects e.g. lottery funding.

Appendix 1 Table 1: Shipley and Canal Road Corridor AAP GI Assets, Functions and Benefits

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Appendix

GI Asset	Current GI Functions (A- T)	Current GI Value	Benefit
A Allotments	Provide opportunities for social interaction (B) Provide opportunities for physical health and well being for all ages (C) Provide opportunities for mental health and well being for all ages (D) Reduce urban run-off and reduce flood risk (K) Urban cooling (L) Provide local food and energy production (P)	6 (Low)	Improving health. Provide resilience to the effects of climate change
Public Space (Parks & other accessible open spaces) Code on Plan: PS	Provide safe & attractive links to / between community facilities etc (A) Provide opportunities for social interaction (B). Provide opportunities for physical health & well-being for all ages (C). Provide opportunities for mental health & well-being for all ages (D). Provide attractive places for living (E). Provide attractive places for working / studying (F). Provide attractive places & routes for recreation (H) Provide attractive places for increasing land / property values & demand (J) Reduce urban run-off and reduce flood risk (K) Urban cooling (L) Improve air quality (M) Provide an attractive setting for townscape / cultural heritage assets (R) Provide attractive places for tourism (I) (Mirror Pool / City Park)	13 (Very High)	Supporting growth and investment Improving health. Provide resilience to the effects of climate change.
PG Private gardens	Provide opportunities for social interaction (B) Provide attractive places for living (E)	4 (Very Low)	Provide resilience to the effects of climate change.

GI Asset	Current GI Functions (A- T)	Current GI Value	Benefit
	Reduce urban run-off and reduce flood risk (K) Urban cooling (L)		
IG Institution grounds (university / religious buildings)	Provide safe & attractive links to / between community facilities etc (A) Provide opportunities for social interaction (B). Provide opportunities for mental health & well-being for all ages (D). Provide attractive places for living (E). Provide attractive places for working / studying (F). Reduce urban run-off and reduce flood risk (K) Urban cooling (L) Improve air quality (M) Provide a local environmental resource for education & skills development (Q) Provide an attractive setting for townscape / cultural heritage assets (R)	10 (High)	Supporting growth and investment Improving health. Provide resilience to the effects of climate change.
AG Amenity greenspace (associated with buildings)	Reduce urban run-off and reduce flood risk (K) Urban cooling (L) Improve air quality (M) Provide an attractive setting for townscape / cultural heritage assets (R) Some AG assets provide: Provide attractive places for living (E). Provide attractive places for working / studying (F). Provide attractive places for increasing land / property values & demand (J) Carbon sequestration (N)	4 - 8 (Very Low – Medium)	Supporting growth Supporting growth and investment Provide resilience to the effects of climate change Improving health
RG Greenspace associated with	Reduce urban run-off and reduce flood risk (K) Urban cooling (L) Improve air quality (M)	4 (Very Low)	Improving health Provide resilience to the effects of climate change

TG Greenspace in rail corridor	Reduce urban run-off and reduce flood risk (K) Provide habitat (S)	0 - 2 (Very Low)	Provide resilience to the effects of climate change
CS Civic spaces (street / small squares)	Provide safe & attractive links to / between community facilities etc (A) Provide opportunities for social interaction (B). Provide opportunities for physical health & well-being for all ages (C). Provide opportunities for mental health & well-being for all ages (D). Provide attractive places for living (E). Provide attractive places for working / studying (F). Provide attractive places for tourism (I) Provide attractive places for increasing land / property values & demand (J) Provide an attractive setting for townscape / cultural heritage assets (R) Potentially: Provide attractive places for securing inward investment (G)	9 - 10 (High)	Supporting growth and investment Improving health
SN Semi Natural Greenspace	Provide opportunities for physical health and well being for all ages (C) Provide opportunities for mental health and well being for all ages (D) Provide attractive places for living (E). Provide attractive places for working / studying (F). Provide attractive places for increasing land / property values & demand (J) Reduce urban run-off and reduce flood risk (K) Urban cooling (L) Improve air quality (M) Carbon sequestration (N) Provide wildlife corridors (O) Provide an attractive setting for townscape / cultural heritage assets (R) Provide habitat (S)	11-12 (High)	Supporting growth and investment Climate change adaption and resilience Improving health Improving biodiversity

	Provide Habitat/ecological networks (T)		
ST Street trees	Provide safe & attractive links to / between community facilities etc (A) Provide attractive places for living (E). Provide attractive places for working / studying (F). Provide attractive places for increasing land / property values & demand (J) Reduce urban run-off and reduce flood risk (K) Urban cooling (L) Improve air quality (M) Carbon sequestration (N) Provide wildlife corridors (O) Provide an attractive setting for townscape / cultural heritage assets (R) Provide habitat (S)	11 (Very High)	Supporting growth and investment Improving health Provide resilience to the effects of climate change
BI Existing blue infrastructure	Provide attractive places for living (E). Provide attractive places for working / studying (F). Reduce urban run-off and reduce flood risk (K) Urban cooling (L) Improve air quality (M) Provide wildlife corridors (O) Provide habitat (S) Mirror Pool: Provide opportunities for social interaction (B). Provide opportunities for mental health & well-being for all ages (D). Provide attractive places for securing inward investment (G) Provide attractive places & routes for recreation (H) Provide attractive places for tourism (I)	7 (Medium) 11 VH	Provide resilience to the effects of climate change Supporting growth and investment Improving health

	Provide attractive places for increasing land / property values & demand (J) Provide Habitat/ecological networks (T)		
DL Derelict land / stalled spaces	Potentially: Reduce urban run-off and reduce flood risk (K) Urban cooling (L) Improve air quality (M) Provide habitat (S)	0 – 4 VL	Potentially: Provide resilience to the effects of climate change
S Recreation/ Sport	Provide opportunities for social interaction (B) Provide opportunities for physical health & well-being for all ages (C) Provide opportunities for mental health & well-being for all ages (D) Provide attractive places for recreation (open spaces, play facilities, cycling, walking & boating etc) (H) Reduce urban run-off and reduce flood risk (through increasing natural ‘water storage’ / infiltration capacity) (K) Urban cooling (L)	6 Low	Improving health. Provide resilience to the effects of climate change

Appendix 1

Table 2: GI Assets potential multifunctionality

GI Asset	Current Typical GI Value	Potential additional GI functions	Potential GI Value	Potential Additional Benefits	Value of Difference
A Allotments	6 (Low)	Provide attractive places for living (E) Provide attractive places for recreation (H) Improve air quality (M) Carbon sequestration (N) Provide wildlife corridors (O)	12 Very High	Improving health. Provide resilience to the effects of climate change	Significant

		Provide habitat/ecological network of habitats (S)			
PS Public Space (Parks & other accessible open spaces)	13 Very High	Provide attractive places for securing inward investment (G) Provide attractive places for tourism (I) Provide local food & energy production (P) Provide additional SuDS functionality (T)	17 Very High		Not significant
PG Private gardens	4 Very Low	Provide opportunities for mental health & well-being for all ages (D) Provide attractive places for increasing land / property values & demand (J)	7 Medium	Supporting growth. Stimulating investment Improving health.	Significant - No control over this typology / Limited areas within the SCRC although there are potentially significant new areas as a result of future housing development.
IG Institution grounds (School / religious buildings)	10 High	Provide opportunities for physical health & well-being for all ages (C). Provide wildlife corridors (O) Provide local food & energy production (P) Provide habitat (S) Provide additional SuDS functionality (U)	15 Very High		Significant - No control over this typology and there is little of this typology within the SCRC area.
AG Amenity greenspace (associated with buildings)	4 - 8 Very Low - Medium	Provide wildlife corridors (O) Provide local food & energy production (P) Provide habitat (S) Potentially also: Provide attractive places for securing inward investment (G) Provide additional SuDS functionality (U)	7 - 13 Medium – Very High		Significant / Degree of control over land vested with the council

RG Greenspace associated with the road network	4 Very Low	Provide attractive places for living (E). Provide attractive places for working / studying (F). Provide attractive places for increasing land / property values & demand (J) Provide wildlife corridors (O) Provide habitat (S) Provide additional SuDS functionality (U) Potentially also: Provide attractive places for securing inward investment (G)	10 / 11 High / Very High		Significant / Degree of control over land vested with the council
TG Greenspace in rail corridor	0 - 2 Very Low	Provide attractive places for securing inward investment (G) Urban cooling (L) Provide wildlife corridors (O) Provide habitat (T)	4 - 6 Low		Lower significance / Negotiations required with Network Rail over delivery
CS Civic spaces (streets / small squares)	9 – 10 High	Mainly through inclusion of Street Trees or planting within the civic spaces: Reduce urban run-off and reduce flood risk (K) Urban cooling (L) Improve air quality (M) Carbon sequestration (N) Provide wildlife corridors (O) Provide local food & energy production (P) Provide habitat (S) Provide additional SuDS functionality (U)	17 – 18 Very High		Significant / Degree of control over land vested with the council NB. Enhancements mainly due to inclusion of street trees / SuDS features such as permeable paving / rain gardens etc. There is significant potential within Shipley town centre
SN Natural/Semi Natural Green Space	11-12 (High)	Provide safe and attractive links (A) Provide attractive places for recreation (H) Provide attractive places for tourism Provide a local environmental resource for education and skills development (Q)	15-16 Very High	Supporting growth and investment Climate change adaption and resilience Improving health	Significant / Degree of control over land vested with the council

				Improving biodiversity	
ST Street trees	11 Very High	Provide local food & energy production (P)	12 Very High		Not significant
BI Existing blue infrastructure	7 Medium 11 Very High	Provide additional SuDS functionality (U)	8 Medium 11 Very High		Not significant
DL Derelict land	0 – 4 Very Low	Provide opportunities for social interaction (B). Provide opportunities for physical health & well-being for all ages (C). Provide opportunities for mental health & well-being for all ages (D). Provide attractive places for living (E). Provide attractive places for working / studying (F). Provide attractive places for securing inward investment (G) Provide attractive places & routes for recreation (H) Provide attractive places for tourism (I) Provide attractive places for increasing land / property values & demand (J) Carbon sequestration (N) Provide wildlife corridors (O) Provide local food & energy production (P) Provide a local environmental resource for education & skills development (Q) Provide an attractive setting for townscape / cultural heritage assets (R) Provide additional SuDS functionality (U)	15 Very High		Significant / Degree of control over land vested with the council
S Recreation/ Sport	6 Low	Provide wildlife corridors (to help facilitate species migration caused by climate change) (T) Provide a local environmental resource for education & skills development (R)	9 High		Significant / Degree of control over land vested with the council N.B

GI Asset	Current Typical GI Value	Potential additional GI functions	Potential GI Value	Potential Additional Benefits	Value of Difference
		Provide attractive places for increasing land / property values & demand (J) Carbon sequestration (N) Provide wildlife corridors (O) Provide local food & energy production (P) Provide a local environmental resource for education & skills development (Q) Provide an attractive setting for townscape / cultural heritage assets (R) Provide additional SuDS functionality (U)			
S Recreation/ Sport	6 Low	Provide wildlife corridors (to help facilitate species migration caused by climate change) (T) Provide a local environmental resource for education & skills development (R) Provide habitat / ecological network of habitats (T)	9 High		Significant / Degree of control over land vested with the council N.B Enhancements possible to periphery of sports grounds. Would result in small loss to recreational areas in exchange for areas of benefit to habitat. Potential educational resource for users



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