Green Infrastructure Action Plan Background

Liverpool City Central and Commercial District Business Improvement Districts

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April 2017

THE MERSEY FOREST
more from trees

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Introduction

Liverpool City Centre is one of the UK's leading retail areas, with a footfall of over 60million. Maintaining and enhancing the City Centre experience, attracting more visits and increasing spend is crucial for the long-term growth and development of retail centres. Making best use of all the available assets is essential. These provide the draw and the experience, influencing return trips and the amount of money spent.

The natural environment or "green infrastructure" can be overlooked, but it can be a key asset in helping to promote and enhance the image of commercial areas.

Liverpool BID has commenced work to look at how improved green infrastructure can help businesses to thrive.

A survey of businesses provided overwhelming support for improving green infrastructure in the Liverpool BID:

- Over nine in ten businesses consulted (92%) were of the opinion that a green infrastructure would enhance the BID districts.
- Almost seven in ten businesses (69%) stated that the greening of the two BID districts would be of benefit to their business.
- When asked how the creation of a green infrastructure would be of benefit to their business, the key unprompted reasons given were: nicer environment nicer place to work in (28%), increased spend levels (19%), 'holistic' reasons including health and wellbeing, feel good factor, ambience (19%), increased footfall (17%) and brightening up the area (17%).
- When prompted with a number of key benefits, the top three ranked potential outcomes were: Increased footfall; Attracts new business; and Increased spend levels.
- Almost four in every five (77%) of businesses either had plans for the greening of their business or had already implemented them, mainly with plants in/on their premises (73%), flowers (30%) and trees (including artificial ones) (25%).
- Over four in every five (83%) were of the opinion that their staff would welcome the greening of the BID areas.
- Over four in every five (81%) were of the opinion that their customers would welcome the greening of the BID areas.
- Three in every four (75%) expressed interest in involvement in a task group to enable the planning of the greening of the BID areas.

Figure 1: Results of the Mersey Forest survey of businesses

What is Green Infrastructure?

Green Infrastructure describes all elements of the natural environment that we find in and around our towns and cities and in the wider countryside. It looks at all of these elements, from a single tree, to an open parkland, the River Mersey to a pond as part of a network.

Green Infrastructure planning looks to identify what important benefits are being provided by the existing green infrastructure; for example is a particular pond helping to reduce flood risk by storing water or a woodland providing storage of carbon, or a park providing opportunities for recreation. Green Infrastructure planning also looks at what additional benefits could be achieved by creating new green infrastructure or managing existing areas in new ways.

Green Infrastructure is analogous to the other major infrastructures; transport, water, waste, power and IT.

We would not plan a city without these infrastructures. We argue that green infrastructure should be planned and managed in the same way to help create the best possible quality of place.

London Victoria BID's Green Infrastructure Audit, was the first such audit by a BID. It was published in 2010, and the associated Best Practice Guide, published in 2013. These have led to several projects that have had a real impact on the area. You can read more about these projects on Victoria BID's website.

Green infrastructure Principles

Eight principles of green infrastructure planning, design and implementation have been identified and we have tried to follow these in developing proposals for Liverpool BID1:

- Identify and protect green infrastructure assets
- Engage diverse people and organisations from a range of sectors
- Linkage is key, connecting green infrastructure components with each other and with people
- Design green infrastructure systems that function at different scales and across boundaries
- Green Infrastructure activity must be grounded in good science and planning practice
- Fund green infrastructure up-front as a primary public investment
- Emphasise green infrastructure benefits are afforded to all; to nature and people

Green infrastructure should be the framework for natural environment projects and programmes.

Green infrastructure assets

We can map the Green Infrastructure in the BID area using what is now a well-established methodology. This audit shows that Liverpool BIDs have low levels of green infrastructure.

The commercial district BID has slightly more green infrastructure than the city centre BID, but both are low in comparison to the rest of the city centre. Green Infrastructure levels are very low when compared to the London Victoria BID area (see Figure 2).

Approximately 95% of the BID areas are built up – made up of roads and buildings. Green Infrastructure makes up just over 5% of the land cover. Figure 3 shows how that 5% breaks down into different types of Green Infrastructure.

Figure 2: Comparison of green infrastructure in Liverpool BIDs with other areas

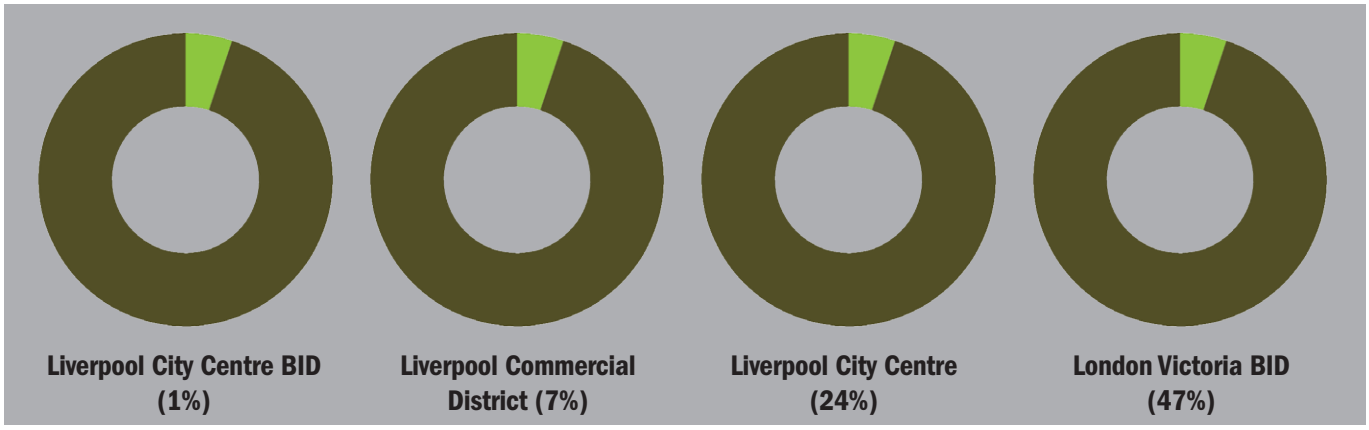


Figure 3: Types and proportions of green infrastructure in Liverpool BID areas

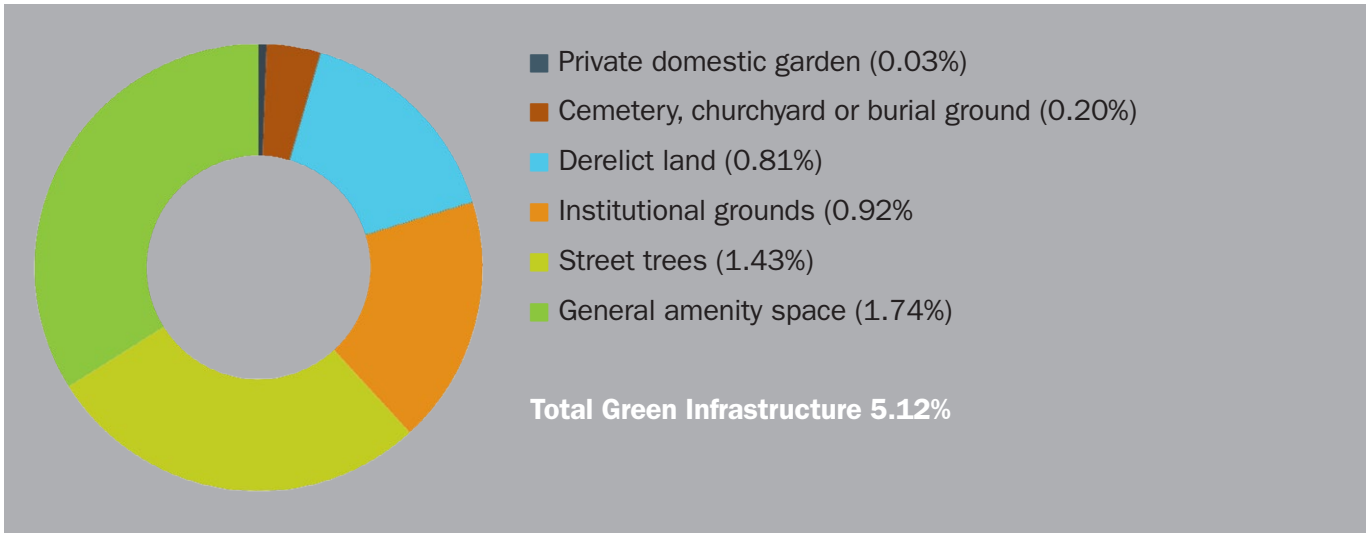
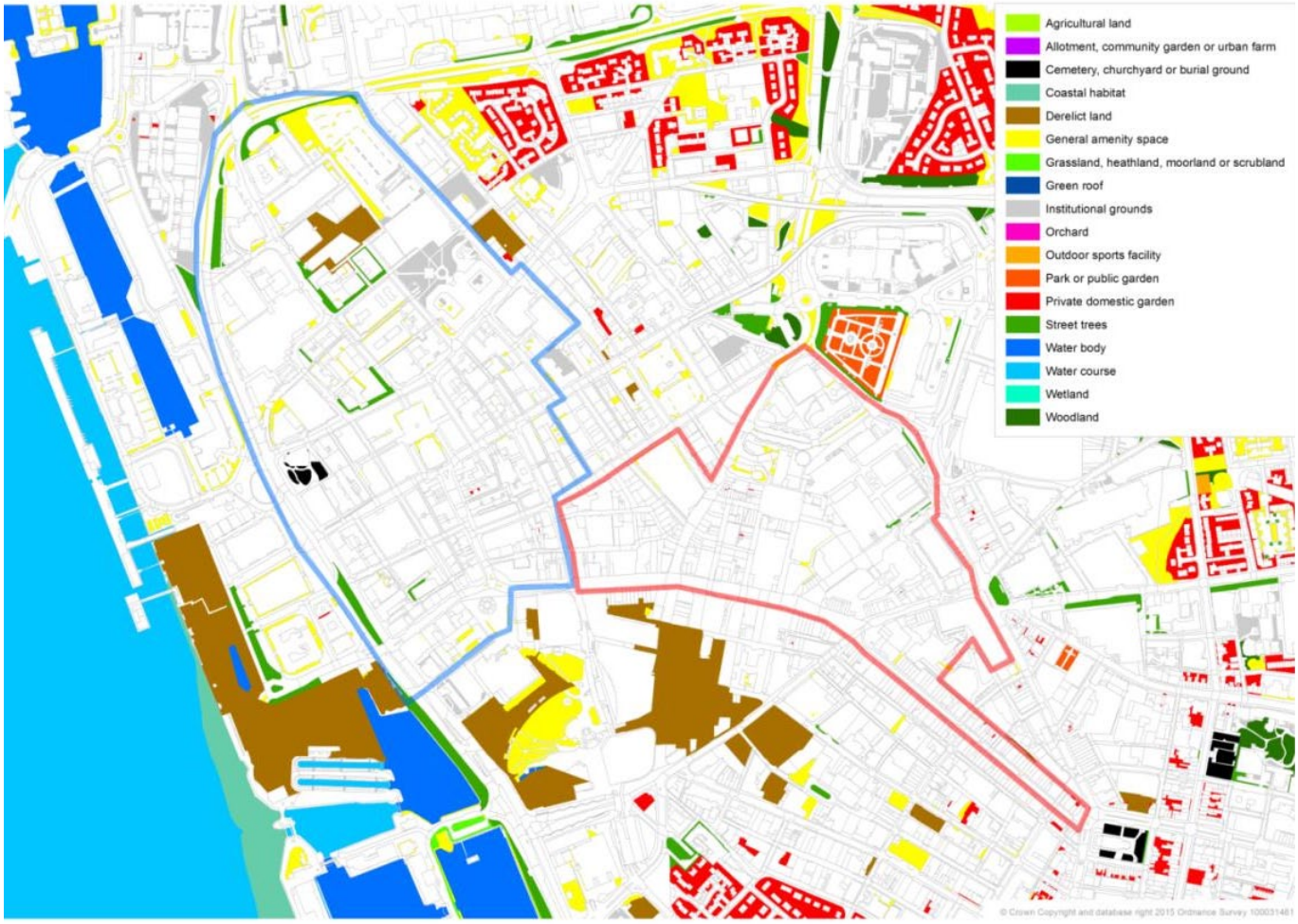


Figure 4: Green Infrastructure map of Liverpool BID



Why follow a Green Infrastructure approach?

The green infrastructure approach aims to guide management and plan for investment in new green infrastructure. The approach focusses on the needs of an area, and what green infrastructure can do to help address these needs as part of the wider plan for improvements that the BID will have.

A lot of the work in the development of a green infrastructure plan goes into identifying how green infrastructure is meeting specific need in an area. For example, the need to

- improve the image of an area,
- reduce air pollution levels,
- manage flood risk,
- improve connectivity.

Figure 5 provides a quick overview of the types of benefits that can be provided by good quality green infrastructure planning, delivery and management.

A green infrastructure approach, leading to a plan such as this one, also looks to connect the city, beyond the boundary of the BID, maximising the benefits to people, businesses and nature.

Figure 5: Benefits we gain from green infrastructure

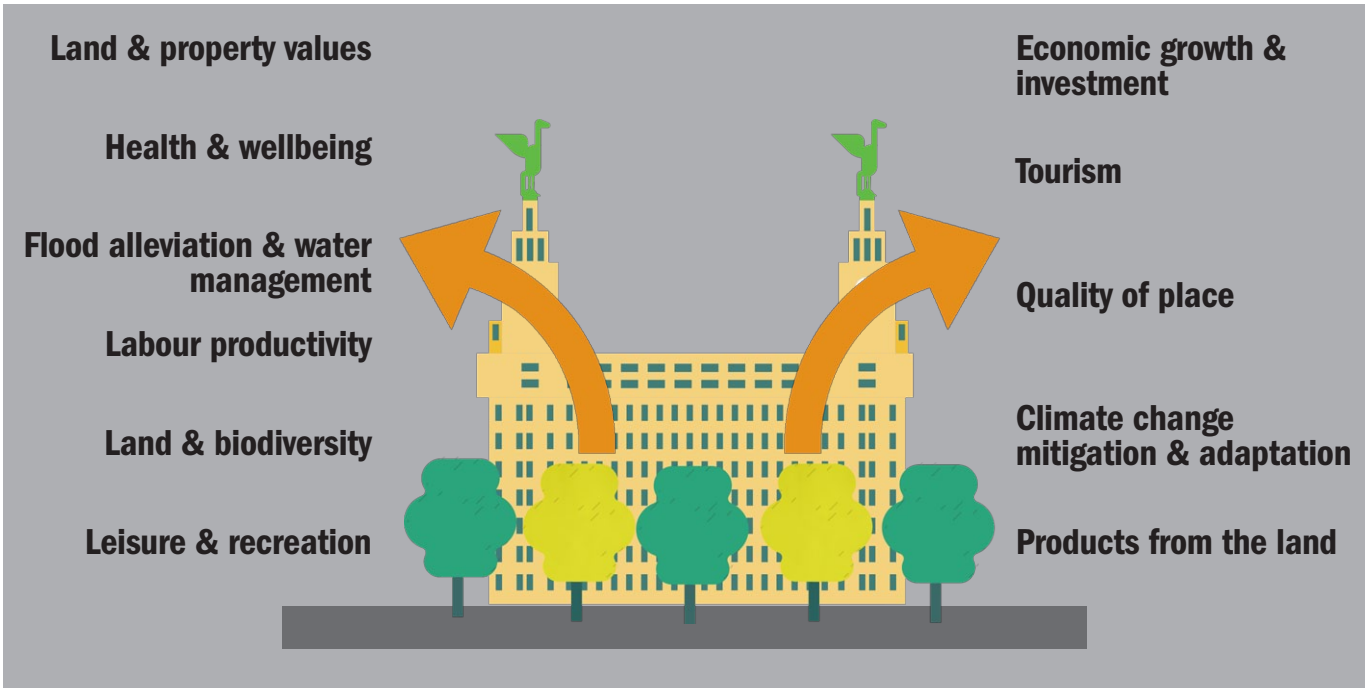
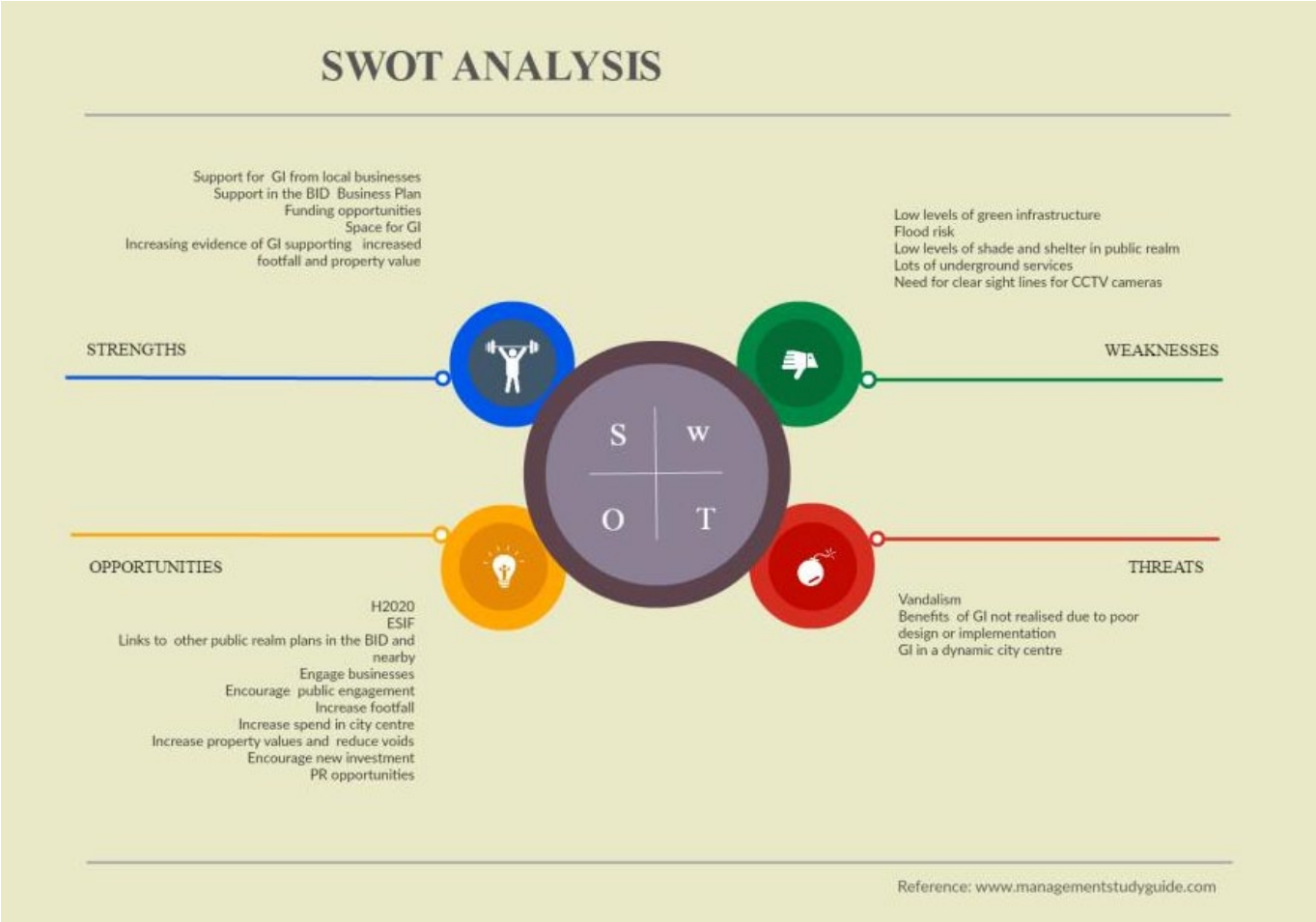


Figure 6: Green Infrastructure SWOT for Liverpool BIDs



Green Infrastructure in and around Liverpool BIDs

Comparing the range of benefits that green infrastructure can provide with the Liverpool BID Business Plan, we can identify that there is a need for green infrastructure in the BID areas to help with;

- Improving image
- Encouraging active travel – walking and cycling
- Shading from the sun
- Managing water run off
- Trapping air pollutants
- Adapting to climate change.

What is the evidence?

There is an increasing amount of evidence from towns and cities around the world that supports green infrastructure investments.

Setting the scene for growth

Green environment for retail: Green infrastructure can play a role in creating a pleasant environment in city centres, which increases footfall and revenue in retail areas. Shoppers claim that they will spend 9% to 12% more for goods and services in central business districts having high quality tree canopy[1]. Shoppers indicate that they will travel greater distance and a longer time to visit a district having high quality trees, and spend more time there once they arrive.[2]

Attracting and retaining skilled and productive workforce: Quality of life is becoming an increasingly important consideration in modern business location decisions, in particular in the high-tech and knowledge industries, and cities with attractive parks and natural surroundings are more likely to attract knowledge workers[3]. In particular for small businesses and individuals on high salaries, the quality of life becomes more important than remuneration[4]. Greener settings not only attract but also help to retain workers: businesses located next to Glasgow Green recorded improved staff morale and staff retention rates due to the attractiveness of the location[5]. Green infrastructure also improves productivity: office workers who enjoyed a natural view out of the window reported fewer physical ailments and greater job satisfaction compared to those workers without a view[6]. Even the presence of office plants may increase the speed of completing tasks, lower levels of stress and improve attention[7].

THE PRESENCE OF HIGH QUALITY GREEN INFRASTRUCTURE CAN IMPROVE THE 'INVESTABILITY' OF AN AREA AND ITS COMPETITIVENESS AS A BUSINESS LOCATION

Attracting investment and increasing employment: The presence of high quality green infrastructure can improve the 'investability' of an area and its competitiveness as a business location[8][9]. 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[10]. An example of returned investment in green infrastructure can be seen in Riverside Park Industrial Estate in Middlesbrough, where extensive planting of trees helped to create a setting for stimulating business growth, which

1 Wolf, K.L. 2010. Community Economics - A Literature Review. In: Green Cities: Good Health (www.greenhealth.washington.edu). College of the Environment, University of Washington

2 See 8 above

3 Crompton JL (2007) Competitiveness: Parks and Open Space as Factors Shaping a Location's Success in Attracting Companies, Labor Supplies, and Retirees in de Brun C (Ed.) The economic benefits of land conservation. The Trust for Public Land, pp.48-54.

4 See 11.

5 Gen Consulting (2006) Glasgow Green Renewal Benefits Analysis. A report to Glasgow City Council. Gen Consulting, Glasgow.

6 Kaplan R (1993) The role of nature in the context of the workplace. Landscape and Urban Planning 26: 193-201.

7 Lohr VI, Pearson-Mimms CH & Goodwin GK (1996) Interior plants may improve worker productivity and reduce stress in a windowless environment. Journal of Environmental Horticulture 14: 97-100.

8 BE Group (2014) Green Infrastructure - Added Value - http://www.merseyforest.org.uk/BE_group_green_infrastructure.pdf

9 CABE (2004) The Value of Public Open Spaces. Commission for Architecture and the Built Environment, London.

10 Gensler and Urban Land Institute (2011) Open Space: an asset without a champion? Available at: http://www.gensler.com/uploads/documents/Open_Space_03_08_2011.pdf

attracted new, high profile, occupants; increased occupancy from 40% to 78%; levered over £1m of private investment; and saw 28 new businesses and more than 60 new jobs created[11]. Landscaping improvements in Portland Basin, Tameside and Winsford, Cheshire yielded respectively over 16% and 13% of net growth in employment[12]. Furthermore, green infrastructure could help to make the town more attractive for further investment, and increase the profitability of businesses by increasing staff productivity. A number of studies have demonstrated this latter effect[13], which operates through improved health, stress alleviation, and attracting and retaining motivated people.

Higher property prices in greener areas: Many studies have looked at the impact of green infrastrucrture on property value in urban areas. All have found that green infrastructure increases value[14]. In North West England, a view of a natural landscape added up to 18% to property value, and residents in peri-urban settings are willing to pay £7,680 per household for views of broadleaved woods[15]. The development of a community woodland on the former Bold Colliery site in St Helens have enhanced existing property values in the surrounding area by £15 million[16]. In Aberdeen, properties next to a park can attract a premium of 0.4%-19% compared to a property located 450m away from a park[17]. Trees have been reported to add between 4% and 25% to the total value of property, depending on their size, condition, location and species[18],[19]. Another study found that high quality green infrastructure can boost property values by up to 20%[20].

MANY STUDIES HAVE LOOKED AT THE IMPACT OF GREEN INFRASTRUCRTURE ON PROPERTY VALUE IN URBAN AREAS. ALL HAVE FOUND THAT GREEN INFRASTRUCTURE INCREASES VALUE

This is likely due to the multiple benefits that trees provide: they make an area more visually attractive, but also reduce air pollution and provide a variety of microclimates that can make an area more comfortable (especially shade in summer).

High quality gateways to the city: Visual amenity of green space can create attractive gateway to the city, which is often a key first impression for investors. Pleasant journeys to and from work also contribute to a higher quality of life of residents[21]. Commercial developments alongside major roads leading to the city that contain trees are generally preferred to both developments without trees and undeveloped agricultural land without trees[22].

11 CLES POLICY ADVICE. 2007. The Contribution of the Local Environment to the Local Economy presented to Groundwork UK.
12 See 8.
13 Effectiveness and economic impact of worksite interventions to promote physical activity and healthy diet, World Health Organisation, 2008; Windows and Offices: A Study of Office Worker Performance and the Indoor Environment, California Energy Commission, 2003
14 Davies, H., Doick, K., Handley, P., O'Brien, L., and Wilson, J. (2017). Delivery of ecosystem services by urban forests Forestry Commission Research Report Forestry Commission, Edinburgh. i–iv + 1–28pp.
15 Cousins and Land Use Consultants (2009). Economic contribution of green networks: current evidence and action. North West Development Agency, Manchester.
16 Forestry Commission (no date) Bold Colliery Community Woodland. District Valuer's report on Property Values. Forestry Commission
17 Dunse N, White M & Dehring C (2007) Urban parks, open space and residential property values. RICS Research Paper Series. RICS, London.
18 Regeneris Consulting (2009) The economic contribution of the Mersey Forest's objective one-funded investments. Regeneris Consulting. Available at: http://www.merseyforest.org.uk/pages/displayDocuments.asp?iDocumentID=246.
19 CTLA (2003) Summary of tree valuation based on CTLA approach. Council of Tree and Landscape Appraisers.
20 BE Group (2014) Green Infrastructure – Added Value. Available at: http://www.merseyforest.org.uk/BE_group_green_infrastructure.pdf
21 Regeneris Consulting (2009). The economic contribution of the Mersey Forest's objective one-funded investments. Regeneris Consulting. Available at: http://www.merseyforest.org.uk/pages/displayDocuments.asp?iDocumentID=246.
22 See 3.

Reducing flood risk

Risk of flood in the BID areas comes primarily from incidents of heavy rainfall. Green infrastructure can play a part in reducing flood risk, especially in dealing with the increased risk likely to be caused by climate change. Trees can play a role in intercepting rain, channeling rainwater into the soil and also "slowing" the flow of water in an area; reducing surges on sewer systems[23]. Trees with larger canopies are most effective at intercepting water[24]. Individual tree canopies can intercept as much as 79% of a 20mm, 24-hour rainfall event under optimum, full leaf conditions[25] A single young tree planted in a small pit over an impermeable asphalt surface can reduce runoff by around 60%, even during the winter when it is not in leaf[26] Tree roots can increase infiltration rates in compacted soils by 63%, and in severely compacted soils by 153%[27] Increasing tree cover by 10% in built-up town centres can reduce runoff from an 18mm rainfall event by 8%[28] Urban runoff is a source of urban diffuse pollution, containing pollutants such as metals and chemicals from road transport, faecal matter from animal fouling, and sediment[29] Trees in biofiltration systems resulted in significant reductions of soluble nitrogen and phosphorus in storm water, compared to unplanted controls; reducing nitrate plus nitrite (NOx) by 2-78% and filterable reactive phosphorus by 70-96%, depending on the soil profile[30] The annual stormwater benefit of an urban tree is $34 (equivalent to €26)[31]

A SINGLE YOUNG TREE PLANTED IN A SMALL PIT OVER AN IMPERMEABLE ASPHALT SURFACE CAN REDUCE RUNOFF BY AROUND 60%, EVEN DURING THE WINTER WHEN IT IS NOT IN LEAF

Improving health

Better mental health: Contact with nature in green space reduces stress and improves attention[32], whilst unsatisfactory access to green space had been found to be related to mental ill-health by a study in Greenwich, London[33]. A study of Swedish town dwellers found that the more often a person visits urban open green spaces, the less often he or she will experience stress related illnesses[34]. Playing in green spaces and living in greener areas can have a beneficial impact on concentration and the ability to focus attention in children[35],[36], thereby improving their performance at school. Lower levels of stress associated with the use of green space enable people do cope better with major life issues, such as the effects of poverty[37].

23 See 14 above

24 Nisbet, T. (2005) Water Use by trees. Forestry Commission Information Note, Forestry Commission, Edinburgh

25 Xiao and McPherson (2003). Rainfall interception by Santa Monica's municipal urban forest. Urban Ecosystems, 6: 291–302.

26 Armson et al (2013). The effect of street trees and amenity grass on urban surface water runoff in Manchester, UK. Urban Forestry Urban Greening, 12: 282–286.

27 Bartens et al (2008). Can urban tree roots improve infiltration through compacted subsoils for stormwater management? Journal of Environmental Quality, 37 (6): 2048-2057.

28 Gill (2006). Climate change and urban greenspace. PhD thesis, University of Manchester.

29 Defra (2012). Tackling water pollution from the urban environment: Consultation on a strategy to address diffuse water pollution from the built environment.

30 Denman et al (2012). The use of trees in urban stormwater management. Trees, people and the built environment. Proceedings of the Urban Trees Research Conference. 104-112.

31 Averaging data from 17 US cities presented on p11 of: US EPA (2013). Stormwater to Street Trees – Engineering urban forests for stormwater management.

32 Kaplan R & Kaplan S (1989) The experience of nature: A psychological perspective, Cambridge Unviersity Press.

33 Guite HF, Clark C & Ackrill G (2006) The impact of the physical and urban environment on mental well-being. Public Health 120, 1117-1126.

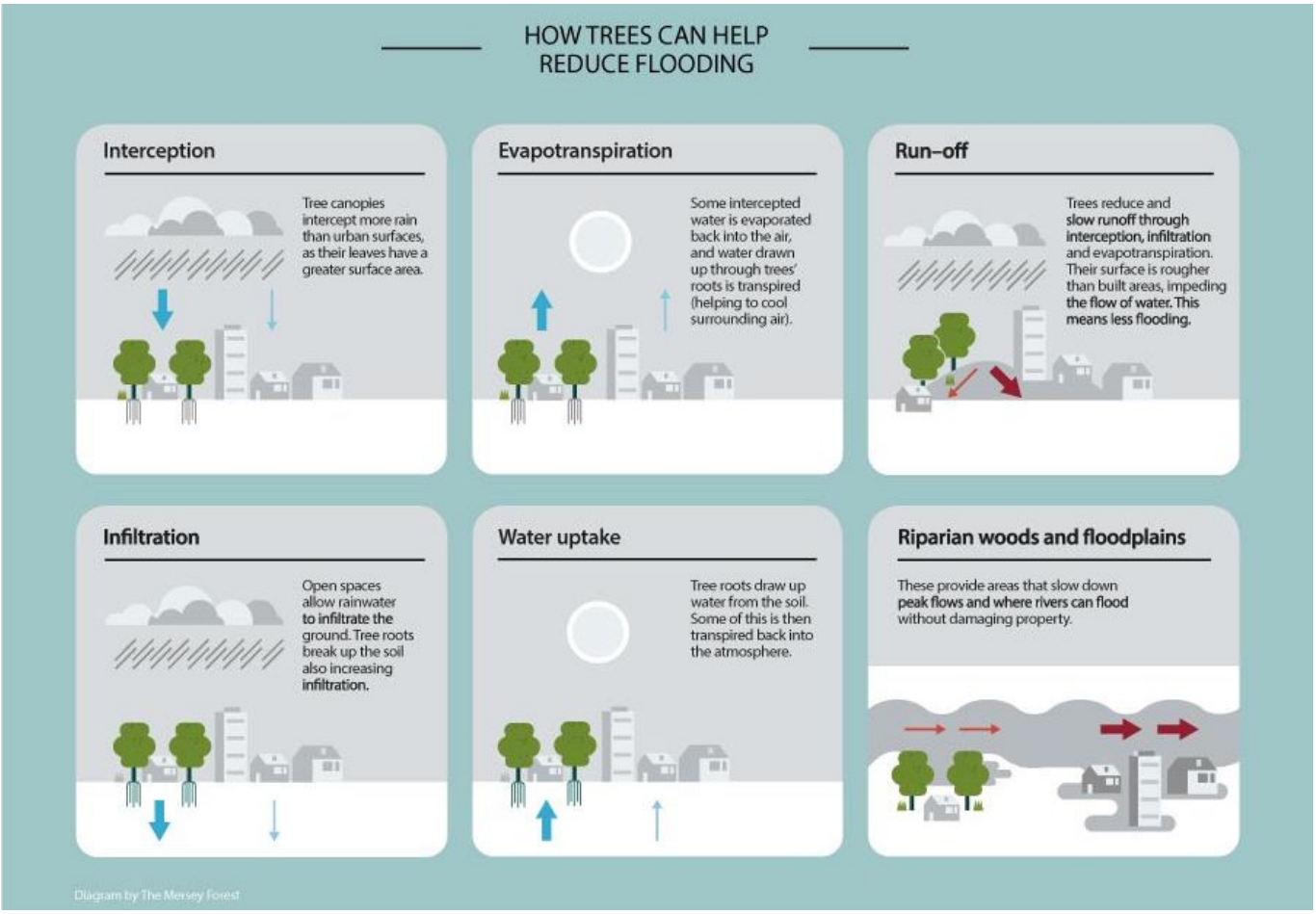
34 Grahn P & Stigdotter UA (2003) Landscape planning and stress. Urban Forestry and Urban Greening 2: 1-18.

35 Taylor AF, Kuo FE & Sullivan WC (2001) Coping with ADD: The surprising connection to greenplay settings. Environment and Behavior 33: 54-77.

36 Wells NM (2000) At home with nature: effects of "greenness" on children's cognitive functioning. Environment and Behavior: 32: 775-795.

37 Kuo F E (2001) Coping with poverty: impacts of environment and attention in the inner city. Environment and Behaviour

Figure 7: How trees can reduce flooding, The Mersey Forest Plan 2014



Space for exercise: People are more likely to walk or cycle if streets are lined with trees[38]. In The Mersey Forest, a programme of "Green Streets" led to a 6% increase in cycling to work[39]. A study in the UK[40] found that a higher proportion of green space in an area was generally associated with better population health. Living closer to parks is linked to increased physical activity[41],[42], such as walking and cycling[43]. Whilst the majority of the exercise in parks tends to be gentle (over 56% of park users in London simply walk or stroll)[44], it still has a positive impact on people's health. A study in Tokyo shows that presence of walkable green space increases the longevity of the elderly[45]. In England, people who live furthest from public parks are 27% more likely to be overweight or obese, and children able to play in natural green space gain 2.5 kg less per year than children who do not have such opportunities[46].

33, 5–34.

38 Neilsen. A.B. and Hansen, R.B. (2007). Do green areas affect health? Results from a Danish Survey on the use of green areas and health indicators. Health and Place 13(4), 839-50

39

40 Mitchell R & Popham F (2007) Green space, urbanity and health: relationships in England. Journal of Epidemiology and Community Health 61: 681-683.

41 Kaczynski A & Henderson KA (2007) Environmental correlates of physical activity: A review of evidence about parks and recreation. Leisure Sciences 29: 315-354.

42 Coombes E, Jones A & Hillsdon M (2010) The relationship of physical activity and overweight to objectively measured green space accessibility and use. Social Science and Medicine 70: 816-822.

43 Zlot AI & Schmid TL (2005) Relationships among community characteristics and walking and bicycling for transportation or recreation. American Journal of Health Promotion 19: 314-7.

44 Synovate (2009) The Royal Parks in-park research report 2009 – All parks combined. The Royal Parks, London.

45 Takano T, Nakamura K & Watanabe M (2002) Urban residential environments and senior citizens' longevity in megacity areas: the importance of walkable green spaces. Journal of Epidemiology and Community Health 56: 913-918.

46 Natural England (2009) Green Space Access, Green Space Use, physical activity and overweight: a research summary.

Social well-being: The relationships between residents in the same area develop mainly through outdoor contact, and vegetation attracts people to use open spaces[47]; in neighbourhood open spaces in Chicago, 83% more individuals engaged in social activity in green spaces than in barren spaces[48]. The use of green spaces can positively influence the quantity and strength of social relationships of diverse groups, including older adults[49], teenagers from different ethnic backgrounds[50], and female residents of social housing[51].

TREES ARE EFFECTIVE AT REMOVING SOME POLLUTANTS THAT ARE HARMFUL TO HUMAN HEALTH FROM THE ATMOSPHERE. THEY ABSORB GASES SUCH AS OZONE, NITROGEN DIOXIDE, SULFUR DIOXIDE AND HELP TO DEPOSIT POLLUTANT PARTICLES

Space to grow food: Participation in food growing projects offers an opportunity to increase physical activity and increase consumption of fresh fruit and vegetables. Moreover, psychological benefits are possible, due to contact with nature, increased serotonin through sunlight exposure, sense of achievement, and enhanced social networks[52].

Improving air quality: Trees are effective at removing some pollutants that are harmful to human health from the atmosphere. They absorb gases such as ozone, nitrogen dioxide, sulfur dioxide and help to deposit pollutant particles smaller than 10 microns in diameter (PM10)[53]. Up to 70% of air pollution in cities can be filtered out using street trees[54]. Doubling the number of trees in the West Midlands would reduce excess deaths due to particulate pollution by up to 140 per year[55]; just 5% of green space including trees within a 10 x 10km square of East London could significantly reduce particulate pollution, with an estimated effect of two deaths and two hospital emissions avoided per year[56].

Reducing noise: The effectiveness of vegetation in reflecting and absorbing noise depends on the density, height, length and width of planting. Dense shrubs combined with trees are the most effective; up to 10 decibels per 20 metres width can be achieved[57]. In less dense settings, every 33m width of forest can achieve 7 decibels noise reduction[58]. In heavily built up areas, where tree planting is impractical, green roofs also help to reduce air and noise pollution[59].

47 Coley RL, Kuo FE & Sullivan, WC (1997) Where does community grow? The social context created by nature in public housing. Environment and Behavior 29: 468-494.

48 Sullivan WC, Kuo FE & DePooter SF (2004) The fruit of urban nature. Vital neighbourhood spaces. Environment and Behavior 36: 678-700.

49 Kweon B-S, Sullivan WC & Wiley AR (1998) Green common spaces and the social integration of inner-city older adults. Environment and Behavior 30: 832-858.

50 Seeland K, Duebendorfer S & Hansmann R (2008) Making friends in Zurich's urban forests and parks: The role of public green space for social inclusion of youths from different cultures. Forest Policy Economics 11: 10-17.

51 Kuo FE, Sullivan WC, Coley RL & Brunson L (1998) Fertile ground for community: Inner-city neighbourhood common spaces. Americal Journal of Community Psychology 26: 823-851.

52 Leake JR, Adam-Bradford A & Rigby JE (2009) Health benefits of 'grow your own' food in urban areas: implications for contaminated land risk assessment and risk management? Environmental Health 8 (Suppl 1): S6.

53 Nowak DJ (1994) Air pollution removal by Chicago's urban forest, Chicago's urban forest ecosystem: results of the Chicago urban forest climate project. United States Department of Agriculture.

54 Bernatzky A (1983) The effects of trees on the urban climate. In: Trees in the 21st century. Academic Publishers, Berkhamsted, 59–76. Based on the first International Arboricultural Conference.

55 Centre for Ecology and Hydrology (no date) Trees and sustainable urban air quality. CEH, Lancaster. Available at: http://www.es.lancs.ac.uk/people/cnh/docs/UrbanTrees.htm

56 Tiwary A, Sinnett D, Peachey C, Chalabi Z, Vardoulakis S, Fletcher T, Leonardi G, Grundy C, Azapagic A & Hutchings TR (2009) An integrated tool to assess the role of new planting in PM10 capture and the human health benefits: A case study in London. Environmental Pollution 157: 2645-2653.

57 Fang C-F & Ling D-L (2003) Investigation of the noise reduction provided by tree belts. Landscape and urban Planning 63: 187-195.

58 Coder RD (1996) Identified Benefits of Community Trees and Forests, University of Georgia Cooperative Extension Service - Forest Resources Publication FOR96-39.

59 Goode D (2006) Green infrastructure report to the Royal Commission on Environmental Pollution. Royal Commission on Environmental Pollution, London.

Costs and benefits analysis

The table below gives both a low and a high indicative cost for green infrastructure interventions that might be suitable for Liverpool BID. These reflect the flexibility within each intervention in terms of ambition levels and responding to opportunities. An indication of annual maintenance costs is also provided.

Please note that none of the interventions are likely to be solely funded by the BID. All of them should be partnership projects involving all relevant stakeholders. Funding will come from key stakeholders as well as (in some cases) the core BID budget and grants to the BID.

The costs for any two or more interventions cannot straightforwardly be added together either. Savings would be made if certain interventions were carried out together.

Intervention	Function	Indicative costs (£)
Urban Catchment Forestry	Engineered solutions to retrofit sustainable tree cover in urban areas to reduce flood risk and improve water quality. Incorporating best practice in: nutrient releasing soil technologies, urban drainage techniques and an ecological approach to species selection for location.	£30,000 – 500000
Pollinator verges and spaces	Areas of grassland close to highways or on neglected land that are sown with wildflowers and ecologically chosen species to encourage pollinating insects, increase biodiversity and create a sense of place and social cohesion	£5000 – 50000
Pollinator walls/vertical	Building living pollinator walls in urban areas decreases the urban heat island effect and provides pollinators a safe place to feed, rest and thrive. Pollinator walls and other verticals will seek to create Green Infrastructure in tight spaces dominated by hard urban landscapes.	£10000 – 120000
Pollinator roofs	Green roofs designed to provide maximum benefit for bees and other pollinators whilst also functioning to manage water flows and provide cooling. The green roof trial will enable the direct engagement of commercial businesses in testing the value of Green Infrastructure.	£5000- 120000

Intervention	Function	Indicative costs (£)
Shade trees	Trees positioned in strategic locations to maximise summertime shading. Species selected will be broad-leaved trees with spreading canopies to maximise shade in summer, reducing thermal loading on buildings, but with an open canopy in winter to allow for passive solar loading.	£500 - £4000
Cooling trees	Trees planted to take advantage of evapo-transpirative cooling. Species selected will be those which transpire at high rates to maximise their cooling effect. Provision of a constant water supply to such trees will be essential to ensure this function is effective.	£500 - £4000
SuDS	Sustainable Drainage Systems will be implemented to replicate natural systems that use cost effective solutions with low environmental impact to drain away dirty and surface water run-off through collection, storage, and cleaning before allowing it to be released slowly back into the environment.	£10000 - £500000
Cycle Route Definition	Cycle route definition will introduce innovative ways of establishing green cycle routes where harder engineering solutions are not feasible.	£500 - £10000
Green Travel Routes	Enhancements to active travel routes designed to make them more attractive and encourage greater use.	£500 - £10000
Pollution Filters	Densely planted trees, hedging or other vegetation that creates a physical barrier to intercept or trap fine particulate pollutants in urban areas.	£5000- 120000
Carbon Capture	Interventions designed to maximise and test carbon sequestration through growth of woody plants, shrubs and trees	£2000 – 50000
GI for Physical Activity	Green Infrastructure interventions specifically aimed at encouraging outdoor physical activity, creating places where “Health is a Natural Choice”.	£500 - £10000

Intervention	Function	Indicative costs (£)
GI for Mental Health	Green Infrastructure interventions designed to provide a setting which promotes improved mental health and/or provides a setting for nature based activity to maintain good mental health and develop new coping strategies for mental health issues for people living and working in an urban location.	£10000 - £30000
Forest School	Forest School is an innovative, self-led learning approach adaptable for all age groups in a woodland setting, supported by a trained Forest School Leader, linking to delivery of national curriculum and wider health and social benefits for children and teachers.	£8000
Rain garden	A planted depression or hole that allows rainwater runoff from impervious urban areas, like roofs, driveways, walkways, parking lots, and compacted lawn areas, the opportunity to be absorbed.	£10000 - £30000
Temporary or floating green infrastructure	Trees and/or other green infrastructure which are both self contained and mobile and can be located or positioned in a variety of urban, open or blue spaces for maximum effect and impact.	£10000 - £30000

Funding plan

Here we offer some initial ideas for sources of external funding.

Funding source	Timescale	Indicative scale	Risk	Capital/ revenue	Longevity	What can be funded	Criteria	Timeline from application to decision
Tesco Bags of Help Scheme	Application windows publicised	Up to £12k	Medium	Capital & revenue	1-12 months	The money raised by Tesco customers paying 5p for bags will be used to pay for a large number of local projects to improve green spaces in communities	Programme coordinated by Groundwork who can provide details	1-3 months
Sainsburys Community Grants						Charitable groups in the local community, is funded by sales of Bags for Life.	Local charities, community and environment projects	1-6 months
Interreg	September 2017 and at other times up to 2020	£50k -£1m	high	Revenue	3 years	General green infrastructure projects and programmes	This is a competitive EU fund. Partners in at least 2 other EU countries are required to develop a proposal. There is good local experience of this funding stream.	6 months
Landfill Tax Credit Scheme	Continuous	£1k - £50k	medium	Capital	3 years	This fund can provide money for improvements to parks and open spaces and/or for the conservation of wildlife habitats.	Project within 10 miles of a landfill site, funding applied for through an Environmental Body such as Local Authority, Groundwork or Mersey Forest 10% match funding required.	1-6 months

Funding source	Timescale	Indicative scale	Risk	Capital/ revenue	Longevity	What can be funded	Criteria	Timeline from application to decision
Lottery Funds – Reaching Communities	Continuous	£500k	medium	Capital & revenue	5 years	The lottery operates a range of community and heritage programmes that are currently open. There are elements of the BID GI programme that would be eligible to apply for these funds.	Engaging communities, safeguarding and celebrating heritage (including natural heritage)	6 months
Trusts	Variable	£250 £50k	medium	Capital & revenue	1 year	Trusts vary enormously in what they will fund, from environmental improvements to community engagement, innovative products to cultural events	Each trust has different rules and criteria.	1-6 months
Section 106/ Community Infrastructure Levy	Variable	£5k-£50K +	medium	Capital & revenue	1 year	Contributions can be sought from developers towards the costs of providing community and social infrastructure, the need for which has arisen as a result of a new development taking place.	Close working with Cheshire West and Chester Planners	Up to 1 year depending on the complexity of the scheme

Funding source	Timescale	Indicative scale	Risk	Capital/ revenue	Longevity	What can be funded	Criteria	Timeline from application to decision
EU Structural and Investment Funds	Variable	£20k-£100K	high	Capital & revenue	5 years	The European Structural and Investment Funds (ESIF) are the EU's main funding programmes for supporting growth and jobs across the EU. There is funding for business support and development of low carbon projects for which GI businesses or projects could be eligible	This is not an easy fund to access, and administration of the funding can be offputting. However, developing businesses and job creation are important outputs for the programme, as well as reducing greenhouse gas emissions and so there may be scope for the BID to be involved in a proposal	Up to 1 year
Horizon 2020	Variable	£500k	High	Capital & revenue	5 years	Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness.	This is a very competitive fund with a 10% chance of success. However, the funding does provide opportunities for implementation, monitoring and provides high profile for successful cities.	Up to 1 year

The table provides a snapshot of the funding opportunities and attempts to consider the range of funds that could be accessed. In many instances the funds may need to be applied for through a partner organisation working closely with Northwich BID.

Once specific projects have been identified and agreed, it is then possible to identify possible funding streams with more precision.

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