



Bradford City Centre

Green Infrastructure STUDY

GILLESPIES

October 2014

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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 Development Framework 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.

It 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 City Centre / Shipley Road corridor.

It will develop a long term vision and strategic framework to support the delivery of GI across the City Centre, 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.

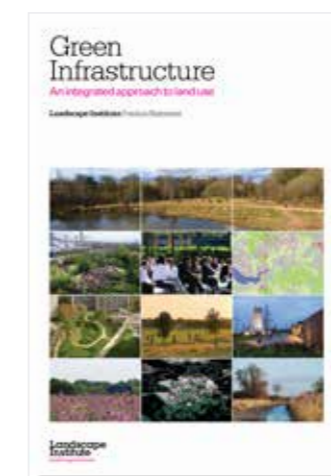
1.2 Methodology

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 Bradford City Centre AAP area. Based on the analysis the Study seeks to develop a vision and framework to support a realistic and deliverable AAP wide Green Infrastructure strategy, which builds upon current and future initiatives and identifies key areas and opportunities to enhance Green Infrastructure appropriate to the AAP area. The methodology used was as follows:

- Assess the baseline condition of the AAP area 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 identify key issues, opportunities and gaps in provision, having regard for future development projections.
- Identify a vision for an AAP 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 Toolbox User Guide'
- The National Planning Policy Framework



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 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 AAP area (in section X) with reference to the specific location of the City Centre.

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)

1.3.5 What are the economic benefits of Green Infrastructure?

There is 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 (Defra)

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 physical 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)
- **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 and a 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, bio-infiltration, 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 Government's 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 (para 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 para 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 para 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 para 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

Significant GI assets which are located within the Bradford district but outside the AAP boundaries include:

- the Leeds Liverpool Canal, the River Aire and the Aire and Calder Canal greenspace which links into Leeds;

- the Dales Way link and Sustrans Route 66 NCR;
- a number of Heritage features (including Saltaire World Heritage Site and Undercliffe cemetery; and
- significant areas of scenic countryside (the Moors to the west and north, including Haworth moor with its literary associations).

These regional GI assets are shown on Figure 1.

Natural England's 'Yorkshire and the Humber GI Corridors' Report 2010

The AAP contains and links to a number of GI corridors identified by Natural England and these are shown on Figure 3 overleaf.

To the north of the AAP, 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 AAP, 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 (a further regionally important corridor) to the south and the river Aire to the north. 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 important link between agricultural land to the outskirts of Bradford with urban woodland and nature sites.

1.4.3 Local Level

This study will form part of the local planning policy for Green Infrastructure within Bradford district.

Core Strategy Development Plan (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.

[Bradford City Centre AAP, Issues and Options Report](#)

The Area Action Plan will guide the transformation of the city centre regeneration area up to 2028. It will identify the location of new development and provide detailed policies to help make decisions on planning applications. It will also influence decisions about transport, infrastructure, community facilities, economic development and future investment.

The Draft vision of the AAP is that:

- “The city centre will become a major destination in the wider region, offering a different experience to other cities. The City will be the focal point for leisure, office, retail and apartment development, becoming the place resident and visitors want to live, work and socialise.
- Future redevelopment of the City Centre will see the renovation and reuse of historic buildings in Little Germany and Goitside for residential and employment.
- New build development will make use of high quality design, which will respect the heritage of the city’s architecture, and be of the highest viable environmental standards.
- The City Centre Area Action Plan will help to safeguard and enhance the city’s important cultural assets of the Alhambra, St. Georges Hall, National Media Museum and many more.
- The plan will also aid in the formation of new open spaces and public realm improvements in the centre, building on the success of the new City Park and the New Market Place.
- The plan will not create a new city centre, but will build on and enhance the existing qualities to revitalise the core of the District.”

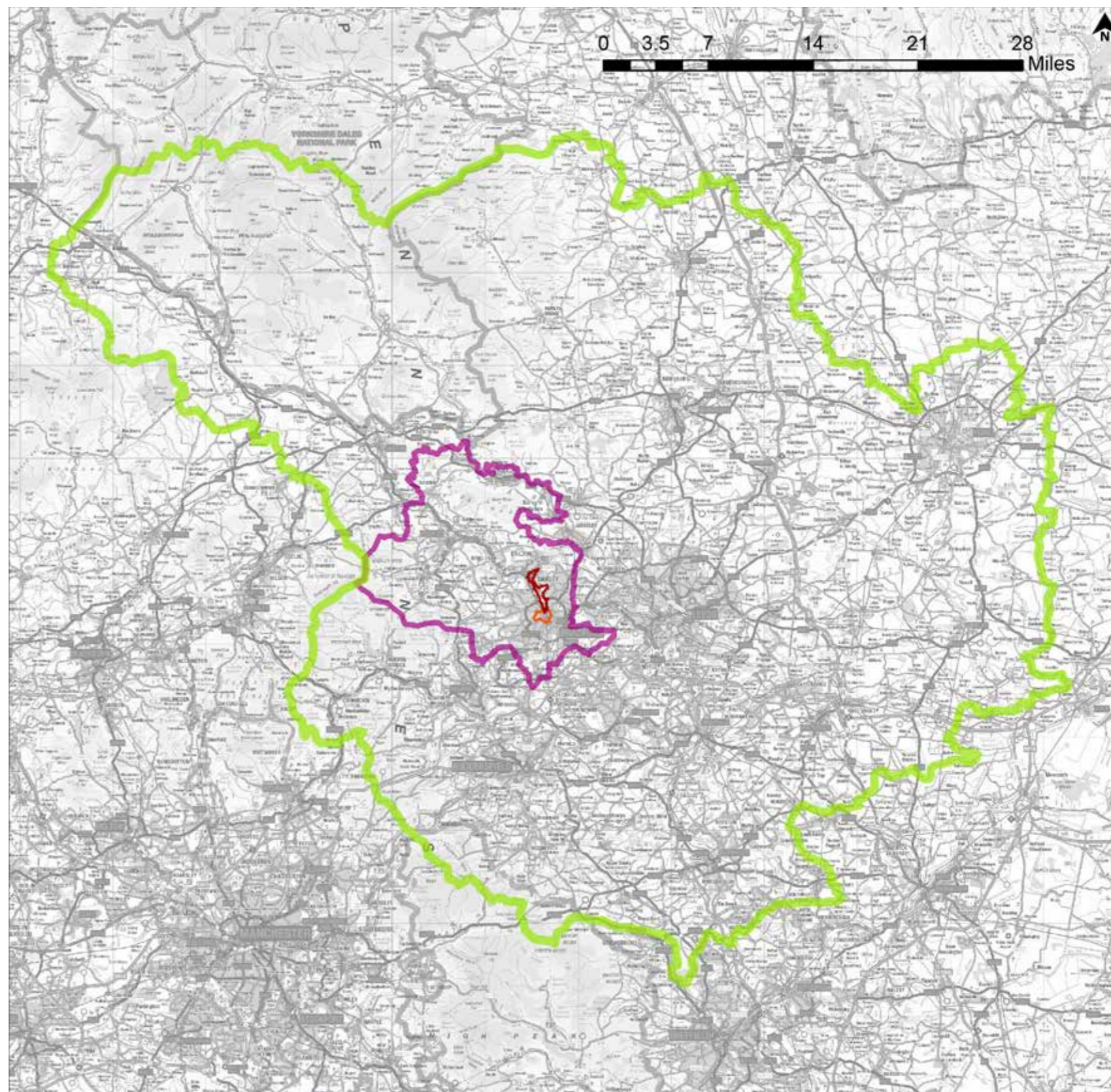
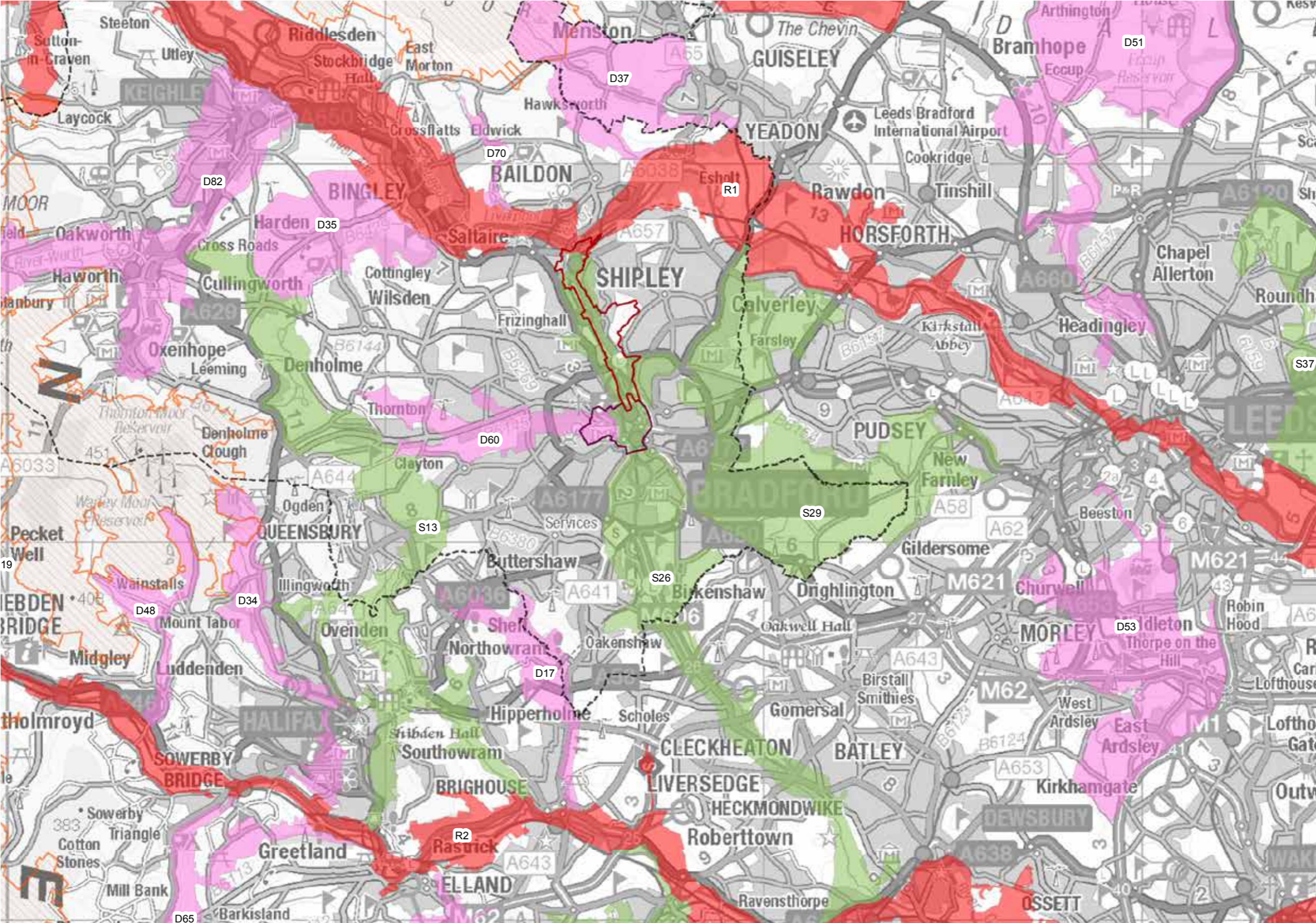


Figure 1 - The SCRC and City Centre AAPs

01 Introduction



- Key:**
- Green Infrastructure Areas
 - South Pennine Uplands
 - Green Infrastructure Corridor Hierarchy
 - Strategic/Regional
 - Subregional
 - District
 - Boundaries
 - SCRC AAP Boundary
 - City Centre AAP Boundary
 - Bradford City Authority Boundary

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

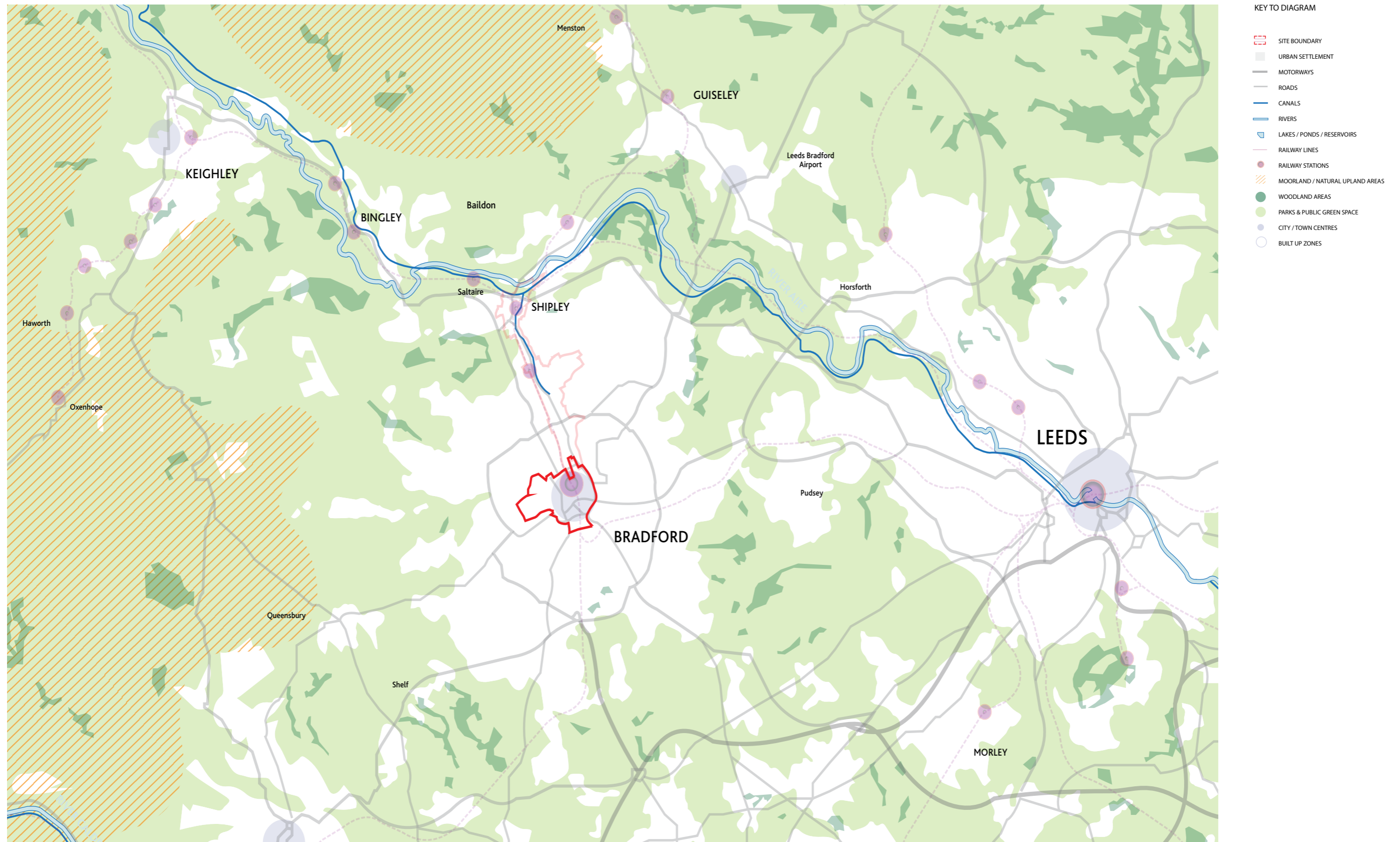


Figure 3 - Location of District Wide assets

02

Context

2.1 Area context: Bradford

The Understanding Bradford District (UBD) prepared by CBMDC and 'Born in Bradford' (BiB) documents provides a comprehensive analysis of Bradford District in order to highlight key issues and opportunities. Information of relevance to this study includes:

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. Nonetheless, 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. How these ward boundaries relate to the City Centre are shown on Figure 4 (page 14).

Bradford has the second highest number of infant mortalities in England. 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.

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.

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: more than road accidents, passive smoking and obesity. Green Infrastructure has an important role to play in reducing CO2 in terms of supporting sustainable transport and also absorption and filtering of particulates.

2.2 Area Context: Bradford City Centre AAP

2.2.1 Wildlife Sites and other ecological assets

There are no sites designated within the City Centre AAP.

2.2.2 Indices of Multiple Deprivation

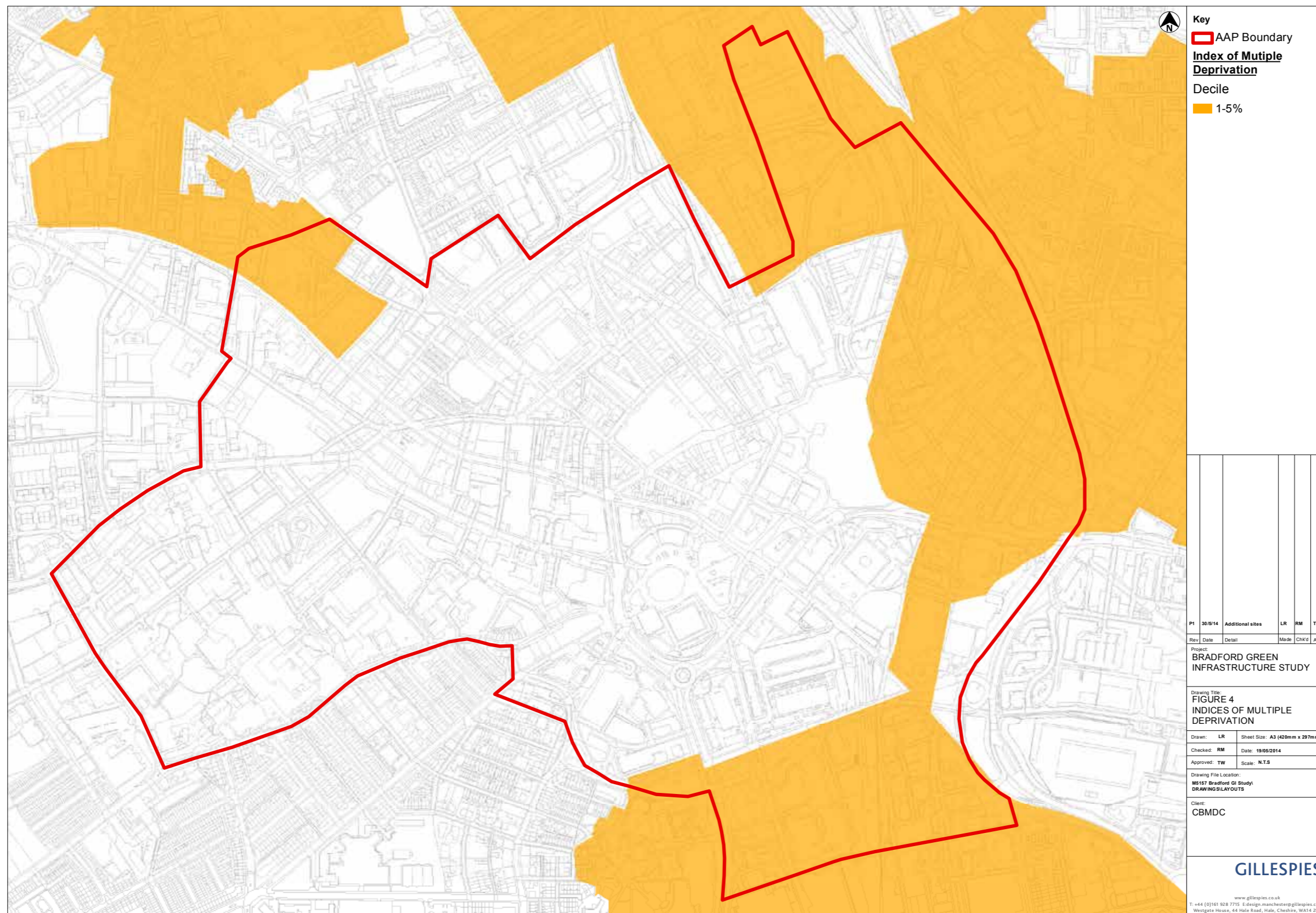
The Indices of Deprivation IMD provide a measure of deprivation in small areas - known as Lower Super Output Areas (LSOA) across England. It is based upon 38 indicators which are grouped into seven domains, each of which represents a different aspect of deprivation. The domains are; income, employment, 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 AAP which are classified as the 5% most deprived areas are illustrated on Figure 4 overleaf. This shows that the most deprived wards are located in a band from the north east to the south east - roughly bordered by Valley Road, Bolton Road, including Little Germany and the Southern Gateway.

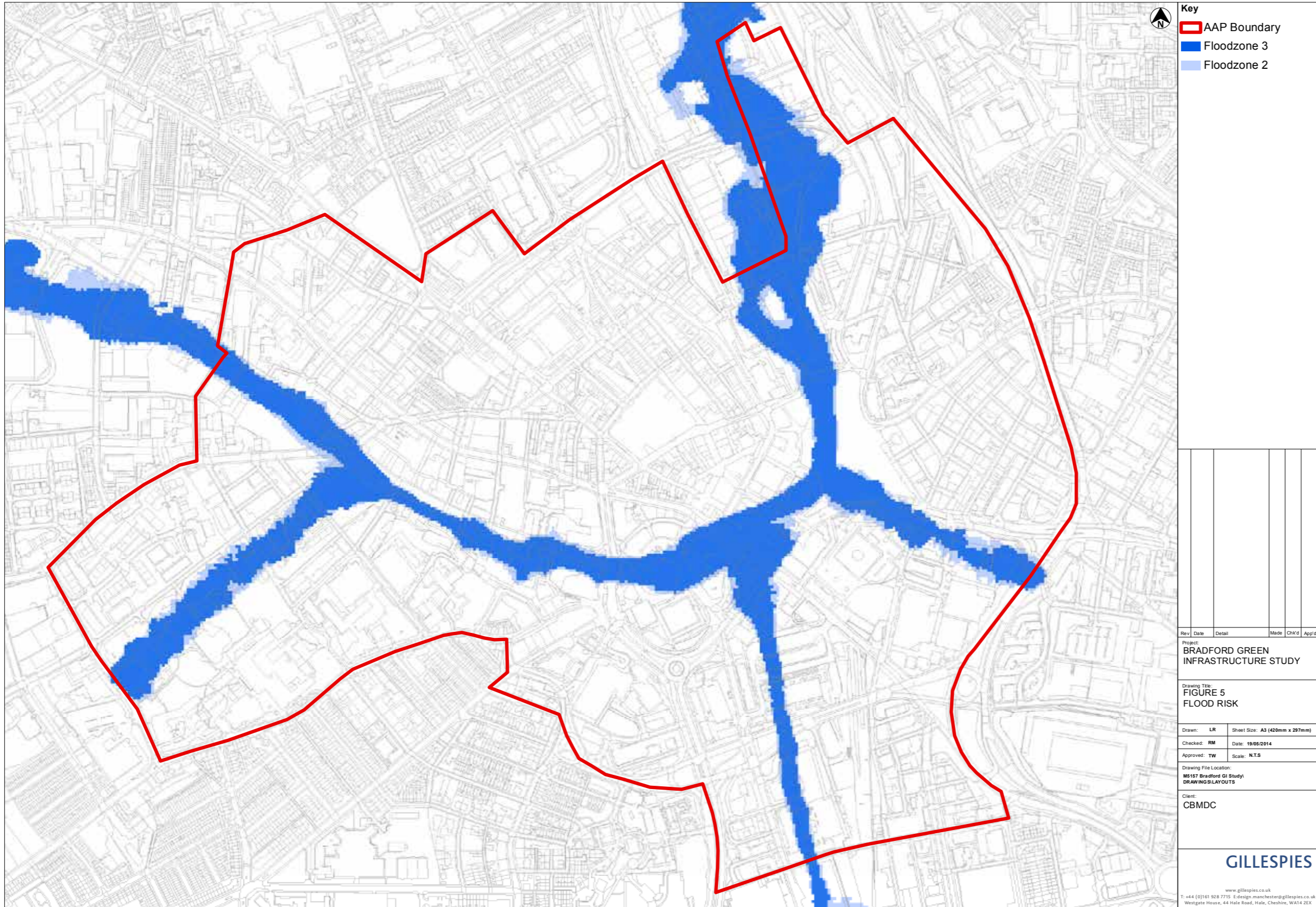
Relevance to GI: Deprivation and health are closely linked; deprivation may point to the need to provide green space for health benefits to residents.

2.2.3 Flood

Figure 5 overleaf illustrates the extent of existing blue infrastructure within the AAP. It also illustrates the flood zones as mapped by the Environment Agency. Flood Zones 2 and 3 roughly follow the course of the Bradford Beck, running along Thornton Road to the west, through the City Centre and to the north along Valley Road; additional spurs run into Thornton Road along Longside Lane / the University, from City Park along Nelson Street to the south and to the east along Leeds Road.

Relevance to GI: 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, reduces run off and slows the passage of water through the catchment. This prevents rain water reaching rivers quickly and in large volumes, thereby increasing the likelihood of a flood event. Simultaneously, these 'blue' assets have the capacity to provide ecological habitat and attractive, restorative features for people.





Key

- AAP Boundary
- Floodzone 3
- Floodzone 2

Rev	Date	Detail	Made	Chk'd	App'd

Project:
**BRADFORD GREEN
INFRASTRUCTURE STUDY**

Drawing Title:
**FIGURE 5
FLOOD RISK**

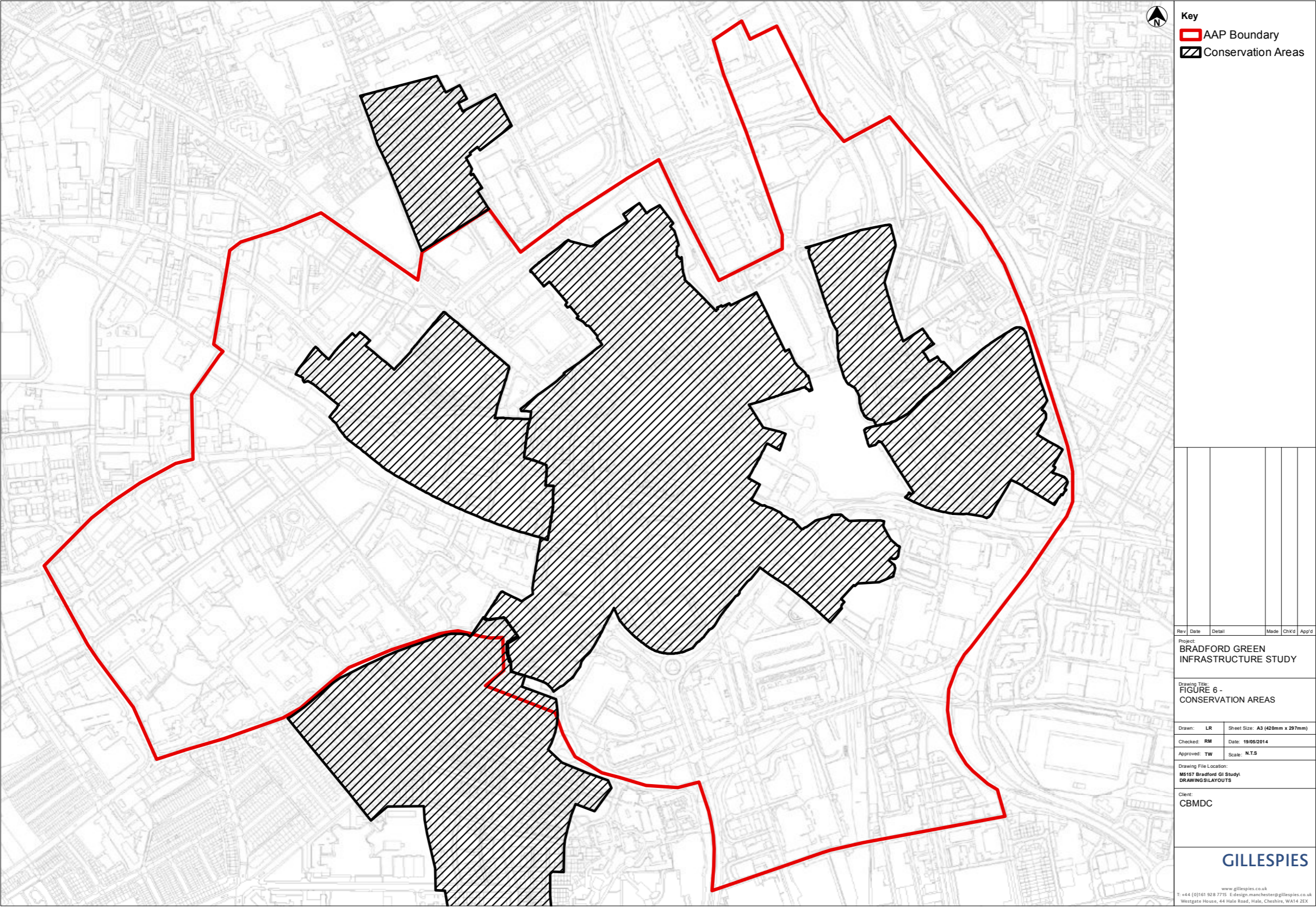
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Approved: TW Scale: N.T.S.

Drawing File Location:
MS157 Bradford GI Study
DRAWING LAYOUTS

Client:
CBMDC

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T: +44 (0)161 528 7755 E: design.manchester@gillespies.co.uk
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2.2.4 Conservation Areas

Figure 6 shows the distribution of Conservation Areas within the City Centre. A significant proportion of the City Centre AAP area is covered, including Cathedral Precinct, Little Germany, the City Centre and Goitside.

Relevance to GI: 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 of relevance enhancements to the setting of heritage features can attract both visitors and investment.

2.2.5 Air Quality

Four areas have been identified within the Bradford District which are not achieving the UK air quality objective for nitrogen dioxide and these are listed below and illustrated on Figure 7.

- Mayo Avenue, Bradford,
- Thornton Road, Bradford
- Manningham Lane, Bradford
- Shipley Airedale Road, Bradford

Exhaust emissions are largely responsible, particularly heavy freight and buses. The council has a duty to designate these locations as Air Quality

Management Areas (AQMA's) 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.

Two of these AQMA's are located within the CC AAP boundary, namely Thornton Road and Shipley Airedale Road. Furthermore, the other two AQMA's potentially effect sustainable routes to GI assets located outside of the boundary so their proximity is of relevance to the study.

Relevance to GI: Air quality has an important effect on health and GI has the potential to reduce the effect that air pollution has on residents by, for example, filtering particulates from the atmosphere.

2.2.6 Access to existing green spaces:

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;

This is discussed in more detail in Chapter 4 (see Figure 14), but analysis of existing provision shows that the City Centre is not well connected to greenspace at the 300m (local) level with only a small area in the north east and the far western edge having coverage, but that the whole of the City Centre AAP area has access to a 20 ha site within 2km.

Relevance to GI: There is an area of existing residential between Bolton Road and Barkerend Road which is covered by the 300m standard; within the other area of coverage use is primarily industrial. This standard shows if residents have access to public greenspace; this is particularly important if residents do not have access to private gardens.

2.2.7 Access and Links

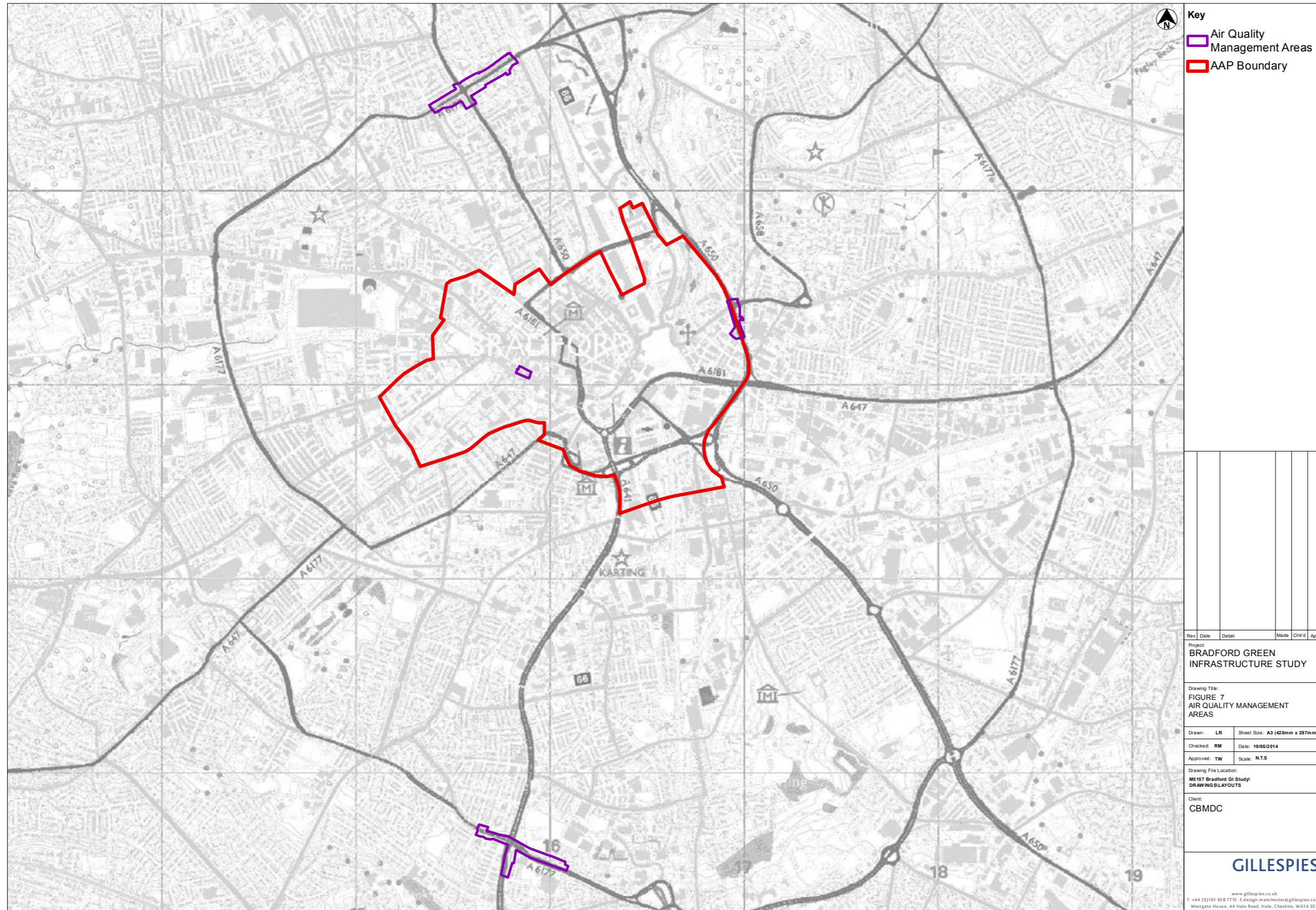
There are several key existing and proposed links which are relevant to this study, with the key links being illustrated on Figure 8 :

- Sustrans Route 66 which runs from the south through the City Centre and then north into the Shipley Canal Road Corridor area.
- The Dales Way Link, which starts at the Cathedral
- Links to and between the train stations
- Links to local amenities: schools, sport and recreation, religious, visitor attractions, key employment areas
- Large parks and informal spaces outside of the AAP boundary
- City Centre Pedestrian Priority areas

Relevance to GI: 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 AAP and much work has already been done to ensure that new and existing development is well linked.

2.2.8 Formal and informal greenspace outside the AAP

As Figure 9 illustrates, the AAP benefits from its proximity to a number of formal and informal green spaces. Lister, Peel, Horton and Bowling parks are all large parks located within relatively easy reach of the AAP boundary. The Infirmary Fields greenspace is located just outside the AAP boundary to the north east off Westgate. As is described within section 4.2.1. 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 AAP and routes to these parks are mapped within Figure 8.



Key

- Air Quality Management Areas
- AAP Boundary

Rev	Date	Detail	Made	CHK'd	App'd

Project:
BRADFORD GREEN
INFRASTRUCTURE STUDY

Drawing Title:
FIGURE 7
AIR QUALITY MANAGEMENT
AREAS

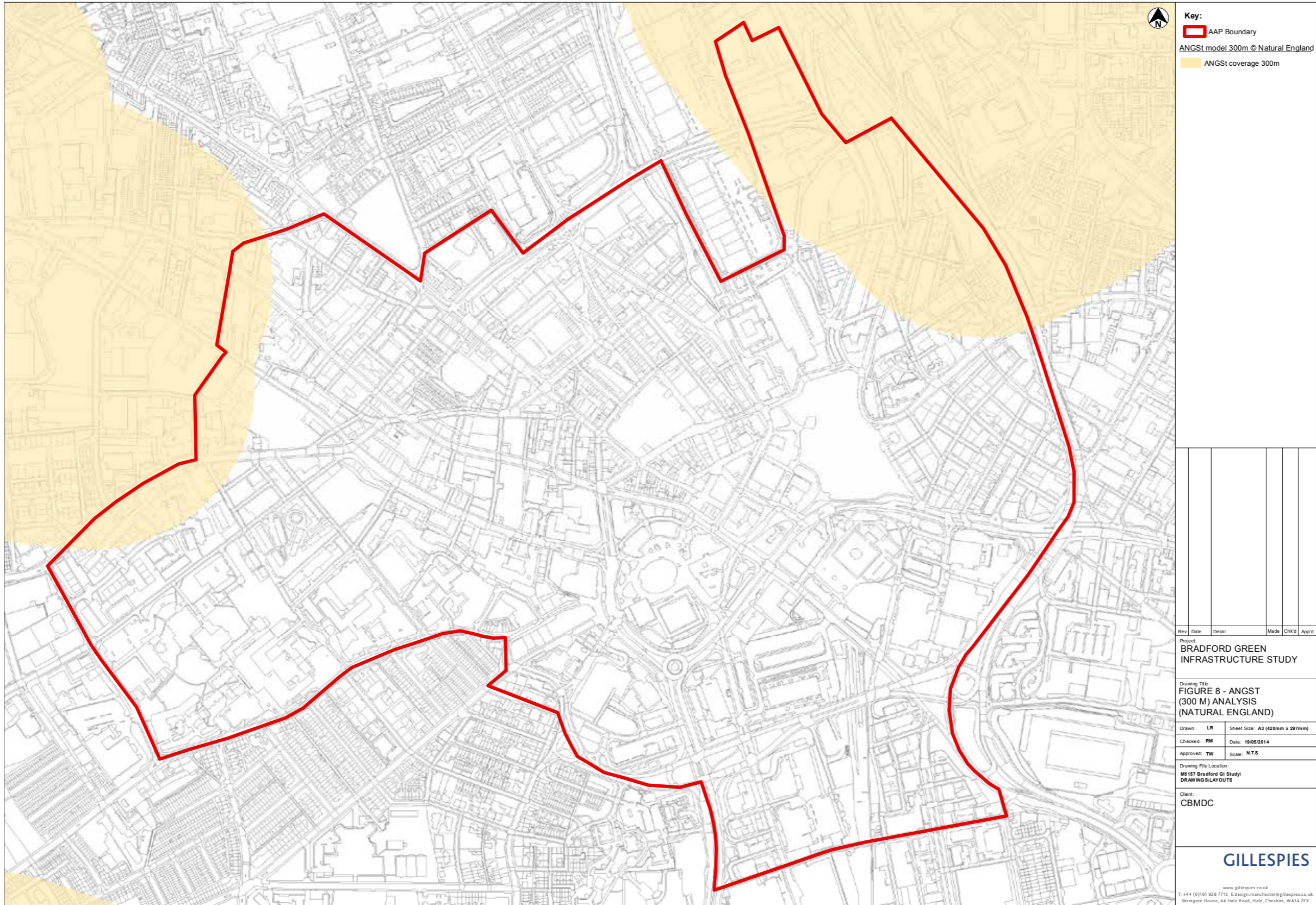
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Approved: TW	Scale: N.T.S.

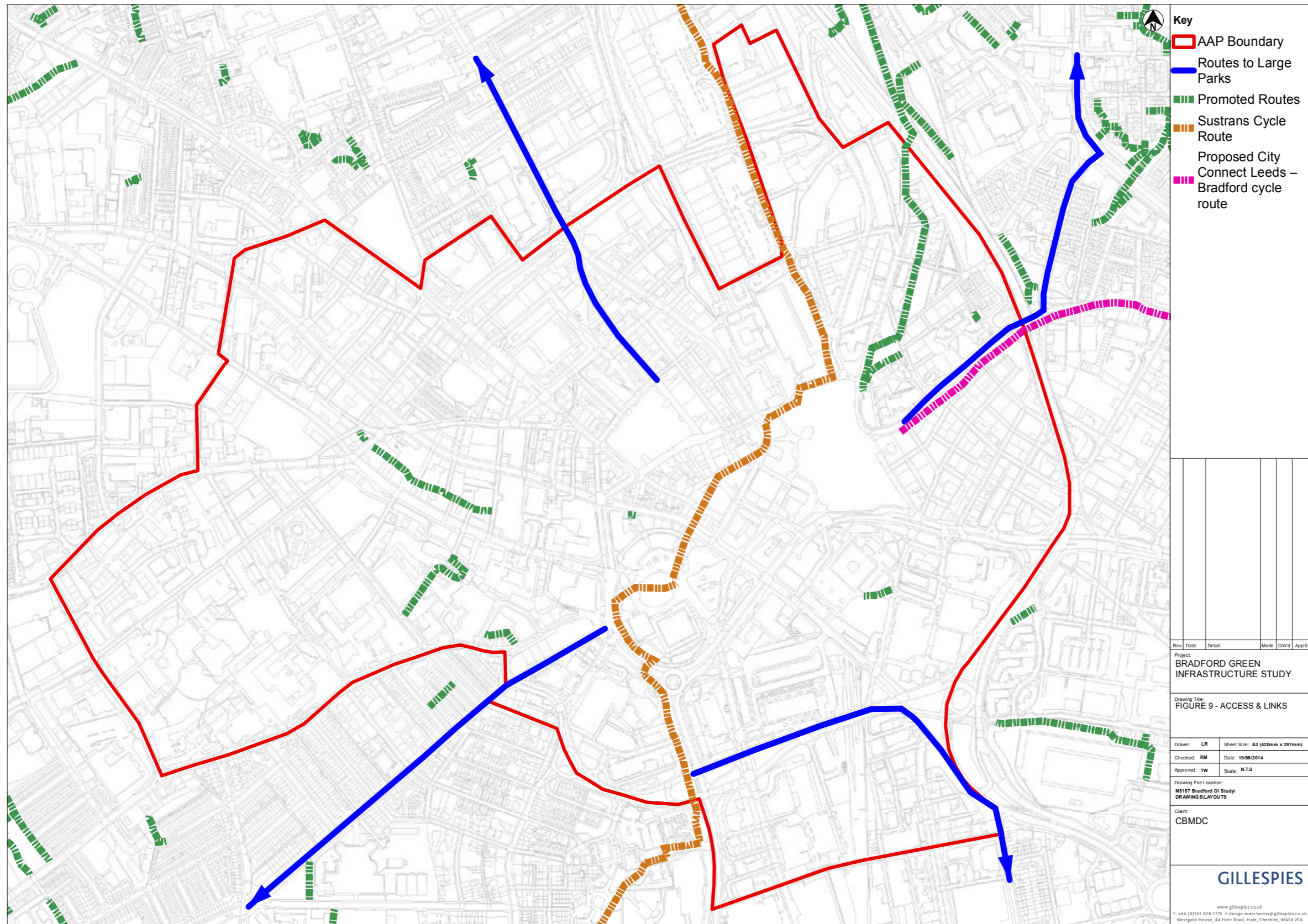
Drawing File Location:
M8197 Bradford GI Study
DRAWING SLAYOUTS

Client:
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Westgate House, 44 Hole Road, Hale, Cheshire, WA14 2EX





2.2.9 Potential future changes within the AAP area

The AAP Issues and Options report outlines the proposed future allocations within the City Centre including significant proposals for:

The Bowl

Grade A office space and Leisure offer.

The Channel

The area will be the focus of new comparison retail in the Broadway shopping centre, and residential mixed use development. The residential offer is expected to be a mix of new build and the conversion of historically important buildings in areas such as Little Germany. Key development sites include the area west of valley road. Delivery target of a minimum of 1010 residential units.

The Market

The focus for small scale independent retailing and leisure, with the introduction of residential into the area. Delivery target: min. 500 units.

The Valley

The area will be the focus of city living, with supporting small scale leisure and retail. Delivery target: min. 1650 residential units. Key Development Sites include the Former Thornton Road Gas Holders Site and the Former Beehive Mills.

The Learning Quarter

The area will be the focus for expanded education and student living.

The Southern Gateway

Transforming the area from former industrial to a focus for residential development. Key development sites include Britannia Mills and Bedford St Garage. Delivery target: min. 740 residential units.

This gives a minimum of 3,900 units which could be built over the next 14 years; if we assume 2.2 people per unit then that generates 8,580 new residents for the City Centre, with their concurrent needs for access to greenspace.

2.3 Context: Bradford City Centre GI assets, functionality and benefits

2.3.1 GI asset typology within Bradford City Centre

The classification of the City Centre'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 Bradford City Centre GI Asset typologies:

- Public Space (spaces with facilities for public use such as benches and paths) (PS)
- Civic spaces (paved spaces including 'significant' pedestrian footways and squares) (CS)
- Street trees (ST)
- Institutional Greenspace (University and religious building grounds) (IG)
- Existing 'Blue' infrastructure and SuDS schemes (B) / (SuDS)
- Amenity greenspace (space associated with buildings / car parks etc, but with no facilities for public use) (AG)
- Roadside greenspace (spaces associated with the road network) (RG)
- Greenspace along the rail corridor (TG)
- Private gardens (PG)
- Derelict land (D)

2.3.2 Green Infrastructure functions within Bradford City Centre

These functions were determined through analysis of existing documents (including the GI Valuation Toolkit) and an analysis of Bradford green spaces. Provide safe and attractive links (cycling and walking routes to or between) residential areas, employment areas and community facilities (such as schools and public transport nodes)

- A. 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. Provide attractive places for living
- E. Provide attractive places for working / studying
- F. Provide attractive places for securing inward investment
- G. Provide attractive places for recreation (open spaces, play facilities, cycling and walking etc)
- H. Provide attractive places for tourism

- I. Provide attractive places for increasing land / property values and demand
- J. Reduce urban run-off and reduce flood risk (through increasing natural 'water storage' / infiltration capacity)
- K. Urban cooling (reducing the urban heat island effect by shading and increasing evaporation rates)
- L. Improve air quality (for example by filtering particulates from the atmosphere)
- M. Carbon sequestration
- N. Provide wildlife corridors (to link habitats and to help facilitate species migration caused by climate change)
- O. Provide local food and energy production
- P. Provide a local environmental resource for education and skills development
- Q. Provide an attractive setting for townscape / cultural heritage assets
- R. Provide habitat / ecological network of habitats
- S. Additional SuDS functionality: Provide multi-functional 'Blue / Green Infrastructure' areas (examples include green roofs and walls or areas which combine providing temporary flood storage with opportunities for recreation of wildlife)

2.4 What are the benefits of investing in Green Infrastructure in the Bradford City Centre AAP?

The Green Infrastructure functions described above lead to tangible benefits for Bradford City Centre.

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

These benefits include:

2.4.1 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 toolkit 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

2.4.2 Climate change adaption and resilience:

Supporting climate change mitigation and adaption measures can reduce the effects, damage and cost caused by climate change. Multi-functionality is a key part of this - for example, open spaces used both as playing fields and flood plains can provide effective temporary storage 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 and T contribute to climate change adaption and resilience

2.4.3 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 toolkit 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

2.4.4 Improving biodiversity

A biodiverse environment provides a number of natural services including ecosystem services, such as protection of water resources, soil formation and protection, nutrient storage and recycling, pollution breakdown and absorption, contribution to climate stability and Biological resources, such as food, medicinal resources and pharmaceutical drugs, wood products, 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

2.5 How do these functions and benefits tie into the City Centre AAP?

2.5.1 AAP Objectives

Draft AAP Objectives which GI could play a part in delivering include:

Objective 2. An attractive, inclusive and safe environment

Objective 4. A range of good quality housing and facilities to cater for a successful city centre community

Objective 7. Easy access to and around the centre for all sections of the community

8. A rich and diverse variety of plants, birds, animals and insects as part of new linear parks, open spaces and waterways to enhance the quality of life and experience of visitors and residents.

2.5.2 AAP Themes

Draft AAP Themes which GI could play a part in delivering include:

[City Living and supporting community provision](#)

Does GI need its own 'Key issue' section within this theme?

[Movement](#)

GI could play a part in a number of key issues including:

- Quality and Availability of pedestrian routes;
- Air quality management; and
- Provision of a safe and inclusive public realm.

2.5.3 Public realm

GI could play a part in a number of key issues including:

- GI and open spaces within the City Centre - The Masterplan considers that additional public open spaces should be provided along a corridor extending along Thornton Road, through the Tyrls /Centenary Square and along the Canal Road /Valley Road to create a linked network. The Council will look to build on the success of the new City Park when considering a new strategy for

the provision of open space in the city centre. The AAP will identify existing and new opportunities for open spaces on the proposals map, in line with the water course, consisting of both public and private open space. The requirement of open space within development proposals will be identified within allocation proposal statements. Key examples of how this can be implemented can be found within the new Chain Street development, which incorporates a greenway within the overall design of the scheme. The AAP will also take forward the principles of Core Strategy Policy SC6 and the guidance within the NPPF.

- Biodiversity in the City Centre - The quality of life and the experience of nature are vital for a successful city centre; especially as the trend for city living is on the increase in Bradford. A rich and varied wildlife in the city centre will enhance the quality of life and experience of residents and visitors alike. The Area Action Plan will take forward Core Strategy EN2. Additional info within the proposals statement for open space allocations.
- The Appearance of streets - An attractive, high quality, clutter-free, inclusive environment will, it is believed, attract more visitors and investors. Good design should also deter crime and neglect, which would in turn attract even more visitors and investors. Investment in street works is a "virtuous circle" that will help to retain existing businesses in the traditional shopping area and link it to the proposed new development at Broadway.

2.6 How do Green Infrastructure functions and benefits tie into the Bradford City Plan Vision and its '5 point plan'?

The City Plan puts forward the vision of Bradford City Centre as a place which promotes pride, well-being and aspiration'. It proposes to do this within 5 key 'aims'. These are listed below and the GI functions and benefits that contribute to their delivery are shown.

- [Bradford City as a place for Dynamic Business: Benefit 1, Functions \(F\) and \(G\)](#)
- [Bradford City as a major transport hub: GI function \(A\) and \(R\)](#)
- [Bradford City Centre as a destination and experience: Benefit 1, Function \(H\), \(I\), \(R\)](#)
- [Bradford City as a centre of excellence for learning: Benefit 1, Functions \(A\), \(E\), \(F\),\(H\), \(Q\) and \(R\)](#)
- [Bradford City as an exemplar of 21st century living: Benefits 1, 2, 3 and 4, Functions \(A\), \(B\), \(C\), \(D\), \(E\), \(F\), \(G\), \(H\), \(K\), \(L\), \(M\), \(P\), \(R\) and \(T\).](#)

03

Baseline

Mapping the City Centre

3.1 Existing Green Infrastructure - Typology

Bradford City Centre AAP GI assets have been categorised into a typology in section 2.3.1 and the City Centre AAP spaces are categorised and listed in Table 1 in Appendix 1.

The GI asset typologies are mapped in Figure 11.

This illustrates areas of 'non GI' within the city centre, much of which is either buildings or road infrastructure.

This shows that 18.82% of Bradford City Centre AAP area is comprised of Green Infrastructure assets (31.18 ha out of a total area of 165.68 ha).

Only limited areas of **Public Space** are located in the City Centre; these are City Park (including Norfolk Gardens), a large area of Public Greenspace along Hall Ings Road (which has the potential to be significantly improved in terms of its functionality), a couple of small squares and spaces associated with public buildings, including the Court.

The Public Space typology covers 2.89 ha of the City Centre AAP area, out of a total area of 31.18 ha (1.74%). Out of a total of 302 no. identified GI assets, only 7 No. are Public Spaces.

Civic Spaces are largely confined to 'The Bowl' and 'The Market' (as defined by the City Plan), with smaller areas associated with the University along Great Horton Road.

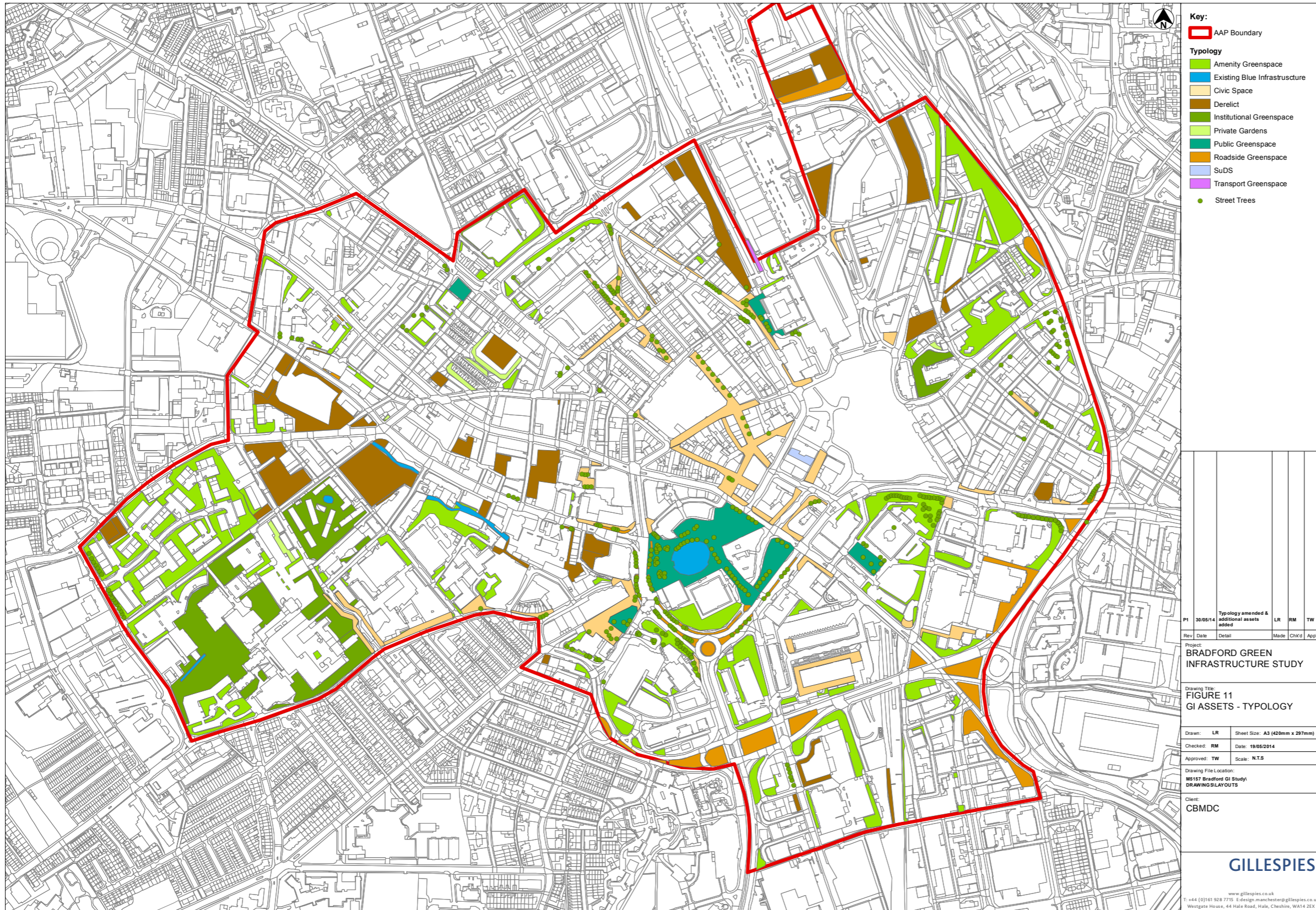
Roadside Greenspaces are associated with major road network including the Shipley Airedale Road corridor, A6181 'Inner Ring Road?' and Croft Street / Senior Way.

Derelict land concentrated along Thornton Road to the west of the centre of the City and to the north east in the general vicinity of Hamm Strasse. There are 42 No. Derelict spaces identified within the City Centre, covering 3.74% of the land area.

Institutional Greenspaces are unsurprisingly concentrated around the University to the west of the city centre, with other smaller areas associated with the Cathedral to the east of the city centre.

Overt **SuDS schemes** are rare within the City Centre, with a swale and some permeable paving located in the University grounds and a private(?) Roof garden located between Broadway and Market Street. City Park also incorporates SuDS functionality.

There are a significant number of small **amenity greenspaces** in the City Centre, primarily located within the Southern Gateway, Broadway, the Bowl and the University and College Campus areas.



Key:

- AAP Boundary

Typology

- Amenity Greenspace
- Existing Blue Infrastructure
- Civic Space
- Derelict
- Institutional Greenspace
- Private Gardens
- Public Greenspace
- Roadside Greenspace
- SuDS
- Transport Greenspace
- Street Trees

PI	30/05/14	Typology amended & additional assets added	LR	RM	TW
Rev	Date	Detail	Made	Chkd	App'd
Project: BRADFORD GREEN INFRASTRUCTURE STUDY					
Drawing Title: FIGURE 11 GI ASSETS - TYPOLOGY					
Drawn:	LR	Sheet Size:	A3 (420mm x 297mm)		
Checked:	RM	Date:	19/05/2014		
Approved:	TW	Scale:	N.T.S		
Drawing File Location: M5157 Bradford GI Study\ DRAWINGSLAYOUTS					
Client: CBMDC					
GILLESPIES					
www.gillespies.co.uk T: +44 (0)161 928 7715 E: design.manchester@gillespies.co.uk Westgate House, 44 Hale Road, Hale, Cheshire, WA14 2EX					

3.2 Multi-functionality

What Green Infrastructure functions do the individual typologies deliver?

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 Table 1 and their distribution is mapped in Figure 11.

The GI Asset list in Table 2 in the Appendix illustrates the total numbers of functions which are delivered by the GI assets in the City Centre – the table below shows the summary of this analysis.

Table 1:

Function	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
No of assets	56	72	49	64	207	214	42	15	39	57	258	248	231	33	5	0	0	226	16	1

Functions with limited (defined as less than 50) or no coverage in the City Centre include:

- (A) Provide opportunities for physical health and well-being for all ages
- (B) Provide attractive places for securing inward investment
- (C) Provide attractive places for recreation (open spaces, play facilities, cycling, walking and boating etc);
- (D) Provide wildlife corridors (to help facilitate species migration caused by climate change);
- (E) Provide local food and energy production;
- (F) Provide a local environmental resource for education and skills development;
- (G) Provide habitat / ecological network of habitats; and
- (H) Additional SuDS functionality

However, it is worth noting that all coverage statements are relative –as there is no comparative study of another similar city to compare the results to, this means that the number of 'high / very high' multi-functionalities aren't as relevant as the 'low / very low' results (as they may in reality be a low number in comparison if a similar exercise was carried out in Leeds or Sheffield for example).

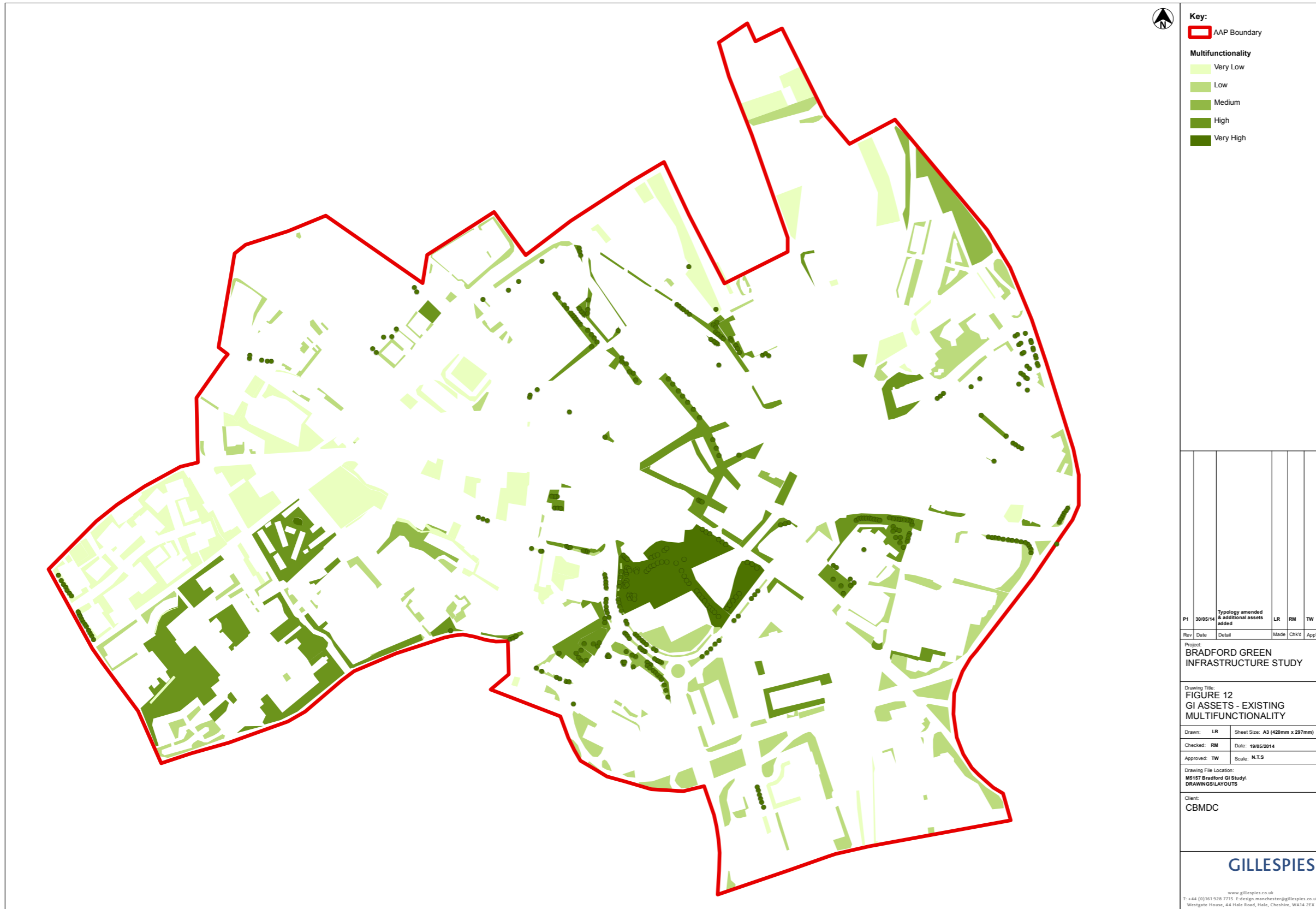
As defined earlier, higher levels of GI multi-functionality results in greater benefits and this level of existing benefit delivered by GI assets within the City Centre is illustrated by the darker green areas on Figure 11.

This illustrates that a number of large spaces and networks of high multi-functionality occur in the 'Bowl' and 'Markets' areas. These are centred around the Public Space of City Park and spread out to the north through a network of civic spaces and pedestrian streets and to the west along Great Horton Street towards the University. The grounds of the University contain areas of high multi-functionality.

The 'Southern Gateway' contains numerous small areas of low multi-functionality resulting from the presence of areas of Amenity and Roadside Greenspace.

A wedge of Low – Medium multi-functionality between Bolton Road and Barkerend Road culminates in an area of high multi-functionality in the grounds of the Cathedral.

An area of very low multi-functionality extends from the City centre westwards along Thornton Road and Listerhills Road.



Key:

- AAP Boundary

Multifunctionality

- Very Low
- Low
- Medium
- High
- Very High

P1	30/05/14	Typology amended & additional assets added	LR	RM	TW
Rev	Date	Detail	Made	CHK'd	App'd
Project: BRADFORD GREEN INFRASTRUCTURE STUDY					
Drawing Title: FIGURE 12 GI ASSETS - EXISTING MULTIFUNCTIONALITY					
Drawn:	LR	Sheet Size:	A3 (420mm x 297mm)		
Checked:	RM	Date:	19/05/2014		
Approved:	TW	Scale:	N.T.S		
Drawing File Location: M6157 Bradford GI Study DRAWINGSLAYOUTS					
Client: CBMDC					
GILLESPIES					
<small>www.gillespies.co.uk T: +44 (0)161 928 7715 E: design_manchester@gillespies.co.uk Westgate House, 44 Hyde Road, Huddersfield, West Yorkshire, WF1 2JX</small>					

04 Analysis

4.1 Potential Multi-functionality

The analysis in section 3 identifies the degree of multi-functionality achieved by the current GI assets in the City Centre, but what is the potential functionality of these assets?

What additional functions could the GI asset typologies carry out if they were enhanced?

Table 2 in appendix 1 identifies the additional functions the typologies could fulfil if the typologies met their full potential.

The summary of this level of **potential multi-functionality** which Bradford City Centre's existing GI assets could deliver is mapped in Figure 13 on the previous page. This illustrates that the existing inconsistent coverage increases across most of the City Centre to High or Very High and therefore that the benefits delivered by GI increase across the City Centre AAP area.

Table 2 in Appendix 1 illustrates the typology categories which it is considered possess a **significant** potential to increase their multi-functionality and benefits.

In summary, these are:

- Amenity Greenspace (AG);
- Roadside Greenspace (RG);
- Civic Spaces (CS);
- Derelict Land (D); and
- Potentially Derelict / neglected Train Greenspace (TG) (through negotiation with Railtrack)

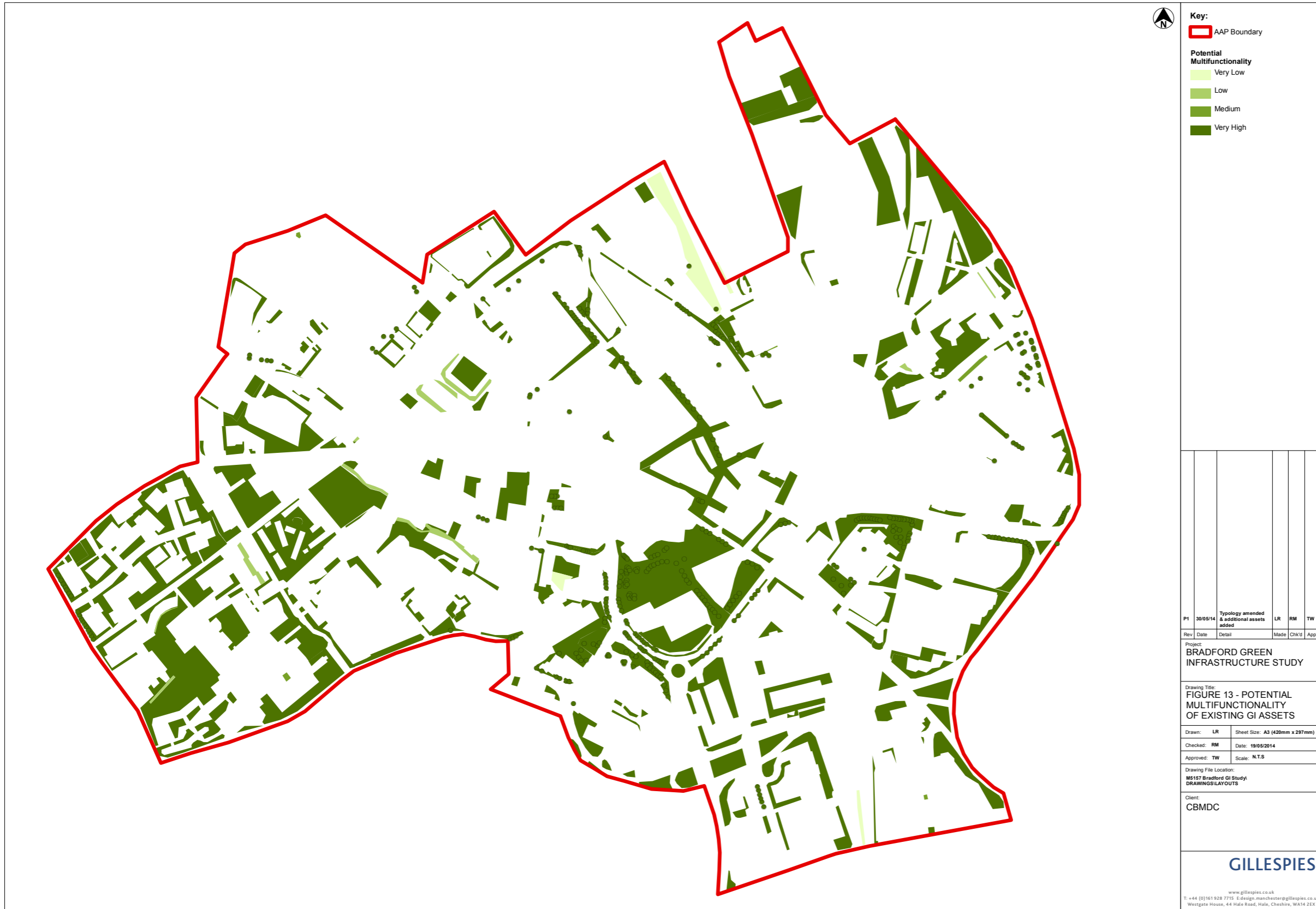
The distribution of these typologies are mapped in Figure 14.

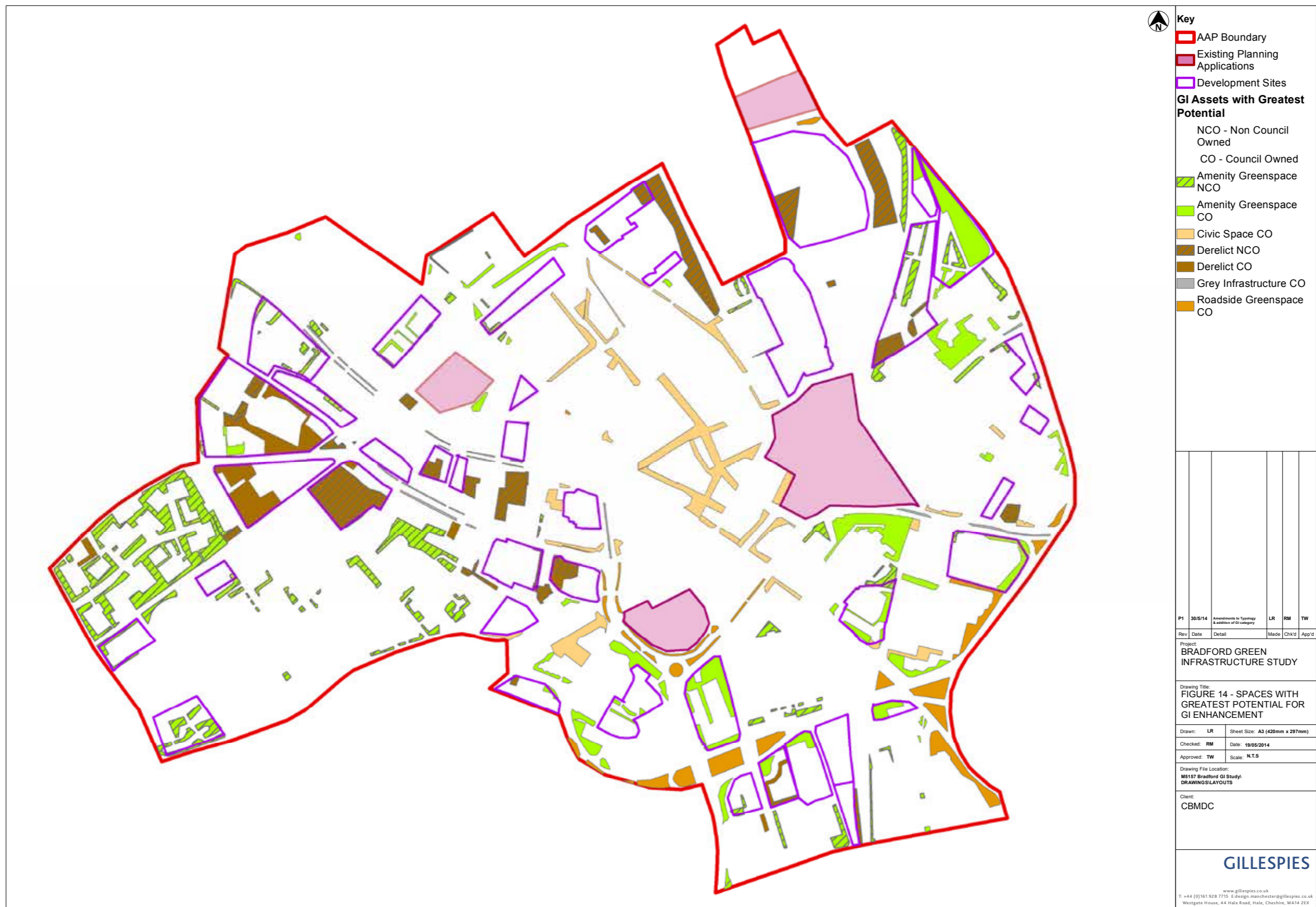
This shows a 'wedge' of Derelict land running along Thornton Road to the west of City Park, with another cluster to the north east.

Large areas of Amenity Greenspace and Roadside Greenspace are located across the Southern Gateway.

A 'wedge' of Civic Space in the 'Markets' area to the north / north west of the City Centre and a band running along Great Horton Street towards the University.

There are limited GI asset typologies with the potential for improvement in the Little Germany and Goitside areas.





4.2 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.

And 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.

[Natural England's 'Nature Nearby' Accessible Natural Greenspace Guidance]

4.2.1 How does the City Centre AAP Area compare against National greenspace Standards?

The 300m and 2 km 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.

This shows that current ANGSt provision at the 300m level is poor across the City Centre with coverage limited to the extreme west and north east of the AAP area. Therefore the majority of the residents in the City Centre have limited access to greenspaces 'on their doorstep'. Private Gardens (PG) are also limited within the City Centre area so this is a significant finding leading to the conclusion that local greenspace provision for residents within the City Centre is limited.

This shows that all areas of the City Centre 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 City Centre AAP boundary provide access to 'large scale' public greenspace. These are Peel Park, Lister Park, Horton Park and Bowling Park. (Lister and Peel parks have been awarded the 'Green Flag' standard, which is the benchmark national standard for parks and green spaces in the United Kingdom).

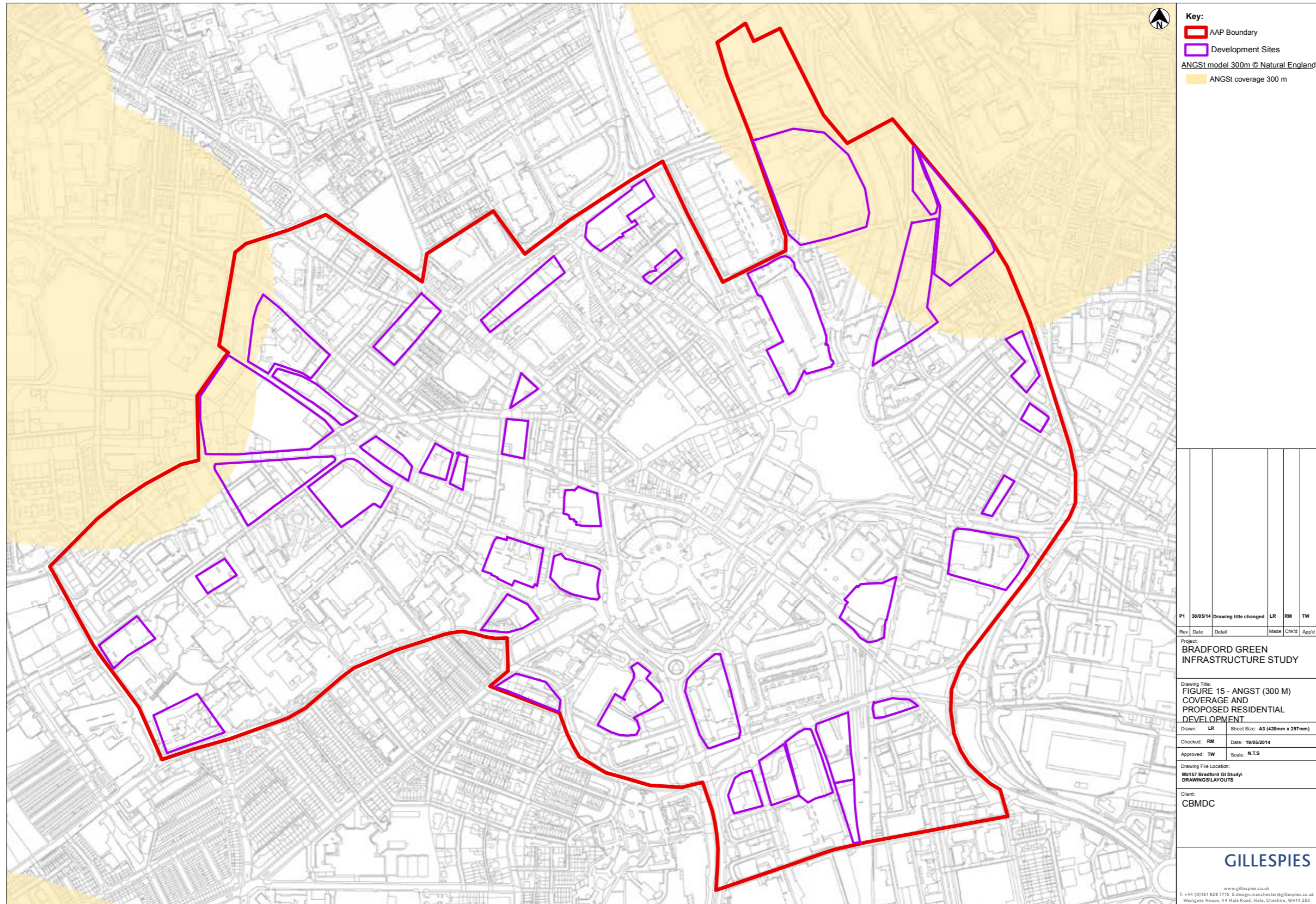
It is therefore important to consider sustainable transport links to these parks from the City Centre as these provide the closest greenspaces of significant size and quality.

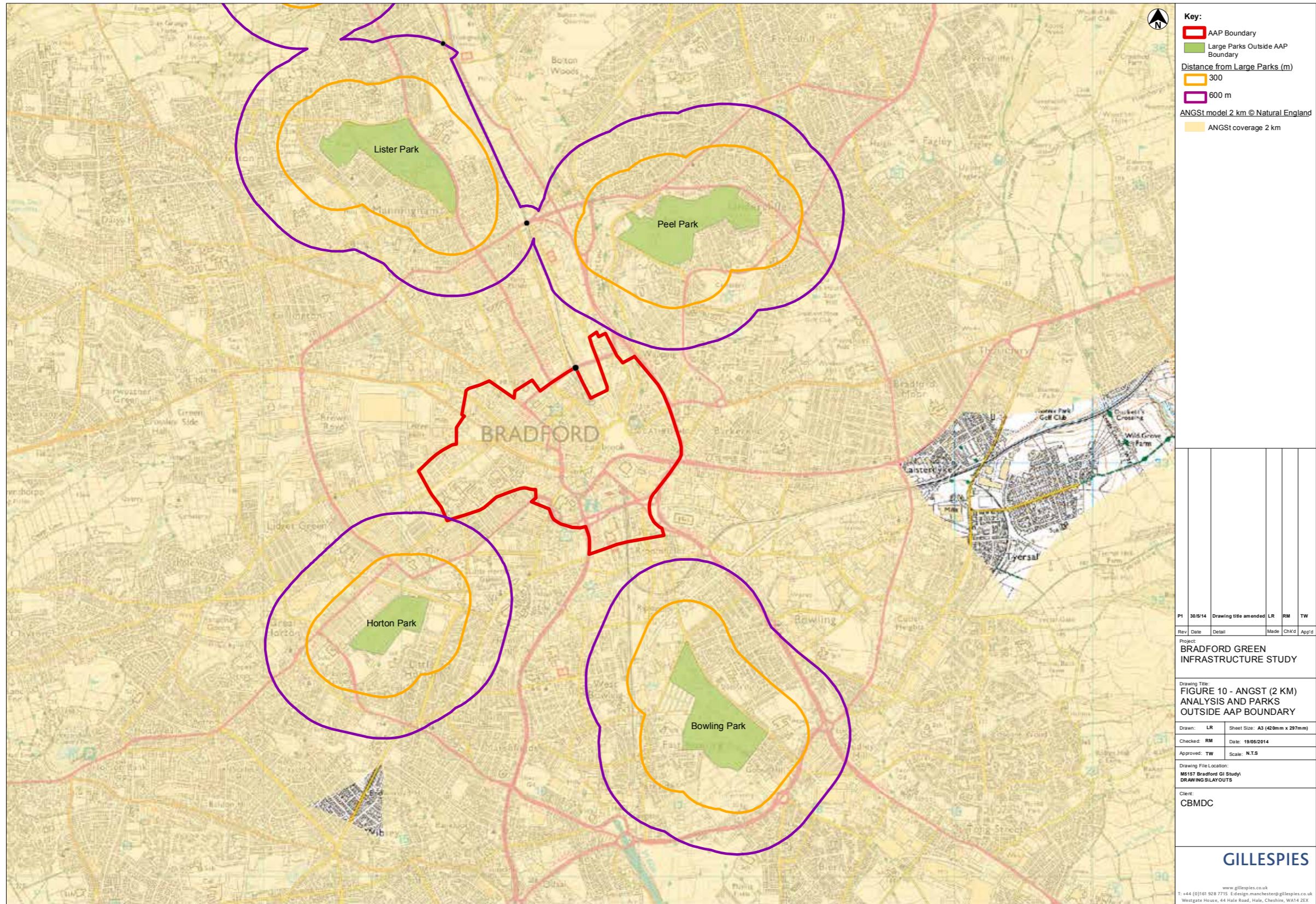
4.2.2 Future residential allocations vs. ANGSt provision

We have an indication of where new residential provision is proposed within the AAP plan period (see 'Proposed site Allocations' in the AAP Issues document). If these sites are mapped, most residential development sites do not have ANGSt coverage at the 300m level. However all residential development sites within the City Centre AAP have full coverage at the 2 km ANGSt level.

NB. City Park does not count as 'greenspace' within the ANGSt analysis even though it is over 2 ha in size and it fulfils identical functionality as a traditional public 'greenspace', including SuDS functionality and informal play in its water features.

As there is no scope for the creation of a 2 Ha+ greenspace in the City Centre AAP area, it highlights the need for a network of smaller multi-functional spaces within the city centre.





05

Summary

5.1 Summary of Key findings from Context and Analysis

Key findings from the baseline and analysis sections are noted below:

- Less than 20% of the AAP is comprised of GI assets making this a not very 'green' AAP area. (31.18 ha out of a total area of 165.68 ha).

Points to: Can more green spaces be introduced within the City Centre?

- Typology: The **Public Space** typology covers 2.89 ha of the City Centre AAP area, out of a total area of 31.18 ha (1.74%). **Derelict land** is defined in 42 sites within the City Centre, covering 6.3 ha (3.74%). This is over twice the amount of Public Spaces.

Points to: Can derelict land be enhanced to provide a benefit to the City Centre?

- Key GI functions with limited coverage across the AAP area include:
 - (C) opportunities for physical health and well-being for all ages;
 - (G) attractive places for securing inward investment;
 - (H) attractive places for recreation (open spaces, play facilities, cycling facilities etc);
 - (O) wildlife corridors (to help facilitate species migration caused by climate change);
 - (P) local food and energy production;
 - (Q) a local environmental resource for education and skills development;
 - (S) habitat / ecological network of habitats; and
 - (T) SuDS functionality.

Points to: SuDS functionality is especially important give the number of development sites at risk from flooding (see Figure 16)

Points to: Could opportunities for play be introduced into a network of enhanced green / public spaces?

Points to: What and where are opportunities to create habitat networks within the city centre?

- Potential for multi-functionality increase within existing typologies (see Fig. 13)
- ANGSt coverage: Existing 300m (local) level ANGSt coverage is very poor within the City Centre and most proposed residential development sites will not have ANGSt coverage at the 300m level (see Fig 14).

Points to: creation of a network of multi-functional green spaces.

- However, all the City Centre and proposed residential development sites within the City Centre AAP do have full coverage at the 2 km level (Fig. 8).
- Greenspaces outside the AAP boundary: a large number of both formal and informal green spaces are located outside the AAP boundary (Fig. 8)

Points to: the City Centre GI network should link into greenspaces located outside the AAP boundary.

- Links within and outside the City Centre: There are limited green / public spaces within the City Centre but do residents / visitors know where these spaces within the City Centre are? All of the AAP area lacks easy access (10 minutes walking distance) to good quality formal public open space (as defined by Natural England's ANGSt analysis). The AAP area has strong existing north-south links (Route 66 and the Dales Way link).

Points to: Can legibility and connectivity be improved e.g. signposting residents and visitors to spaces, links and routes or physically improving links?

- Flood risk within the AAP: Flood zones 2 and 3 follow the course of the Bradford Beck.

Points to: to combat flood risk in the future SUDs should be implemented within the AAP area. In development sites it is likely that these will be enabled via the Flood and Water Management Act (FWMA).6.1 Could we 'green the gaps' in the multi-functionality map?

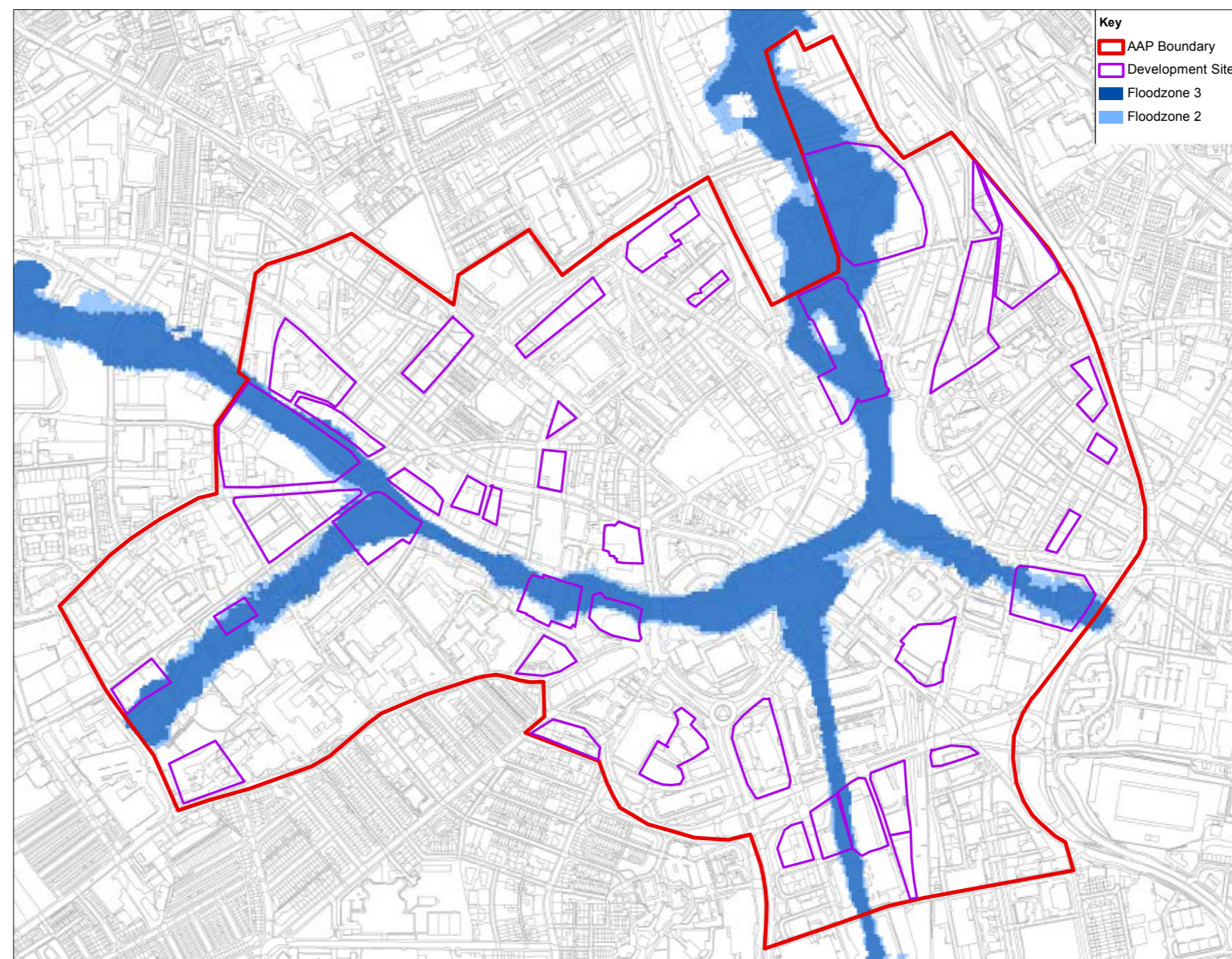


Figure 16 - Development Sites and potential flood risk areas

06

Towards a framework Identified GI Potential within the City Centre

6.1 Could we 'green the gaps' in the multi-functionality map?

Fig. 10 shows areas of 'non GI functionality' – could Green Infrastructure assets be introduced into these areas which lack provision?

This could potentially be achieved through the planning process in areas which are designated as [1] **Development sites**.

These could be enhanced by (a) short term temporary treatment to increase their GI functionality until they are developed and/or (b) the implementation of GI functionality could be enabled and controlled through the preparation of **GI frameworks for sites** and subsequent implementation through the imposition of **planning conditions**. GI proposals for green / blue links could be incorporated into development briefs for key sites.

Additionally, areas of [2] **Grey infrastructure** could potentially be given GI functionality.

For example, areas of impermeable surfacing associated with the road network could have planters installed, tree planting incorporated into parking areas or have areas of impermeable surfacing replaced with permeable paving. Additionally, green roofs or walls could be retro-fitted to existing facilities.

6.2 Could the multi-functionality of existing GI assets be increased?

Fig. 11 shows areas of limited GI multi-functionality – the 'Light green' areas identify where existing GI Assets deliver limited numbers of GI functions (and therefore benefits). These typologies include: [3] **Derelict land**; and [4] **Amenity Greenspace, Roadside greenspace and Civic spaces** and the distribution of these typologies are mapped in Fig. 13.

For example, 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.

6.3 Could we increase the amount of high multi-functionality Green Infrastructure assets?

[5] Increase the number of public spaces

Bradford does not possess a high number of public spaces – can a network of additional public spaces be created?

[6] Protect existing and increase the numbers of Street trees

Street trees deliver many functions which have benefits to the AAP area – can we ensure that existing street trees are protected from development and new street trees are introduced within the City Centre



Bradford Urban Garden

6.4 Green Infrastructure Framework Objectives

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

- Ensure future development enhances GI in the City Centre
- Protect existing Green Infrastructure assets in the AAP area
- Enhance existing Green Infrastructure assets in the AAP area
- Create new Green Infrastructure assets within the AAP area
- Link existing and new Green Infrastructure assets to create a GI network
- Enhance links to Green Infrastructure assets outside the City Centre boundary

6.4.1 Ensure future development enhances GI in the City Centre

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 existing 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 City Centre 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.

For 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 City Centre AAP
- CBMDC should produce site specific GI Frameworks/requirements for key sites within the City Centre 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 reviewed on a strategic level, ensuring that they form part of the wider 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.

6.4.2 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.

6.4.3 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.

6.4.4 Create new Green Infrastructure assets within the AAP area

This could be achieved through temporary treatment of derelict sites and the establishment of Green Infrastructure within the existing network of Grey Infrastructure. Other possibilities include the establishment of green roofs / walls (including possibilities for bus stops and market stalls as demonstration projects). The key will be to implement new GI assets through future growth such as through future development and infrastructure projects.

6.4.5 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 could be delivered along a regional trail to improve the walking experience for users.

6.4.6 Enhance links to Green Infrastructure assets outside the City Centre boundary

As the potential for the creation of significant new Green Infrastructure assets within the City Centre is limited, so sustainable access to Green Infrastructure assets outside the AAP boundary becomes more important and should be promoted.

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 SPD.

An example for a brownfield housing allocation site in Boroughbridge is shown within that document (Harrogate Borough Council: Green Infrastructure Supplementary Planning Document (SPD). Draft February 2014. page 17)

07

The GI Framework

7.1 Framework: GI Concept Plan

Based on the analysis and framework objectives, individual Green Infrastructure enhancement ideas have been identified, categorised into theses, mapped and prioritised and these are shown in Figure 16 below.

7.1.1 Concept plan

This concept plan shows potential projects located and grouped into categories. These categories are further detailed and discussed in 7.3.

7.2 Eight key GI project interventions

The following pages outline what each project category is, what benefits it brings, discusses issues of feasibility, identifies key projects / project sites and outlines delivery aims for the next 14 years.

- 1 Greening the Grey: Green streets and Green gateways
- 2 Greening the Grey: Green Roofs / Walls
- 3 Greening the Grey: Habitat Highways
- 4 Greening the Brownfield: Boundary Treatments
- 5 Greening the Brownfield: Greenspace treatment
- 6 Network of Sites – key green spaces
- 7 Green / blue links through development sites
- 8 Legibility and links

GI Concept Plan :

- EXISTING GREEN INFRASTRUCTURE
- EXISTING BLUE INFRASTRUCTURE
- EXISTING CIVIC SPACE
- GREEN STREETS
- HABITAT HIGHWAYS
- DALES WAY
- SUSTRANS CYCLEROUTE
- LEGIBILITY
- POTENTIAL GREEN ROOF / WALL
- GREENING THE BROWNFIELD
- DEVELOPMENT SITES
- GREEN / BLUE LINKS THROUGH DEVELOPMENT SITES
- KEY GREEN SPACES TO ENHANCE
- GREEN GATEWAYS

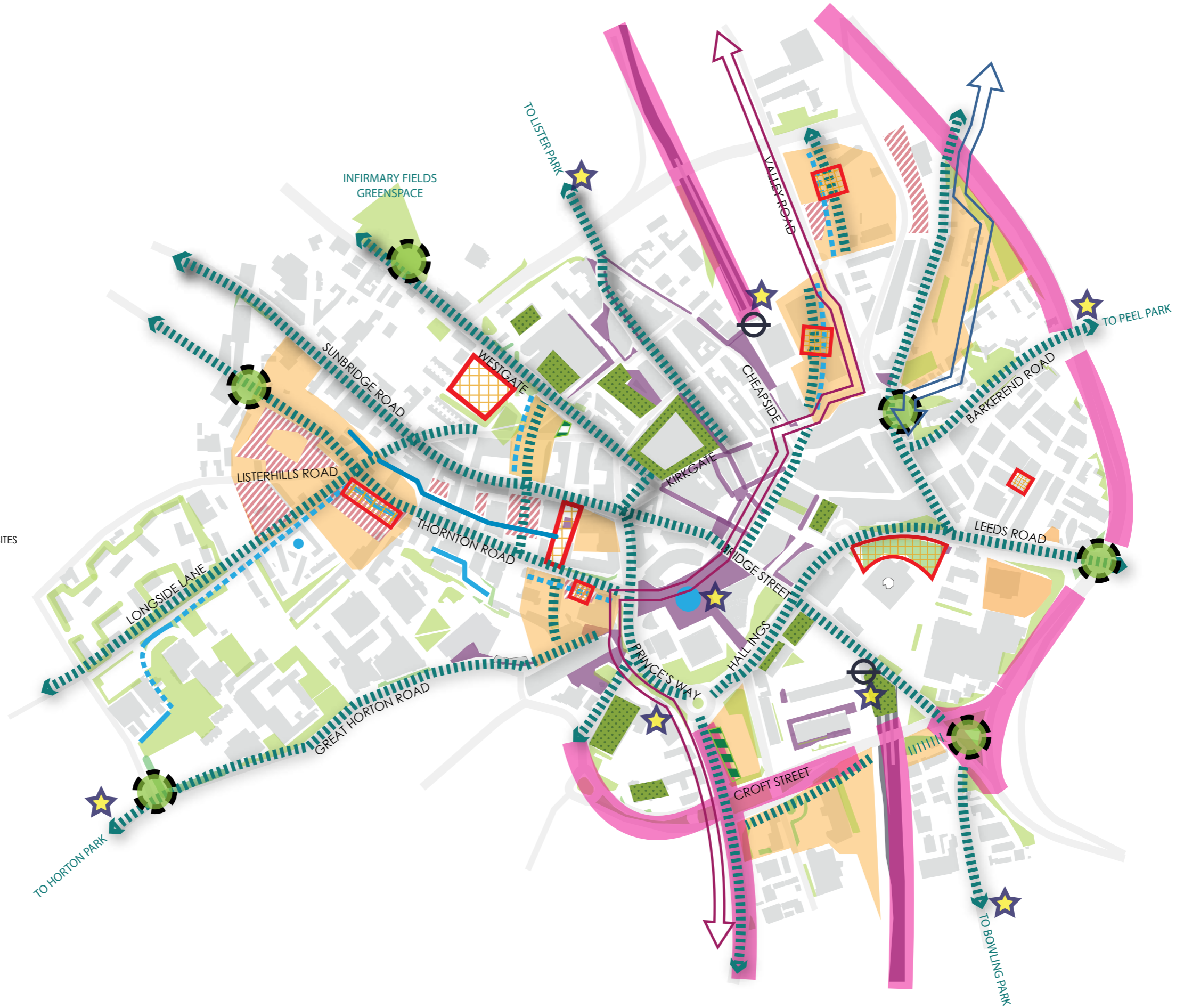


Figure 17 - GI Concept Plan

PROJECT 1 Greening the Grey : Green Streets & Gateways

Green Streets and Gateways gives an opportunity to address multiple issues (such as air quality, walkability and health, storm water management and the creation of positive identity) in a creative and sustainable way through the delivery of street trees, SuDS systems and planters and to introduce sustainable urbanism into the existing highway infrastructure network. Gateway features will mark the entrance points to this green street network and demarcate the edges of the City Centre and give a sense of arrival.

GI Framework Objectives

- 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 AAP 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/Public-Private partnership
- Maintenance costs: Medium / Low

Delivery timescale:

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

Medium/Long

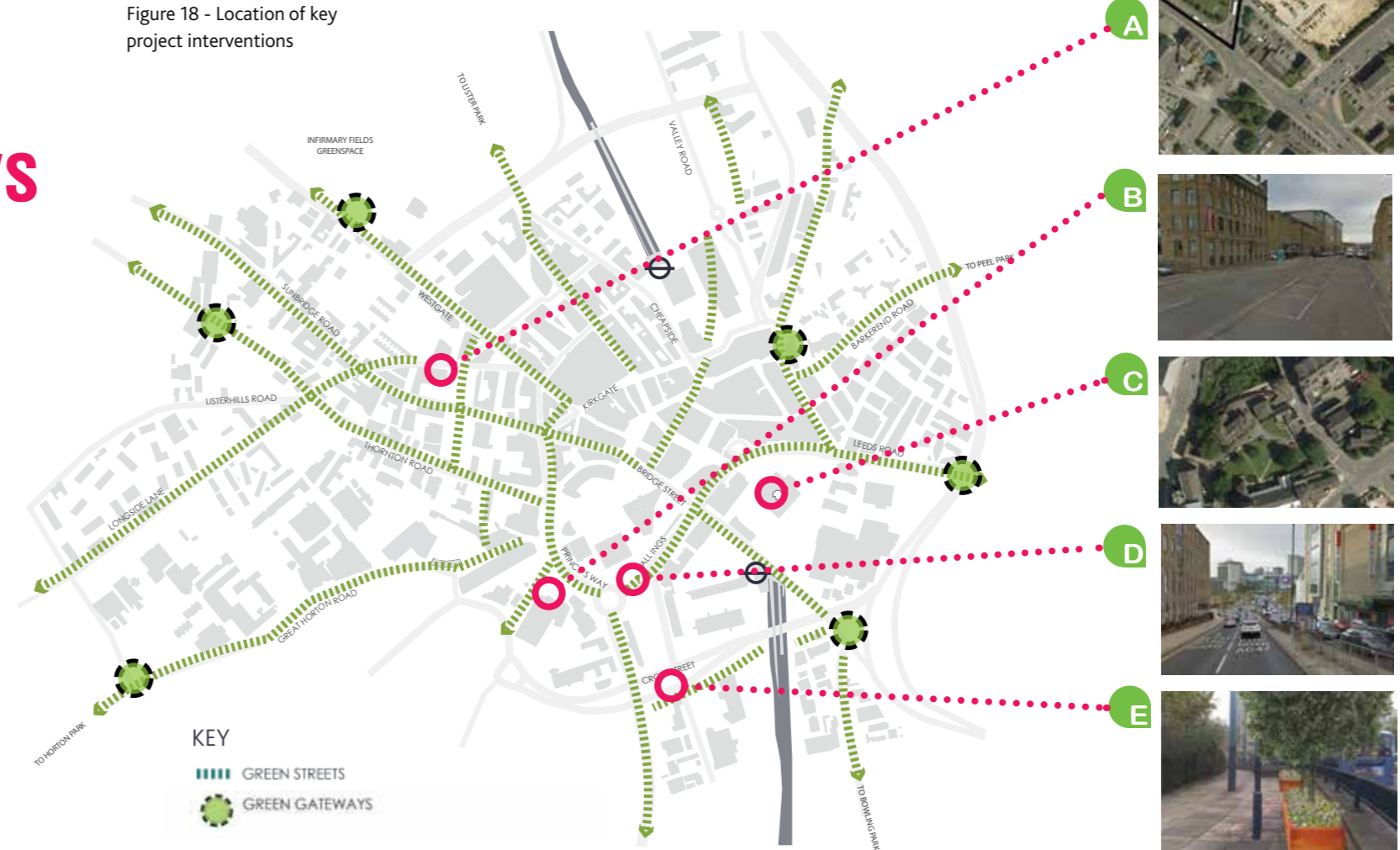
Key projects/sites include:

Westgate, Thornton Road, Longside Lane, Leeds Road, Prince's Way, Croft Street, Bakerend Road

Potential delivery partners

CBMDC / Public - Private partnership

Figure 18 - Location of key project interventions



Case Studies :

Portland - 'Five shades of Green Streets'

Throughout downtown Portland there can be found dense tree canopies, green roofs and storm water planters. The result is a network of 'green streets'. Soil and plants within the street swales filter and treat stormwater run off and slow passage into the stormwater system whilst increasing GI and improving the look and feel of the streets. The success has been so marked that Portland now has 850 green stormwater facilities in the ground and the cities landscape architects are encouraged to design ever increasing innovative 'green streets'. They have 5 levels of green street intervention: 1: minimise impervious areas and maximise planting within streets. 2: Add street trees to achieve a significant canopy. 3: use SuDS to actively manage stormwater on the street. 4: Emphasise alternate sustainable travel. 5: integrate building and street frontage for stormwater management treating public and private run off simultaneously. The case study shows how new infrastructure can be designed to incorporate different levels of blue / green GI depending upon finds and feasibility but also the significant impact retrofitting can have on a place



Nottingham Green Streets Project

This pilot retrofit SuDS project was a result of collaboration between a number of agencies. The scheme was designed to document and evaluate the design and construction of a series of rain gardens within an existing highway setting, test the effectiveness of rain gardens in managing surface water from the public highway, encourage participation from local residents and evaluate the effectiveness of the scheme.

A total of 21 linear rain gardens were constructed within the grass verge, allowing for the constraints of access, below ground services, street furniture and trees. They were designed to capture runoff from 5500 m2 of highway from a total surface area of 7100 m2. The scheme was designed to manage surface water runoff from a 1:30 year event and to always intercept and treat the, often more polluted, first flush of highway runoff.

The existing and predicted maintenance regimes were reviewed prior to construction. It is expected that maintenance of the rain gardens will be limited to an annual trim of the vegetation, with occasional mulching and clearing of the inlet.

Initial results suggests a 33% reduction in the flow reaching the sewer during a 1 in 1 return period storm.

The project shows that such SuDS projects can have a high multifunctional impact and yet be low in annual maintenance costs.



Nottingham's Ribblesdale Road - rain garden SuDS retrofit



Examples of other simple SuDS retrofit measures - self irrigating planters

PROJECT 2 Greening the Grey : Green Roofs & Walls

A roof / wall that is covered with vegetation and a growing medium is a green roof. They serve the purpose of absorbing rainwater, providing thermal / noise insulation, create wildlife habitat and mitigate the urban heat island effect. They therefore provide multifunctional GI. Large flat roofs / walls are most suitable, although other options could include smaller green roofs on bus shelters or market stalls.

Figure 19 - Location of key project interventions



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GI Framework Objectives

- Create new GI assets within 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 (air pollution reduction)
- Improving Biodiversity

Feasibility

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

Delivery timescale:

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

Key projects/sites include:

- Ecology concept 'Urban Oases'
- New developments
- Retrofitting possibilities e.g. Morrisons, Westgate

Potential delivery partners

- CBMDC /Private - Public Partnerships

Case Studies :

Sihi City Green Wall. Zurich



At a height of 23 meters and a width of 25.5 meters, the Green Wall of the Sihi City car park is a striking feature of the development. The Green Wall is suspended some 70 cm in front of the façade in order to provide sufficient growing space for the plants (in this case a combination of Chinese wisteria and birthworts).

The result is a striking, living wall which delivers an elegant aesthetic solution to the car park façade, as well as a number of performance advantages: providing a sunscreen in the summer to help keep the car park cool; an additional layer of insulation during the winter; a level of sound insulation for the busy car park and an effective deterrent to graffiti.

The project shows how green walls can be multifunction GI assets. Developers can be encouraged to use such features to enhance and promote their developments.

Sheffield Green Roofs



The University of Sheffield, Sheffield City Council and Groundwork Sheffield united to create the Sheffield Green Roof Forum. The University provides the research, the council supports green roof planning policy and Groundwork channels funding streams. The partnership is a powerful one and the Forum obtained Objective 1 funding to set up a Green Roof Centre research and demonstration facility for the region. Sheffield City Council's Core Strategy requires green roofs on all larger developments (defined as 15 or more dwellings or more than 1000 sqm internal floorspace) and encourages them on all other developments. The green roof must cover at least 80% of the total roof area.

This case study shows how partnerships can encourage green roofs in a region and how green roofs can be provided through.

PROJECT 3 Greening the Grey : Habitat Highways

Habitat highways are comprised of GI assets which are either linear in nature or whose proximity to other GI assets create the potential to create a wider linked network, aiding the mobility of species. Such assets could involve wildflower and informal planting along the road or rail network and 'green' SUDs measures along the road network. These can be managed to facilitate habitat creation and the mobility of species into the wider GI network. Such themes are explored in more detail within the Ecology Study.

GI Framework Objectives

- 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 AAP boundary

What are the benefits?

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

Feasibility

- Cost: Low
- Permissions: Planning / Landowner
- Potential funding: council/European/Grant funding /Public-Private partnership
- Maintenance costs: Low

Delivery timescale:

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

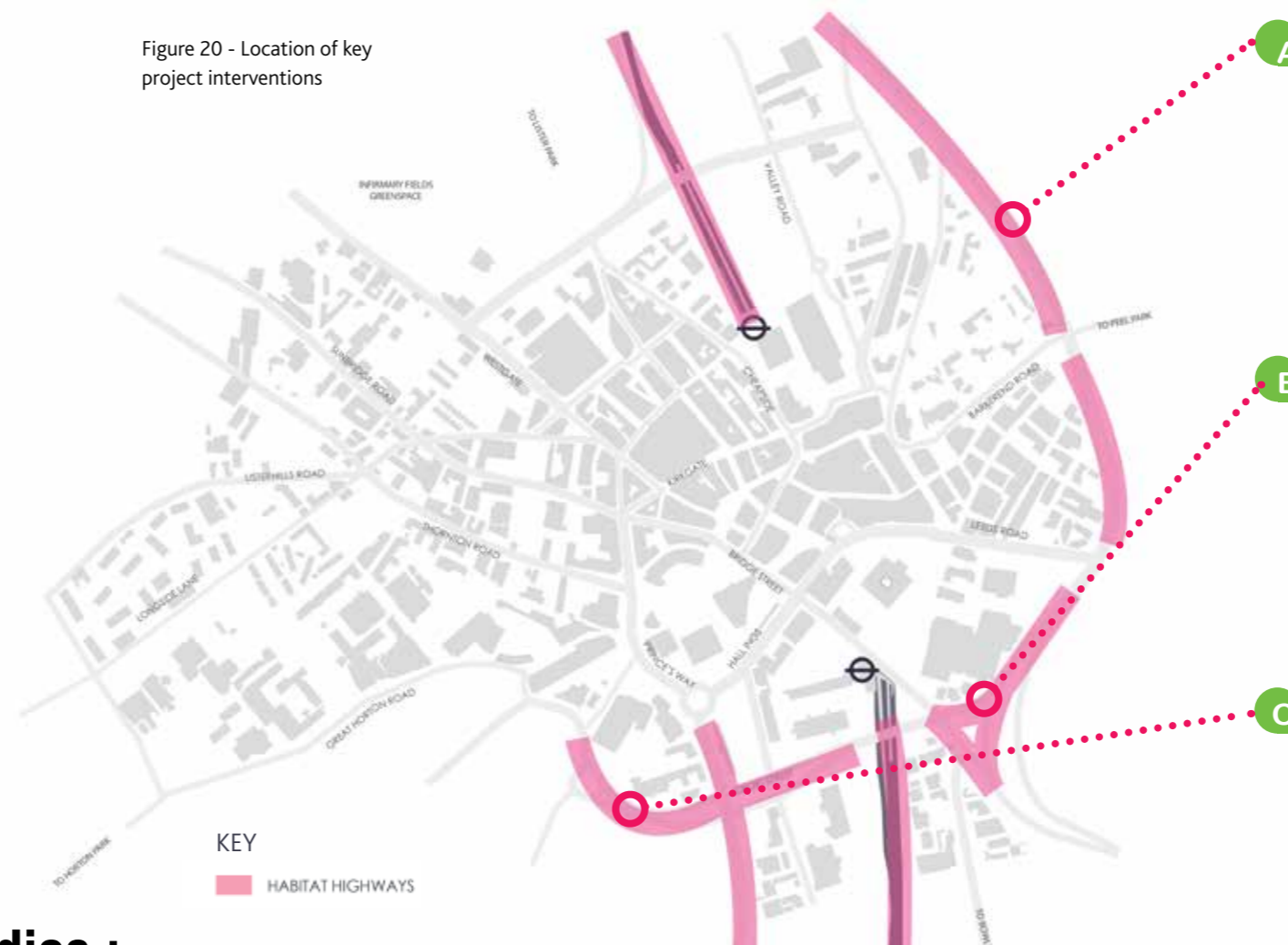
Key projects/sites include:

- Ecology concept 'Nectar Highways'

Potential delivery partners

- CBMDC / Developer / Public-Private partnership / Network Rail

Figure 20 - Location of key project interventions



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

Case Studies :

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 its 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.

Fairleigh Gateway

The objective of the project was to apply the result of experimental work relating to the establishment of more colourful and cost-effective urban vegetation and to contribute to the wider regeneration of several degraded urban green spaces. The planting scheme used a mix of native wildflowers and colourful herbaceous plants. Planting was combined with seed sowing, broadcast between the plants, to produce a low-cost naturalistic effect. The communities response was overwhelmingly positive, with a marked lack of vandalism and damage to the site.



The establishment cost of this approach is approx. one eighth of the cost of traditional landscape treatments such as shrubs or annual bedding (approx. £2/m2). The vegetation is managed by infrequent mowing and the coppicing of some trees. Some additional sowing is sometimes necessary. The ongoing maintenance cost is comparable with that of standard mowing regimes of cutting every one or two weeks (Urban Forestry in Practice: Case study 54 NUFU 2005)

The scheme shows the high impact / low cost potential of naturalistic planting schemes.

Network Rail Business Plan

Network rail is the forth largest 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 measurable net positive contribution to biodiversity in the UK'.

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

PROJECT 4 Greening the Brownfield : Boundary treatments

Derelict and neglected development sites have a 'blight' effect on their surroundings, lowering property values and giving an area a negative image. Improving the boundaries of the sites can improve the image of the site and the surrounding area in a cost effective way. Living barriers can also offer pollution filtering benefits. Such treatments could be applied to sites which become available as a result of a 'stalled' project.

GI Framework Objectives

- Enhance existing GI assets in the AAP area
- Create new GI assets within the AAP area

What are the benefits?

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

Feasibility

- Cost: Medium / Low
- Permissions: Planning (if higher than 1m adjacent to highway)/ Landowner
- Potential funding: Developer / Public -Private partnership
- Maintenance costs: Low

Delivery timescale:

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

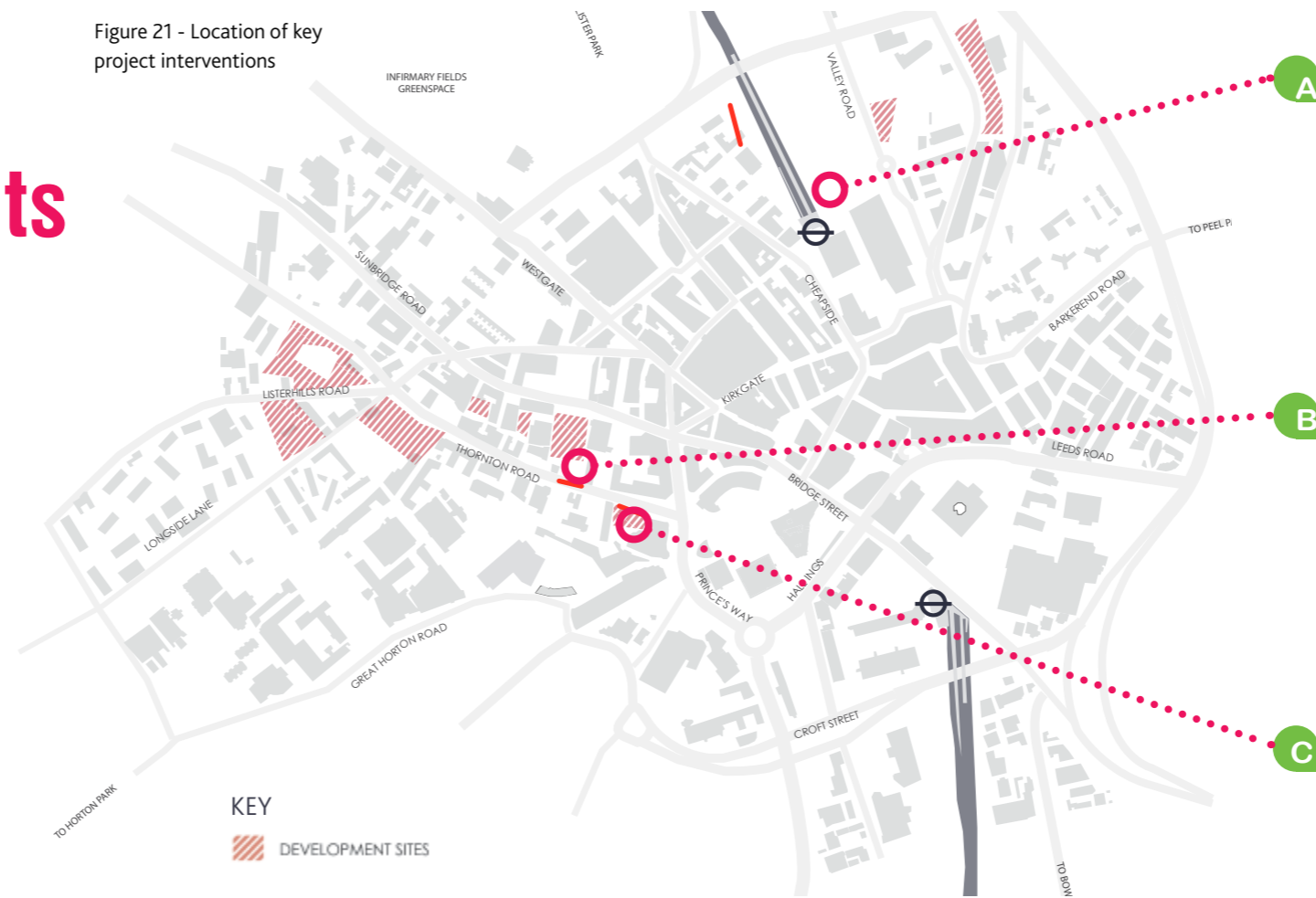
Key projects/sites include:

- Current and future development sites

Potential delivery partners

- CBMDC
- Developer
- Public-Private Partnership
- Partnership with schools and university

Figure 21 - Location of key project interventions



Case Studies :

Living hoardings



Living Hoardings provide a green solution which improves air quality, including the dramatic reduction of PM10s, and is low maintenance. The Hoardings consist of a 5mm thick carbon galvanized steel weld mesh fence and a biodegradable pot into which vegetation, usually ivy, is cultivated. The growing plants are wound around the steel structures in nurseries until the planting reaches the full height of the frame. The fully grown Hoarding is then delivered ready to install.

Living hoardings deliver a wide range of further benefits including security, improved aesthetics and a deterrent against graffiti and other anti-social behaviour combined with ease of installation.

- Instant greening solutions for short- and long-term applications.
- Dust suppression equal to a mature street tree for every 9 screens installed.
- Cost-effective solution.

This shows how boundary treatments can become Green Infrastructure assets within the City Centre.

Art hoardings



Traders in Edinburgh are teaming up with the Edinburgh College of Art to create hoardings that will disguise derelict sites in King's Stables Road. The panels will be decorated with installations commissioned from art students, as well as historical photographs of the area. The benefits include:

- Instant screening solution for short and long-term applications
- Involvement of local community
- Cost-effective solution
- Potential to work with Bradford University students

This shows how boundary treatments can transform the look of 'stalled spaces' within the City Centre.

PROJECT 5 Greening the Brownfield : Temporary treatments

Derelict (abandoned, underused or neglected) sites have a 'blight' effect on their surroundings and have limited GI multi-functionality. Building on the success of Bradford Urban Gardens, these sites that are awaiting development could temporarily be used for other uses such as community food growing or recreation. Through temporary proposals and land uses, 'stalled spaces' can deliver community and environmental benefits if appropriately designed and managed.

GI Framework Objectives

- 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

What are the benefits?

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

Feasibility

- Cost: Medium / Low
- Permissions: Landowner
- Potential funding: council/European/Grant funding/Public-Private partnership
- Maintenance costs: Medium / Low. Public liability may need to be taken over by the Council if sites are privately owned. Leases may need to be drawn up for use / management by community groups

Delivery timescale:

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

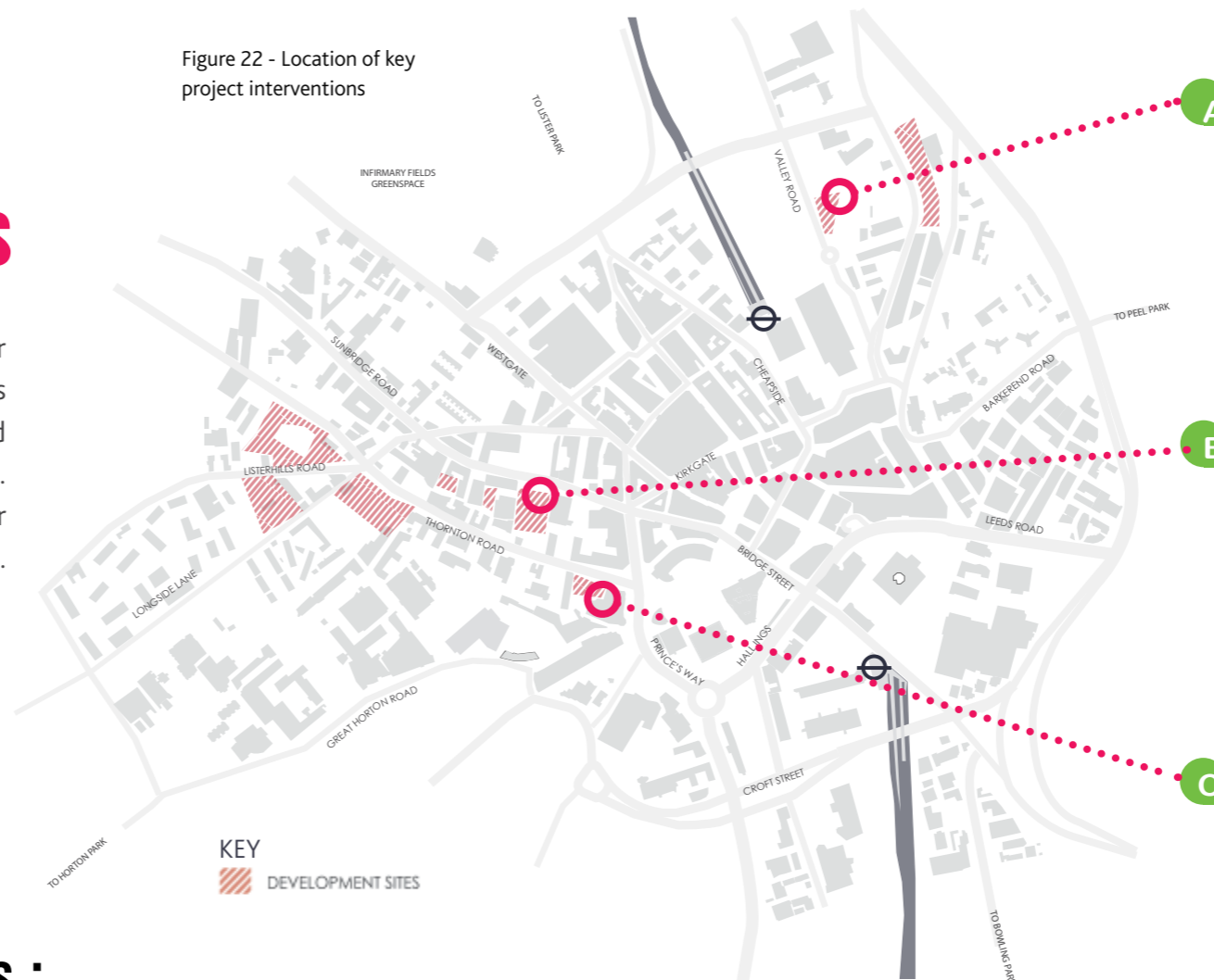
Key projects/sites include:

- Vacant Land adjoining Varley and Thornton Road

Potential delivery partners

- CBMDC
- Public - Private partnerships
- Community Groups

Figure 22 - Location of key project interventions



Case Studies :

Bradford Urban Garden



The Bradford Urban Garden was created as an interim solution to deal with derelict land created by a delayed shopping development. Temporary landscape and hoarding treatment prevented the area becoming a problematic eye sore and instead created a green site for community use in the centre of the city.

Shows how simple measures can reduce the 'blight' effect and bring forward high quality sites for inward investment. Also increases community involvement.

Green Estates, Sheffield



Green Estates, Sheffield is a not for profit social enterprise scheme whose aim is to create and manage urban spaces in a manner that is productive, beautiful, valued and ecologically beneficial. Successful schemes include the Manor Pocket Parks and Sheffield Manor Lodge. In collaboration with Sheffield University, pictorial meadows have been used extensively on vacant land and seeds have been harvested and sold with profits returning to the organisation, thereby directly benefiting people and places.

The study shows how meadow schemes can become self funding multifunctional GI assets

Incredible Edible, Todmorden



Started in 2007, the Incredible Edible scheme was started by residents of Todmorden who planted vegetables on vacant ground in the community whether that be roadside verge or fire station forecourt. The success of the scheme has resulted in many spin off schemes including a market garden for local children to sell their produce. The scheme has transformed green space around the town and had a real positive impact on its sustainability. The scheme is now known across the world.

The study shows the huge impact community led schemes can have on an area, delivering multifunctional benefits from health to increased community cohesion

PROJECT 6 A City Centre Network of Key Green Spaces

Existing and proposed spaces could become a network of public open space/green space across the city centre. Potential to enhance existing green spaces and create a series of play areas. Also potential to re-establish the presence of the Bradford Beck through the city centre as a series of SUDs features and rain gardens along public road network.

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

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/Public-Private partnership
- Maintenance costs: Medium. Public liability may need to be taken over by the council if sites are privately owned

Delivery timescale:

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

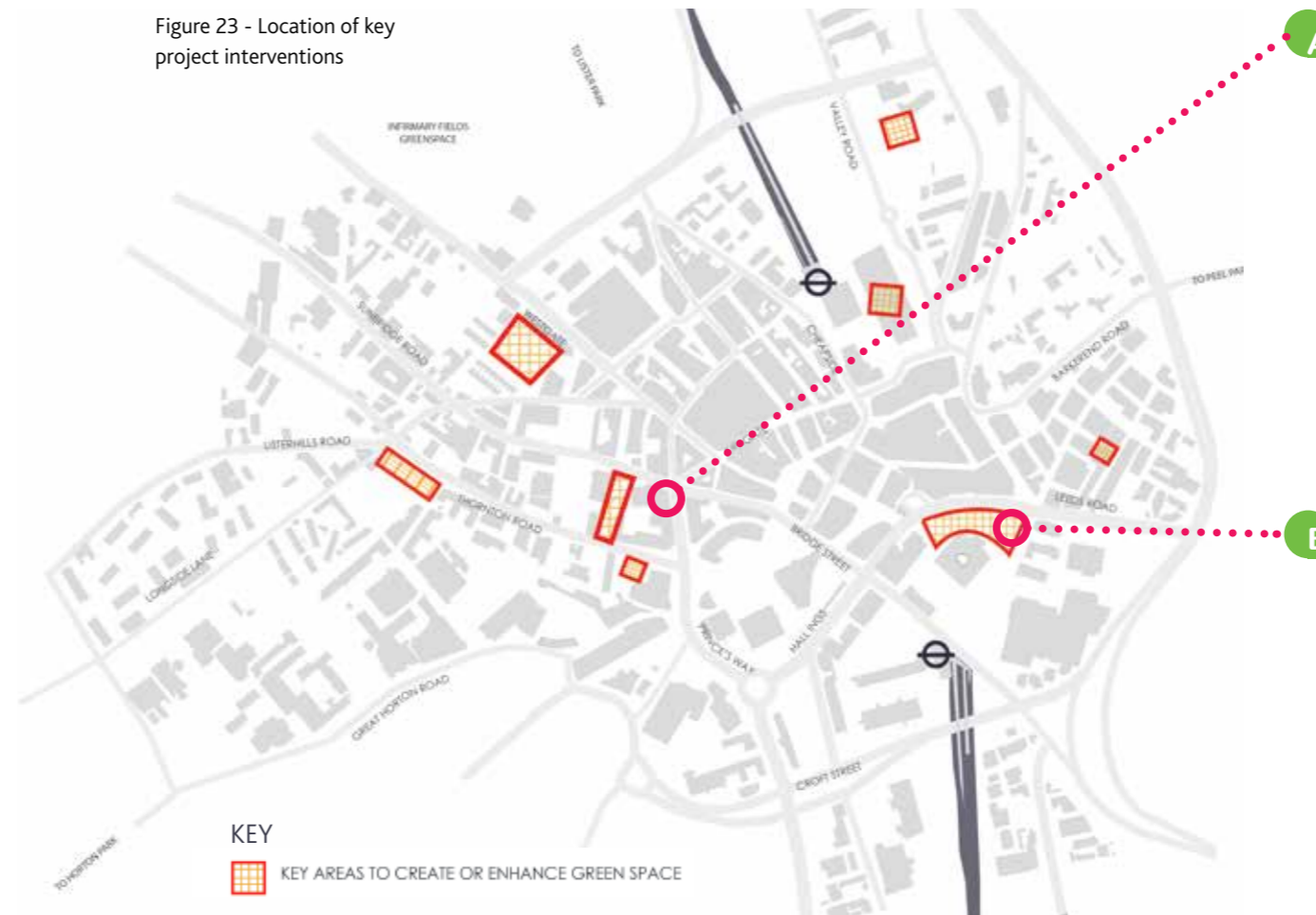
Key projects/sites include:

- Beckside Park, Channel Park,
- Land adjacent to court, Land at Goit Side

Potential delivery partners

- CBMDC / Community Groups / Public - Private partnership

Figure 23 - Location of key project interventions



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

Case Studies :

Bradford City Park



Formerly a complex city space severed by roads and infrastructure, Bradford's City Park has transformed the centre and provided a meeting and events space in the heart of the city. The potential is for City Park to be the central hub with a network of smaller spaces providing stepping stones across the city, connecting and reinforcing the GI network.

The project shows how spaces can be transformed and the positive impact high quality public open space can have on a city.

Paley Park, Manhattan



Paley park is a pocket park located in central Manhattan in a space of 360m2 in between buildings. It was opened in 1967 and is still cited as one of New Yorks most successful spaces. A waterfall masks the sound of nearby traffic, trees provides shelter, ivy creates green walls and a kiosk provides food and drink. The space is privately owned but open to the public and is seen as an oasis of calm within the city.

The scheme shows how the smallest of spaces can have a large and long term positive impact on an area and the benefit this can bring to members of the public as well as private landowners of otherwise underused open spaces.

PROJECT 7 Development sites: Green/Blue links

New Green Infrastructure Assets which form part of a network should be created within development sites. SuDS should be embraced as a feature or series of features within the development and the identity of the local area and its heritage should be reflected in design solutions. The needs of new and the surrounding existing residents should be met by incorporating uses such as play, recreation, education and food production as part of the development proposals. Whilst SUDs within large developments will be mandatory as a result of xxx, planning policy can further ensure that they form part of a wider and strategically managed 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 AAP boundary

What are the benefits?

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

Feasibility

- Cost: Developer funded
- Permissions: Planning
- Potential funding: Developer
- Maintenance costs: Medium / Low

Delivery timescale:

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

Key projects/sites include:

- Beckside Park, Channel Park, all future large development sites

Potential delivery partners

- CBMDC / Developers

Figure 24 - Location of key project interventions



Case Studies :

GI Design principles for new developments



SuDS features as an integral part of development



Play areas incorporated



Green links and spaces within development sites



Permeable paving incorporated into parking areas



SuDS incorporated into hard landscaping as feature elements of the public realm

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.

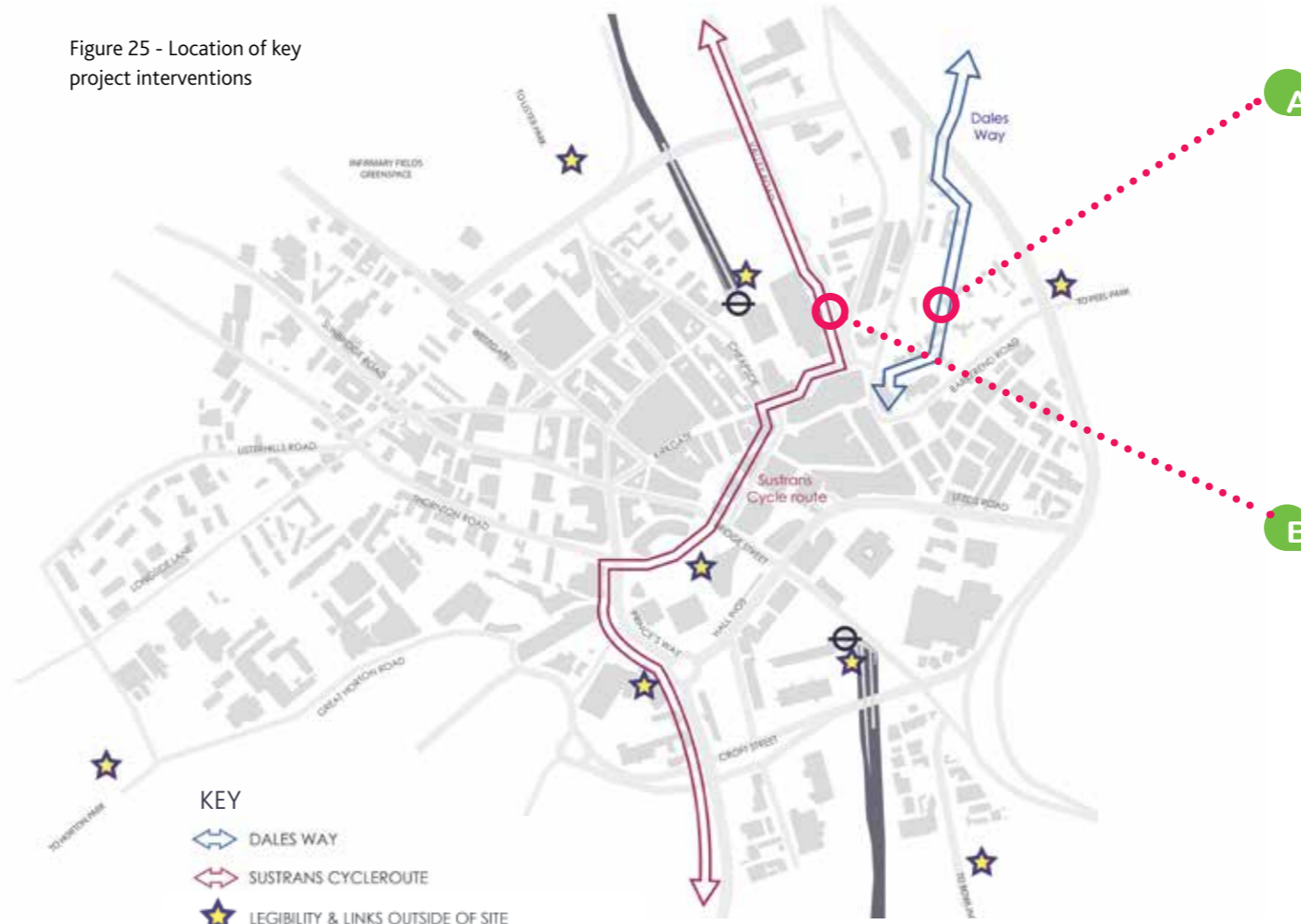


This example shows how GI assets can become an important part of new developments and that affordable housing can still incorporate meaningful and multifunctional green space.

PROJECT 8 Legibility & Links

Links to the large GI assets located both within and outside the AAP boundary should be created or 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 conservation areas, these measures should reflect the special qualities of their location.

Figure 25 - Location of key project interventions



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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 AAP boundary

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/Grantfunding/
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:

- Sustrans Route 66, Dales Way Link

Potential delivery partners

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

Case Studies :

Spen Valley Greenway

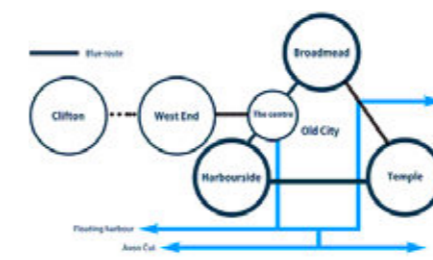


An 8 mile route, the cycleway utilised a disused railway running near the River Spen. The river runs through densely populated urban areas, wildlife reserves and a golf course with distant views to the moors. It provides a green link and is accompanied by sculpture and artworks.

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.

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 which the journey what the means or change of means and locational information on arrival 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.

08

Implementation

8.1 How can the GI Framework be implemented with the City Centre AAP?

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 the city centre strategy.

Implementation of a GI strategy within the City Centre AAP 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 City Centre.

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 CBMDC 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 CBMDC to **local partners** to develop schemes, fundraise and take over maintenance of sites.

8.2 Funding options

8.2.1 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 city centre 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.

CBMDC 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.

08 Implementation

Health Funding

As demonstrated in the 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.

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 be an important source for growth led GI funding.

8.2.2 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.

8.2.3 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..

8.2.4 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 : Crowdfunding Case study: Stevenson Square Green Makeover

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:

Case study of local residents being involved in project development and fundraising: New Trees for Trafford.

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

'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.

09 Appendix

Appendix 1: Table 1 - Bradford City Centre AAP GI Assets, Functions and Benefits

GI Asset	Current GI Functions (A- T)	Current GI Value	Benefit
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 Stimulating 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) Reduce urban run-off and reduce flood risk (K) Urban cooling (L)	4 (Very Low)	Provide resilience to the effects of climate change.
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).	10 (High)	Supporting growth Stimulating investment Improving health. Provide resilience to the effects of climate change.

	<p>Reduce urban run-off and reduce flood risk (K)</p> <p>Urban cooling (L)</p> <p>Improve air quality (M)</p> <p>Provide a local environmental resource for education & skills development (Q)</p> <p>Provide an attractive setting for townscape / cultural heritage assets (R)</p>		
AG Amenity greenspace (associated with buildings)	<p>Reduce urban run-off and reduce flood risk (K)</p> <p>Urban cooling (L)</p> <p>Improve air quality (M)</p> <p>Provide an attractive setting for townscape / cultural heritage assets (R)</p> <p>Some AG assets provide:</p> <p>Provide attractive places for living (E).</p> <p>Provide attractive places for working / studying (F).</p> <p>Provide attractive places for increasing land / property values & demand (J)</p> <p>Carbon sequestration (N)</p>	<p>4 - 8</p> <p>(Very Low – Medium)</p>	<p>Supporting growth</p> <p>Stimulating investment</p> <p>Provide resilience to the effects of climate change</p> <p>Improving health</p>
RG Greenspace associated with the road network	<p>Reduce urban run-off and reduce flood risk (K)</p> <p>Urban cooling (L)</p> <p>Improve air quality (M)</p> <p>Provide an attractive setting for townscape / cultural heritage assets (R)</p>	<p>4</p> <p>(Very Low)</p>	<p>Improving health</p> <p>Provide resilience to the effects of climate change</p>
TG Greenspace in rail corridor	<p>Reduce urban run-off and reduce flood risk (K)</p> <p>Provide habitat (S)</p>	<p>0 - 2</p> <p>(Very Low)</p>	<p>Provide resilience to the effects of climate change</p>
CS Civic spaces (street / small squares)	<p>Provide safe & attractive links to / between community facilities etc (A)</p> <p>Provide opportunities for social interaction (B).</p> <p>Provide opportunities for physical health & well-being for all ages (C).</p> <p>Provide opportunities for mental health & well-being for all ages (D).</p> <p>Provide attractive places for living (E).</p> <p>Provide attractive places for working / studying (F).</p>	<p>9 - 10</p> <p>(High)</p>	<p>Supporting growth</p> <p>Stimulating investment</p> <p>Improving health</p>

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

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	Provide attractive places & routes for recreation (H) Provide attractive places for tourism (I) Provide attractive places for increasing land / property values & demand (J)		
DL Derelict land	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

Appendix 1: Table 2 - GI Assets potential functionality

GI Asset	Current Typical GI Value	Potential additional GI functions	Potential GI Value	Potential Additional Benefits	Value of Difference
Public Space (Parks & other accessible open spaces) Code on Plan: PS	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 considered 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 of gardens within the City Centre
IG Institution grounds (university / 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 (T)	15 Very High		Significant - Influence through discussion with the University

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 (T)	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 (T) 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 (S)	4 - 6 Very Low / Low		Relatively low significance - potential to influence through discussion with Railtrack
CS Civic spaces (streets / small squares)	9 - 10 High	Mainly through inclusion of Street Trees, planters or 'rain gardens' 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)	17 - 18 Very High		Significant - Degree of control over land vested with the council

		Provide habitat (S) Provide additional SuDS functionality (T)			
ST Street trees	11 Very High	Provide local food & energy production (P)	12 Very High		Not considered significant
BI Existing blue infrastructure	7 Medium 11 Very High	Provide additional SuDS functionality (T)	8 Medium 11 Very High		Not considered significant
DL Derelict land / 'stalled spaces'	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 (T)	15 Very High		Significant - Degree of control over land vested with the council



GILLESPIES LLP

Minton Chambers
12 Heatons Court
Leeds, LS1 4LJ

T + 44 (0)113 247 0550
tom.walker@gillespies.co.uk

GILLESPIES