

resilient places
character and
community in
everyday
heritage

Samuel Jones
Melissa Mean

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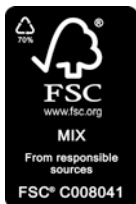
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First published in 2010
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*Magdalen House, 136 Tooley Street,
London, SE1 2TU, UK*

ISBN 978 1 906693 43 5
Series design by modernactivity
Typeset by Chat Noir Design, Charente
Printed by Lecturis, Eindhoven

Set in Gotham Rounded
and Baskerville 10
Cover paper: Flora Gardenia
Text paper: Munken Premium White



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Acknowledgements

We would like to thank everybody whom we interviewed in the course of the research for this pamphlet. All were generous with their time, knowledge and expertise. We have included a full list of them in the appendix.

Heather Clarke, Ed Fox, Glenn Millar, Simon Salem and Andrew Stumpf at British Waterways were also kind in commenting on drafts and contributing to the development of the research.

At Demos, we have benefited from the support of Richard Reeves in setting the project up and helping to define its focus, and Peter Bradwell and Julia Margo in commenting on drafts.

A number of interns at Demos have also provided assistance with this project. Pippa Read undertook valuable research into the size and scale of the UK's infrastructure and gave valuable advice from her experience in the housing sector. Particular thanks, however, must go to Tobias Chapple, whose dedication and persistence in undertaking fieldwork on footpaths and towpaths have been intrinsic to this research.

Introduction

The High Line is Manhattan's newest and most unusual park. Opened in June 2009, in the wake of the financial crisis, it runs 30 feet above the ground along a disused railway track and continues the length of 22 blocks along the West Side, from the Meatpacking District to 34th Street and Hell's Kitchen. The railway was originally built in 1930 to take dangerous freight trains off the city's streets – the line had become known as 'Death Avenue'. However, as the warehouses that the line served closed, its use diminished and the last train ran in 1980. Over the next 30 years, the tracks rusted and weeds grew. In 2009 it was reopened as an elevated park, which can be accessed by lifts and stairs.¹ Planted by Dutch horticulturalist Piet Oudolf, its route now teems with flora, tourists and New Yorkers. Since opening, it has attracted 25,000 visitors a day.

The High Line stands for a shift in focus in how we think about places: it represents a move from focusing on individual sites and buildings, to thinking about the foundational infrastructure and skeletons that hold them together and bring them alive. Its success and the way it has turned into an instant civic treasure beloved by locals and visitors alike suggest that New York is on to something. The industries that the freight line once served might have dwindled, but the infrastructure itself has been retasked to cater for new values and needs.

James Corner, the leader of the High Line's design team, has said:

What we're seeing is a need in communities to take these industrial spaces – be they old ports or harbours, or transport infrastructure such as the High Line – and repurpose them, imagining new uses for how those places can be reoccupied.²

This report asks how we can best plan and shape cities in a world in which financial and material resources are short. By examining the foundational networks on which our towns and cities were built – railways, canals, sewers and industrial routeway – it argues that an important part of answering this question is through reappraising, repurposing and reusing the assets we already have and finding better ways of applying them to current, emerging and future needs. The recession need not lead to a halt to development: it can prompt us to alter practice and behaviours.

From renaissance to recession

Backed by strong growth and high national spending, the decade of the urban renaissance brought with it substantial and positive change in many of our towns and cities. Not least was the transformation in how our urban centres are regarded. Instead of being seen as economic liabilities, cities were embraced as ‘economic engines’³ crucial to securing a ‘combination of competitiveness, cohesion and effective governance required for survival in the new economy’.⁴

This urban renaissance was rendered in concrete, gleaming glass and steel in the form of new retail districts and public squares, high-rise luxury apartment blocks and statement public buildings. It also focused on heritage as an attraction and economic generator and – in the industrial heritage of towns and cities – as a venue and location for redevelopment with loft and warehouse conversions. This new confidence was backed by people’s feet and wallets: all the UK’s major cities have seen their city centre populations outperform national population growth trends since 1991⁵ and, as the Centre for Cities notes, ‘cities continue to receive the lion’s share of UK inward investment, and are the places where innovative business ideas are brought to life. In England alone, urban areas are still home to approximately 80 per cent of all jobs.’⁶

However, the shock of the credit crunch brutally exposed the vulnerability of the gains of the urban renaissance to the complex and densely interconnected global financial networks

in which the fates of our towns and cities are embedded. As Michael Parkinson, Professor of Liverpool John Moores University and leader of the government's expert panel on neighbourhoods, cities and regions describes, toxic financial practices, originating with sub-prime mortgages in the USA, led to the near disintegration of the UK financial system, which has, in turn, had devastating consequences for the UK development industry: 'Lenders won't lend, borrowers can't borrow, builders can't build and buyers can't buy.'⁷ In 2008 urban renaissance turned into full-blown urban recession and some of the very places that had prospered and led employment gains in recent years suddenly found themselves at the forefront of job losses.⁸

Globalisation and the complex economic interdependence it brings mean that these kinds of shocks, stresses and crashes get transmitted ever faster.⁹ The past 18 months has seen this played out in relation to finance, food and energy. This creates an urgent need better to understand how these issues come together in the neighbourhoods and communities where people live and work. Shocks and crises impact on places, but places can also shape, mitigate and mediate big changes. It is in places that people learn and create opportunities.

Reflecting on the economic, environmental and social limits, gaps and ambiguities of a decade of urban renaissance and development raises questions about the current capabilities of our towns and cities to respond to adversity creatively (see box 1). But recovery is unlikely to come about by a hopeful holding of breath and waiting for business as normal to return. Instead, there is a need to explore, experiment, change behaviour and practices, and use resources differently.

Box 1 The urban renaissance: limits, gaps and ambiguities

Toxic housing. The housing boom proved better at building spurious financial products than durable, desirable homes and neighborhoods that people actually want to live in. In a recent audit, the Commission for Architecture and the Built Environment (CABE) found that 29 per cent of new estates were so poor that they should not have received planning

*permission and another 53 per cent had serious shortcomings. As CABE's chief executive, Richard Simmons, put it, 'Whether it is pokey little flats in over-dense developments or poor quality estates in redundant industrial areas with no decent services, we have far too much of the wrong kind of housing in the wrong place.'*¹⁰

*Competitiveness. Despite some progress, UK cities continue to lag behind their European counterparts, particularly in terms of innovation, skilled workforce, connectivity, employment rates, social composition, attractiveness to the private sector and GDP per capita.*¹¹

*Unmixed communities. In the urban renaissance, social mixing was embraced as the engine of cohesion and sustainable communities. In practice, however, this aim has largely been reduced to encouraging a 'mix of tenures'. As a result, while people in different social, economic and ethnic groups might be physically proximate, they remain segregated in how they use public services, shops, public spaces and schools. This is overlaid by growing inequality: as Danny Dorling has shown, for the first time in a large number of areas of some of the UK's cities more than half the population has become 'breadline poor'.*¹²

*Quality of place. UK cities continue to perform poorly in international rankings for sustainability and quality of life. For example, out of 215 cities in the Quality of Living Survey conducted by the consultancy Mercer, only London made it into the top 50, compared with Germany, which had six cities in the top 50.*¹³ *At the same time, the rise of 'Clone Town' Britain has brought with it high streets of identikit chain stores and a lost sense of place in many regenerated areas. In its 2005 survey, the New Economics Foundation found that 41 per cent of British towns were clone towns.*¹⁴

Creativity and control. The urban renaissance promoted cities as the engines of creativity, innovation and diversity but, at the same time, the redesign of city spaces was used to increase disciplinary mechanisms and socially selective controls. Town-centre management schemes, CCTV, private security patrols, US-style business improvement districts and

police intervention were all used extensively. This has gone hand in hand with an often narrowly drawn public realm dominated by the ability to participate in consumerism and retail activities.

Outer city neglect. Great social and economic differences remain a feature of many British cities. Urban policy has tended to comprise two distinct parts: neighbourhood renewal, focusing on social exclusion in the poorest areas, and retail and design-led regeneration in city centres. This has led to the neglect of large parts of the urban fabric, in particular outer-city neighbourhoods, including suburbs, exurbs and satellite settlements. These areas often have high car dependence, wasteful land and energy use and social polarisation.

Sustainability. While not blind to climate change, urban policy under the urban renaissance overwhelmingly focused on getting better energy and environmental standards on new-build rather than improving existing housing stock. Currently, there are 28 million homes in the UK of which only 1 per cent reach even level 3 of the Code for Sustainable Homes. Moreover, policy has tended to be dominated by meeting housing targets rather than restructuring neighbourhoods and developments so they can support more sustainable lifestyles and livelihoods.

Resilience of place

Resilience is often thought of as being the capacity to ‘bounce back’ to an earlier state of being. In the wake of events like the July 7 bombings in London and the extensive flooding in the country in 2007, the concept of resilience in the UK has become synonymous with emergency planning, homeland security and responding to risks such as severe weather, pandemics and terrorism. The notion of ‘bouncing back’ is central to the government’s approach to crisis. For example, when Scottish Resilience was launched in 2008, Cabinet Secretary for Justice Kenny MacAskill identified the purpose of the strategy as being ‘to take all practical steps to... respond and cope with major shocks [so] we can bounce back quickly’.¹⁵

However comforting it may sound, the idea of restoring any system to a past state of existence following a crisis or trauma is misleading. Instead, lessons can be learned from ecology. The Resilience Alliance is a Swedish research organisation devoted to exploring the dynamics of socio-ecological systems.¹⁶ It comprises scientists and practitioners from many disciplines, bringing different perspectives to the common challenges of survival and change. The Alliance has described resilience as comprising three things:

- the magnitude of shock that a system can absorb and still remain within a given state
- the degree to which the system is capable of self-organisation
- the degree to which the system can build capacity for learning and adaptation

As Folke et al from Resilience Alliance explain, ‘More resilient socio-ecological systems are able to absorb larger shocks without changing in fundamental ways. When massive transformation is inevitable, resilient systems contain the components needed for renewal and reorganization.’¹⁷ This ecological perspective is echoed in the idea of the ‘non-equilibrium paradigm’, whereby people and the environment exist as part of a dynamic continuum that spans a ‘murky world of feast and famine, triumphs and failures, good days and bad’.¹⁸

This shift in the way the world is viewed is beginning to have an impact on thinking in urban design and planning. The landscape architect Jack Ahern believes that ‘this evolving non-equilibrium view of the world, disturbance, chaos, unpredictability and continuous change are accepted as the new order – or the new rules of nature’. This creates a new set of values that Ahern sees as characterising approaches to place and what is possible in built environments (figure 1).

By this reckoning, resilience comes not from narrowly mechanistic government committees and emergency services, but is realised in the wider ability of social and natural systems to self-organise, adapt and learn.

Figure 1 **The non-equilibrium paradigm for cities**

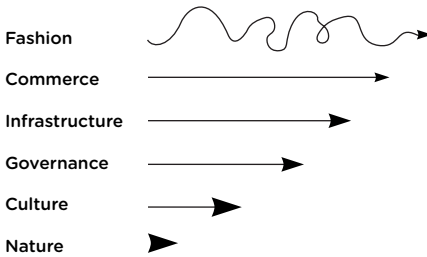
Equilibrium	Non-equilibrium
Modern	Postmodern
Linear	Networked
Rational	Chaotic
Open	Closed
Predictable	Uncertain
Hierarchy	Panarchy
Deterministic	Stochastic
Reductionistic	Holistic
Disciplinary	Transdisciplinary
Terra firma	Terra fluxus

Source: J Ahern, 'Green infrastructure, a spatial solution for cities'¹⁹

In the UK, the government has recently looked to the ideas of *quality* of place as a gauge of how towns and cities are faring in the wake of recession.²⁰ However, quality of place suggests a fixed idea of what a place should and could be, and once a place has ticked all the boxes, the job is simply to make sure they stay ticked. This report argues that *resilience of place* provides a more useful gauge of how our towns and cities are faring because it recognises that places are not static, but instead are dynamic and change over time. The challenge is to understand better the evolving needs of places and ways to grow their capacity for self-organisation, adaptation and learning.

Stewart Brand of the Long Now Foundation provides one useful way of approaching the issue of how places learn and adapt. In his pace layered cross-section of civilisation (figure 2), which he argues holds equally well for cities, the components move at importantly different rates. He explains:

*Fashion changes quickly, Commerce less quickly, Infrastructure slower than that, then Governance, then Culture, and the slowest is Nature. The fast parts learn, propose, and absorb shocks; the slow parts remember, integrate, and constrain. The fast parts get all the attention. The slow parts have all the power... The robustness of pace layering is how cities learn: because cities lay particular emphasis on the faster elements, that is how they 'teach' society at large.*²¹

Figure 2 Stewart Brand's visualisation of the order of civilisation²²

Brand's pace layers highlight how infrastructure and governance can play an important mediating role between faster moving commerce and fashion and slower moving culture and nature. How towns and cities choose to manage and use infrastructure can mediate the mode and pace of change overall.

Under the boom conditions of the last decade, the pace layers of places have got out of kilter with an overemphasis on commerce and fashion. There is now an opportunity to re-gear and focus on the imperatives of deeper changes in culture and nature.

Resources for resilience

In *Grey to Green* CABE highlighted how investing in nature through green infrastructure, comprising the networks of parks, waterways, woodland, gardens and green space, can help increase the resilience of our towns and cities.²³ This report focuses on culture and heritage as an often overlooked resource for resilience.

Heritage is the sum of associations – from family through to community, nation and society – that comprise our identity. It is manifest in what we do and how we do it, and in what we make and how we make it. Heritage is also firmly connected to places: it defines what they are and, in its physical forms, such

as architecture and infrastructure, provides touchpoints for attitudes and beliefs, past and present.

The US specialist in the economy of place, Donovan Rypkema, has spoken of the nexus of environmental, economic and social or cultural sustainability:

For a community to be viable there needs to be a link between environmental responsibility and economic responsibility; for a community to be liveable, there needs to be a link between environmental responsibility and social responsibility; and for a community to be equitable there needs to be a link between economic responsibility and social responsibility.²⁴

Heritage can help address all three. It is viable because – for the most part – it is already there; it is liveable because we find in it connections to values and beliefs; and it can be equitable if it is open to response from the standpoints of the different communities that follow it. It is also in heritage where the values that influence our creativity and the attitudes that creativity can challenge can be found.

The non-equilibrium paradigm described by Jack Ahern embraces heritage because the values heritage represents are contestable. This is because heritage conservation is about more than simply preserving the past in aspic. Rather, it is about ‘refreshing and renewing culture and heritage in ways that reflect and contribute to society’s values’.²⁵ Far from weakening the role that heritage plays, the contestable nature of heritage creates a new space in which the old and the new are brought together. In the context of the built environment, heritage and conservation can often be seen as limiting: listing and designation can limit opportunities for development. However, heritage is also liberating and enervating: because it represents values and beliefs, and it can be used to animate areas and encourage conversation between different perspectives and viewpoints. It is from this conversation that neighbourhoods and communities can be formed.

The rest of this report explores the potential for heritage infrastructure – comprising networks of railways, waterways, routeways and sewers – to contribute as part of the public realm

to the resilience of places. It explores how this infrastructure can inspire creativity and help provide the civic logic by which places are held together, and how the reappraisal, repurposing and reuse of inherited physical assets can generate more productive places, socially, economically and environmentally.

1 A heritage of resilience

The infrastructure of the UK has proved remarkably resilient in its own right. Our towns and cities are built around networks of canals, railways and roads, which weave along viaducts, through tunnels, under one another and between the towns and cities themselves. Some of the main roads in the country follow those first laid by Romans and earlier communities.

A closer look at one aspect of the heritage infrastructure – canals – reveals a remarkable story of 200 years of adaptation. People and communities have consistently found new purposes for canals, which meet new needs, and this often involves retaining the canal’s original function. Resilience and adaptability are in the DNA of our heritage infrastructure.

This resilience is demonstrated in Brindley Place in Birmingham, one of the most well-known developments of a canal-side area. Alongside the bars and restaurants of the regenerated night-time economy – the office blocks occupied by banks and the Convention Centre and Symphony Hall – a moored narrow-boat functions as a floating café. There are many barges like this in the UK; another is moored at Little Venice in London, another on Bristol Docks. People pass by them, nip in, nip out, pick up a ‘latte to go’, much as they would from any high street coffee shop. Pause to think about these cafés a little more, however, and there is something remarkable about them. Canal boats owe their origins to the industry of the eighteenth century.²⁶ However, the houseboats of today would barely be recognisable to the industrial magnates of the past. James Brindley – the architect of Britain’s canal mania – would have been far more familiar with the sound of the Newcomen engine than the espresso machine.

How have canals proved so resilient and how did they make this transition? The floating cafés that characterise the

quaysides of the UK's urban renaissance tell a story. Moored on the vestiges of our industrial past are houseboats newly converted to suit the cosmopolitan lives of boho Britain. People have continued to find in canals a resource that they can adapt to meet the needs of their day. The story of Britain's canal network – and that of the heritage infrastructure as a whole – is one of resilience because it has consistently found ways to renew and reinvent itself.

In their eighteenth century hey-day, the economist Adam Smith praised canals as 'diminishing the expence [sic] of carriage, [putting] the remote parts of the country more nearly upon a level with those in the neighbourhood of the town'.²⁷ They were the dot.coms of the time. They represented optimism and a new way of doing things, and people were quick to invest in their use and rapid growth. Canals were so successful because they were the means to ship cargo to and from the lucrative trade routes of the ports, and they were the conduits of commerce between the great industrial cities.

Things changed with the advent of the railways. As with dot.coms later, the canal bubble burst. Trains were quicker, more powerful and capacious and the tracks easier to divert and add to than the brick channels of the canal network; rail was also a more efficient way of dealing with inclines.²⁸ The stock-trade of transporting cargo declined but the use of canals continued nevertheless. Charles Dickens captured the equilibrium in which they existed, between the bustle of industry and the slow pace of the backwater. In *The Old Curiosity Shop*, Little Nell's journey from Coventry to Birmingham by barge is painfully slow, but when she arrives at Gas St Basin, the entrance to what a 150 years later was to be Brindley Place, 'the water had become thicker and dirtier [and] other barges, coming from it, passed them frequently'.²⁹

In the twentieth century, the development of the road system tipped this equilibrium. Nowhere is this clearer than 'Spaghetti Junction' at Birmingham's Salford Circus.³⁰ There, beneath dual carriageways and motorways piled three-high, the Birmingham–Fazeley Canal meets the Grand Union and Tame Valley canals and continues as it has done since it was built in

1794. Although their industrial use has been superseded, canals remained fixtures in towns and the countryside. They came to be used more for leisure than commerce. Canals connect the rural to the urban, just as they did in Adam Smith's day – the difference is that they have been reconceptualised as an escape from the town, rather than a route towards it.

By the 1950s, canal-cruising had become the dominant use of the network. Organisations like the Inland Waterways Association (IWA) were formed to campaign for the preservation of the network as a heritage asset. Today, there are about 30,000 leisure boats on the UK's canal network and 3.4 million people visit its waters and banks each fortnight.³¹ According to HM Treasury, out of the £330m total value of inland waterways managed and owned by British Waterways, the amenity and recreational use amounts to £230m, and the use for freight only £0.7m.³²

This reinvention continues. In the past, great industrial cities like Leeds and Manchester needed coal and other raw materials; in an information age, they need connection and knowledge. Those connections are latent in Britain's waterways. At the time of writing, 500 miles of fibre-optics are buried beneath Britain's towpaths, connecting city to city, company to company and community to community.³³

The pressing agenda of climate change and the need to find sustainable sources of energy have brought new contexts and new uses for canals. The increased risk of flooding that has arisen from changes in climate has meant that the traditional use of canals as part of land drainage has become more widespread. In a more innovative way, canals contribute to urban cooling and have been used to heat and cool new buildings. Today, the Mailbox – a large shopping complex standing where Little Nell once noticed the dirtier water of Birmingham's canals – is cooled and heated using water drawn from the waterway. Elsewhere, at their headquarters in West London, the pharmaceuticals company GlaxoSmithKline works with British Waterways to dissipate 1 megawatt of heat into the canal.³⁴

Too often, disused canals, empty overgrown railway cuttings and the residual humps of sewers are seen as

problematic burdens. However, the heritage infrastructure can also be used creatively to provide a civic logic as places adapt to new conditions (box 2). A series of examples – documented in the following chapters – shows that people, communities and organisations are making the most of the opportunities that heritage infrastructure provides in a new and fast evolving post-boom operating environment.

Box 2 The UK's heritage network infrastructure

Rail: It is difficult to provide a definite figure for the miles of disused railway track, embankments and viaducts in the UK. However, the facts and figures of the famous Beeching Report of 1963, which led to the closure of many branch lines and smaller railways, provide a clue to the potential that lies in the cities and countryside of the UK. In 1948, when different railway companies coalesced to form British Railways, there were 19,598 miles of track and 6,685 stations. Today, there are 9,828 miles of track and 2,517 stations.³⁵ Although some of these routeways have either been built over, or returned to nature, this gives an indication of the scale of assets that could be re-tasked. Organisations like Sustrans and many local authorities have spotted this potential and use former railway routes as either cycle paths or urban walkways. In Cheltenham Spa, for instance, the old route of the Honeybourne Line is now a pedestrian and cycle path that connects the main railway station with the city centre; it has also become an important habitat and corridor for wildlife including mammals and insects.

Waterways: British Waterways cares for some 2,200 miles of canals and rivers – 80 per cent of canals and rivers in the UK. Its property portfolio includes 3,115 bridges, 1,654 locks, 417 aqueducts, 91 reservoirs and 54 tunnels. Many of these are listed, making British Waterways the owner of the largest number of listed buildings in the UK after the National Trust and the Church of England. It is also the owner of many wetland sites, scheduled buildings, Sites of Special Scientific Interest (SSSIs) and conservation areas.³⁶

In addition, canals operated by British Waterways include thousands of archaeological sites and either adjoin or pass through:

- *4 World Heritage Sites*
- *14 historic battlefields*
- *33 registered historic parks and gardens*

Sewers: There are some 360,000 miles of sewer in the UK.³⁷ They run underneath towns and cities and connect the vast majority of the buildings, sites and venues in which people lead their daily lives. In the Thames region alone, there are 43,500 miles of sewer, 2,530 pumping stations and 800,000 manholes.³⁸ Some areas have put sewers to innovative uses. Underneath Brighton there are 482 miles of sewer and, since the 1960s, Southern Water has exploited the distinctive brickwork of these tunnels by offering tours of them.³⁹ Although the countryside is less well covered, it is estimated that most villages are within ten miles of a major sewer.⁴⁰

Already, private companies have exploited this network, using it to convey fibre-optics around the country. This saves both time and money. Elfed Thomas, managing director of H2O Networks, estimates that where digging up a road could take between six and 12 months' planning, and cost between £150 and £200 per metre, using a sewer instead is a matter of a few hours' work and costs far less.⁴¹

Sewers also feature above ground, forming distinctive routeways. Physically, they create distinctive parts of the landscape; for example, the Southern Outfall Sewer near Beckton in south east London forms a raised routeway, which has become known as 'the Ridgeway' (see below, p44). They also play a conceptual – but often forgotten – role and represent a proud heritage of industrial creativity and triumph in adversity. In a 2005 series, the BBC named Joseph Bazalgette's London sewer system alongside the Panama Canal, the Hoover Dam and the Brooklyn Bridge as one of the seven wonders of the industrial world, celebrating the vast leap they brought about in public sanitation and health.⁴²

2 Civic creativity

If you don't connect with people, then they don't stay loyal. We need to be clever and take heritage infrastructure and use it in ways that generate that kind of greater meaning and connection. It's not about looking back to the past. But doing things that accelerate the process of connection and loyalty.

Toby Hyman⁴³

Heritage and creativity

In Stewart Brand's vision of civilisation outlined in the introduction, the quicker layers of fashion and commerce draw for their momentum on the deeper, more embedded layers of heritage and culture as manifest in infrastructure. In innovating, conserving or maintaining – creating – we respond to the stimulus of what is around us, and the connections that it implies. We either maintain elements of the past or break with it, continuing or disrupting flows of values and ideas.

Heritage is a memory and it can be either stored, as an object in a museum, or living in the sense of a tradition or practice continued, such as the canal boats at the Black Country Museum in Dudley or a heritage railway like the Bluebell Line in Sussex. In *The Human Condition*, published in 1958, the philosopher Hannah Arendt, wrote:

*Speech and action... are the modes in which human beings appear to each other, not indeed as physical objects, but qua men. This appearance, as distinguished from mere bodily existence, rests on initiative, but it is an initiative from which no human being can refrain and still be human.*⁴⁴

She saw social man as 'man as maker', *homo faber*: it is through our material creations – from the finest of our arts through to the everyday forms that we create – that we

communicate. Bill Ivey, the former chair of the National Endowment for the Arts in the USA, and the chair of President Barack Obama's Transition Team for the Arts and Humanities, terms this our 'expressive life'.⁴⁵ He sees heritage as being 'about belonging, continuity, community and history; it is expressed through art and ideas grounded in family, neighbourhood, ethnicity, nationality and the many linkages that provide securing knowledge that we come from a specific place and are not alone'.⁴⁶

In making and doing things we are saying who we are; in this respect, our heritage infrastructure is a way of connecting with our past. In adapting it, we are also saying something about who we are and who we want to be. For example, someone who goes canal cruising is making a self-conscious switch in pace of life. Similarly, one of the appeals of the High Line in New York is its deliberate separation from the city on both physical terms through its elevation, and emotive terms by virtue of connection to nature.

Fifty years after Arendt published *The Human Condition* her student, the sociologist Richard Sennett, returned to her work, considering:

what the process of making concrete things reveals to us about ourselves. Learning from things requires us to care about the qualities of cloth or the right way to poach fish; fine cloth or food cooked well enables us to imagine larger categories of 'good'.⁴⁷

Understanding the material world unlocks the non-verbal conversations of which our public realm is formed; it also enables us to discover different qualities of life, which is important in a recession. Why do people operate narrowboats at the Black Country Museum in Dudley? Why do people make given objects in specific ways in the first place? And why do subsequent generations choose to preserve them? The answers to these questions lie in conceptions of value. By the same measure, in refreshing and renewing aspects of our heritage, we also connect to the values of the past.

The capacity to recognise the communicative potential of our material actions empowers people within the non-verbal conversations about value that have just been described.⁴⁸ Conversation of this sort helps us renegotiate values and develop new ones, either accepting or rejecting old ones. In his book *The Craftsman*, Sennett concludes:

*In the modern economy, dislocation is a permanent fact. But figuring out how to build on existing skills – to expand on them or use them as a base for acquiring other skills – is a strategy that helps orient individuals in time.*⁴⁹

From this perspective, the definition of heritage, and its value as the source of creativity and innovation, becomes important in relation to identity at individual and community levels. By responding to the material world around us, individuals and communities can create new meaning that helps them bind together as groups.

Case study: Pontcysyllte

UNESCO's World Heritage List includes 890 properties from around the globe considered to have outstanding universal value. One of the sites listed is Pontcysyllte, an aqueduct on the Llangollen Canal.⁵⁰ Designed by Thomas Telford, it was completed in 1805 and, as the industrial use of the canal network dwindled in the mid-twentieth century, became used as simply a pathway from one side of the Dee Valley to the other. By the late twentieth century, however, it had become largely ignored by the communities around it.

The designation of Pontcysyllte as a World Heritage Site in 2008 was a recognition of its resilience and reinvention. It has progressed from being a relic of a bygone age to being a major tourist attraction. The designation also confirmed its importance to national and industrial history.

In part, this came about because of the consortium of local initiative, the council's support and investment from British Waterways. As with many areas through which canals run, the area around Pontcysyllte suffered through the closure

of industry – in this case, a chemicals plant at nearby Cefn Mawr. After redundancies at the large chemical factory which had been the main source of employment in the area, local shops and post offices closed. The area was in need of a new social and economic focus.

The Aqueduct Community Association was formed to champion Pontcysyllte as a heritage asset. The premise was that the aqueduct could promote tourism, which would boost employment and a sense of community in the area. Initially, the association held small social gatherings run by volunteers, and then established a tea-shop. As more people came, more people got involved, and other activities such as litter-picking developed, which expressed care of the aqueduct.

In 2005 the bicentenary of the aqueduct provided a moment of stimulus and attention that encouraged this coalition of interests. The community took the opportunity to celebrate Pontcysyllte and draw people into its rehabilitation, showing the potential that it could have. This community interest demonstrated sustainability and a sense that something could be achieved. It encouraged British Waterways to invest further in the canal and the aqueduct, developing the amenities, such as a heritage visitor centre, around it and making it more fit for purpose as a modern tourist attraction. The county council was also keen to support the community activity around the Pontcysyllte. Monthly meetings were scheduled and key relationships developed between the community and individuals within the council and British Waterways.

Today, the Aqueduct Community Association explains Pontcysyllte's success by having asked the question why a council or British Waterways should invest in the aqueduct. All parties need to feel that they are getting something from the equation – the community needs a sense of ownership and pride, the council wants to contribute to an agenda such as place shaping and economic regeneration, and British Waterways wants to contribute to the nation's use and awareness of the heritage infrastructure by restoring an icon.

Civic logic

Canals, roads and railways are more than simply the communications infrastructure of cities; they also have the potential to be part of the infrastructure of identities and communities. They are the visual representation of how people have shaped the world in which they live and how society hangs together. Heritage infrastructure networks can help in the process of binding places together. Used in the right way they can help in civic story-telling, carry and channel civic emotions, and provide civic symbols and touch points.

Civic story-telling

It's possible to show different ways of looking at a city and give people the opportunity to tell stories.

Nicola Stephenson, The Culture Company

In 2006 The Culture Company – a Leeds-based cultural agency that commissions and produces creative work – commissioned several artists to create an art trail around the Holbeck area of the city. The artists were asked to encourage people to explore the heritage city, poke into its nooks and crannies, and open spaces that had long fallen out of use or into disrepair. Light-boxes were placed behind the letter-boxes of terraced housing, encouraging people to break the cardinal rule ‘don’t look in’. Images were projected on the walls of disused factories, brightening the area and telling of their former use. Most of all, spaces that were previously no-go areas were brightened up and given life beyond the menace that they had previously held for many local people.⁵¹

Heritage infrastructure networks are a structure of the public realm. The legacies of their development are the conceptual and physical connections that exist between places. These industrial routes, inherited ghosts of power, are often beset by deliberate disconnections, neglected connections, fragmentation and lack of permeability. But they can also provide the threads to help stitch together the shared life of places and have a different reach than traditional public spaces

of parks and squares or the urban renaissance landscape of urban malls and retail parks.

Unlike the public spaces of park or square and the urban renaissance landscape of urban malls and retail parks (the conventional foci of regeneration), heritage infrastructure offers what might be called an ‘urban right to roam’. By opening and maintaining such routes as towpaths and other pathway, it is possible to offer commonland routeways that run through cities, bringing a wide range of urban experiences and geographies within people’s reach. Over and above the links between places that these make, they allow people to connect to different ideas and values associated with the spaces in which they live, often opening them to new experiences and different senses of community.

Heritage infrastructure networks provide a living cross-section of a city, leading through the history and experience of living in a city. Michel de Certeau thought of walking as ‘an innumerable collection of singularities’ and as ‘a modern art of everyday expression’.⁵² For the historian Paul Ginsborg, this has definite political implications: ‘It is in the micro-actions and interstices of everyday life that alternatives are to be sought.’⁵³ Heritage infrastructure can function as a space in which these actions and interstices occur. In Birmingham, the canals take you from the centre to its cultural and entertainment district, past banks of speculative luxury apartments to prosperous modern developments, and on to industrial decay and to nature’s edge. Within minutes you are presented with the full range of what it means to ‘be’ in Birmingham. The canals lead from the heart of the city through the speculative apartment blocks of its newly regenerated outer centre, the old industrial buildings of Icknield Port, and on towards the suburbs of Rotton Park and beyond. A walk along this route provides a visual experience of how the city has developed and how it is developing. It is the story of industrialisation and post-industrialisation – its successes, failures and hopes. Heritage infrastructure can be used in this way to explore and communicate a place’s identity. In Tipton and the Black Country, for instance, the Birmingham Canal Navigation

Society has run *ad hoc* narrow-boat trips for the local Asian community, illuminating the history of the region and how the different industrial and manufacturing areas connected and hence how the area has developed in the way that it has.

Civic emotion

To be loved and to be meaningful spaces have to feel different... Do we have to have this huge homogenisation of motoring and McDonald's? Or should we explicitly say every space should be different and feel different? And when you move through a space all the constituent bits of you are engaged.

Peter Lipman, Sustrans⁵⁴

There is value in using what you have to create new meaning. Autochthonous invention encourages ownership and affiliation with a place. It broadens the range of civic emotions people can feel and engage with in the city, creating relevant and meaningful touch points and symbols. This encompasses pride, but also much more: it is the emotional intelligence and integrity of a place and how to develop a widely felt sense of ownership.

Stourport-on-Severn in Worcestershire is a place with many proud firsts. It is considered the 'pioneer town of the canal age'.⁵⁵ The pressure to load and unload boats long into the night meant that Stourport was the first English town outside London to have gas streetlighting. It is also claimed that the town was the venue of the first public piano recital in the UK, to entertain the visitors at the Tontine Hotel. Stourport is now renewing that pride by redeveloping its canal basins.

Case study: Stourport

Stourport is distinguished as the first town to have grown up because of and around a canal. The canal basins and town were developed by James Brindley at the junction of the Staffordshire and Worcestershire canal with the River Severn. It was the point at which the navigable inland waterways of

*England connected with the river and thence to the port of Bristol, America and beyond.*⁵⁶

The fortunes of the town declined with those of the canal industry. In the mid-nineteenth century, Stourport's population decreased and its commercial focus shifted to carpet manufacture, tanning and engineering, industries which have since declined. Over the next century, the social and geographic centre of the town also shifted, moving away from the canal basins to the surrounding streets as the town became a holiday destination for the Black Country. The canals, however, had been all but forgotten – physically, the buildings now faced away from the basins, rather than towards them.

By the late twentieth century Stourport was dominated by amusement arcades and fish and chip shops. However, through partnership funding from British Waterways, English Heritage and the local authorities – Stourport Town Council, Wyre Forest District Council and Worcestershire County Council – a group of volunteers came together to form Stourport Forward, a four-year regeneration programme funded by Advantage West Midlands, the regional development agency.

The volunteers have worked from a shared commitment to Stourport's canal heritage to develop the site as a visitor attraction. Initial projects have included the restoration of the quayside and the surrounding buildings, some of which have been occupied by small businesses that have in turn encouraged social and commercial activity around the basins. The Windlass Café, for instance, has encouraged foot traffic along the quayside. The result has been private investment by a developer in a housing complex alongside the basin.

At Stourport, the emotional and physical framework that the canals provide has been central to encouraging volunteers to come together and provide sufficient impetus for independent agencies and local authorities to invest in the area's future. This has had economic benefits in driving private investment, enabling it to compete and cooperate with neighbouring market

towns. For instance, it can draw on the tourist audience of the more established heritage appeal of neighbouring Bewdley. The next phase of the plan is to develop a retail and night-time economy on one side of the basin. While the outcomes of the work of Stourport Forward might be economic development, the driving force behind it is a sense of civic pride that is derived from and serves to strengthen the value of the heritage infrastructure.

Civic symbols and touchpoints

Rather than the grand icons and statues of dead generals that have conventionally tended to be used to express civic identity and power, the civic touch points and symbols created through the use of heritage infrastructure represent a quieter and more diverse expression of civic identity and community. These small spaces, forms and experiences allow a more participative, reciprocal and playful ‘civicness’, one that is more open and adaptable to the demands of constant change and uncertainty.

In Leeds, Toby Hyman is busy cooking up a series of new style civic symbols and touch points for his new development, Temple Mills, in Holbeck. He hopes to renovate one of the twin Italianate chimneys on the site and turn it into a venue for civic rituals. He explains,

It’s big enough to get a staircase in and a parapet on top for twenty odd people. I want to get it designated as a place for civic ceremonies, so people can get married, named, become British citizens, whatever. The chimneys are one of the things that people sweep past on the train as they come into Leeds station. They wouldn’t just be something to look at; eventually everyone, or someone they knew, would have been up them and done something special to them. A beautiful way for people to know they’ve arrived home.⁵⁷

It is also possible to create such locally defining points anew and on different scales. For a mix of practical and ideological reasons the national cycling charity Sustrans weaves a wiggle through its new routeways. These soft corners create

social pauses and spaces. Practically, they prevent the routes being used as motorbike highways. Furthermore, they create corners that people can use and in which interesting things can develop, including being exploited as social spaces for people to sit and take a break, or for open air art exhibitions to be created, and people co-opting them into part of their garden.

In summer 2009 a series of cargo containers was erected on the high ground of the Northern Outfall Sewer in East London. Known as the View Tube, this somewhat alien arrival has created a platform from which visitors can watch the construction of the Olympic Park. There is a strong poetic element to this intervention, which uses a feat of Victorian engineering prowess for people to witness the production of a new post-modern city district being laid out before their eyes. We will return to discuss the value of the View Tube as a temporary use of infrastructure later in the report (see p74).

There are many other potential civic touch points and symbols – a good example is the proposal mentioned earlier to convert the Holbeck viaduct in Leeds into a green walkway, which has been based on New York's High Line. Although plans have been shelved because of the recession, it was intended to provide people with the opportunity to connect to nature, walking through the city in a different way.⁵⁸ The redevelopment of the viaduct would enable people to have a different experience of the urban landscape, allowing them to move between its different elements, disrupting the assumptions and established politics of the zones of the city through and above which they pass. As the High Line in New York and the *Coulée Verte* – an elevated railway similarly converted into a park in 1992 – in Paris demonstrate, designers and architects are increasingly using spaces to tell different stories about cities.

The infrastructural ghosts of our towns and cities are full of potential. By generating the kinds of stories, symbols and shared emotion described in this chapter, heritage infrastructure can help generate integrity in the form of place with heritage acting as a framework around which people can weave the fabric of their society and communities. The case of the Bittern Line – an example of how the transport use of infrastructure can

be resuscitated – illustrates one way in which these elements can come together.

Case study: The Bittern Line

After the Beeching reforms of the 1960s, in which many railway branch lines were closed, community rail partnerships developed to represent local interests around railways. Now represented and coordinated by the Association of Community Rail Partnerships (ACoRP), they coalesce around the government's Community Rail Development Strategy.⁵⁹ The resources to maintain stations, especially in rural neighbourhoods, are few and far between and, in the current economic climate, are likely to become smaller still. However, as the welcoming point to communities throughout the country, stations play an important role in encouraging self-esteem and identity. ACoRP and the volunteers it represents play a central role in providing a space in which people can take care of the signs and symbols of their community and, in doing so, make statements about a sense of that community, which are vital in keeping it alive.⁶⁰ As the Bittern Line, in north Norfolk, demonstrates, economic benefits can also accrue from this basis of participatory community activity.

The Bittern Line runs for 30 miles from the Norfolk coastal towns of Sheringham and Cromer and on to Norwich. It is part of the national rail system. As well as being among the most scenic in the UK, its route is an important connection between the towns it serves. In 1968 the line between Norwich and Cromer faced closure, but was kept open because of the poor road infrastructure in the area.

The origins of the line trace back to the 1870s and part of this original line is now preserved as a heritage line, the North Norfolk Railway or Poppy Line. While the Poppy Line is presented as heritage in a formal sense, the Bittern Line uses its heritage in a different way. By 1996 the rail network in north Norfolk was in need of repair and care, and the county council sought ways to prevent its decline. A study commissioned from the Transport Research and Information Network (TR&IN)

recommended that a community rail partnership between Network Rail and Anglia Railways (now National Express East Anglia), working with the local community, would be the most effective and efficient way of maintaining the line.

The coalition of interests around the Bittern Line resulted in a rise in passenger levels of 162 per cent within seven years of its opening in 1997. The result has been further investment of over £17 million by Network Rail, replacing the signalling system and upgrading and repairing stations and track. These social and economic goods have been achieved because local interest required the railway to survive. The continuation of that interest has encouraged the further use, which has justified subsequent investment by the railway operator. As the government's Community Rail Strategy recognises, the partnership has also been important in facilitating better marketing to the region that the railway serves, and in identifying opportunities for special events and packages in the area.⁶¹

The use of heritage holds important lessons for regeneration. In the case of the Bittern Line, the partnership around the railway raised awareness of an active need for rail transport, and used the heritage of the connections the line made to demonstrate the networks that the railway continues to serve. In Stourport, heritage is used in a different way – as a tourist attraction – but with similar results, by helping to bind a community, and as an investment in social capital. The participation on which both depend requires more than simply presence: it requires active connection, with a space open to the community around it, and for people to be free to bring their own values to it, voicing a sense of community and identity in the process. The right kinds of participation and stewardship may help produce types of social and spatial relationships that help endure stressful episodes at the societal level.

3 A participative landscape

Heritage infrastructure often represents a mixed economy of private and public investment and interest. The story of Britain's canals, for instance, is one of private enterprise for the public good. The motto of the Trent and Mersey Canal, which opened in 1766, was '*Pro patria populoque fluit*' – 'It flows for country and people'. However, even in its heyday, British canal work was triggered by private enterprise, not national plans. Industrialists like Matthew Boulton and Josiah Wedgwood, frustrated by inadequate roads and eager for profit, 'all turned their minds more and more to dreams of inland waterways'.⁶² The Stockton to Darlington Railway, along which George Stephenson's *Locomotion 1* hauled ore traffic, had similar origins: 'It was not romanticism, but sound Quaker commercial sense which caused a group of mine owners to build... a public railway.'⁶³

A new, post-industrial chapter of the story of our heritage infrastructure will similarly depend on the enterprise of citizens, adapting the legacy of Boulton, Wedgwood, Stephenson and others to new needs. In analysing the geography of a networked society, the urban theorists Stephen Graham and Simon Marvin described infrastructure networks as making up

*considerable portions of the material, economic and geopolitical fabric of contemporary cities and systems of cities. As capital that is literally 'sunk' and embedded within and between the fabric of cities, they represent long-term accumulations of finance, technology, know-how, and organisational and geopolitical power.*⁶⁴

The future of towns and cities lies in how the distribution of that power is regrouped and renegotiated.

A resilient city is not in the gift of a planner or charismatic mayor at the city hall. Nor is it in the gift of a hero architect

drafted in.⁶⁵ Instead it depends on the thousands of everyday choices made by people who decide to live, work, bring up a family or start a business there. In other words, the resilience of a place depends on how successfully it mobilises the widespread participation of its people.

Jan Scheurer, an urban theorist, has examined a range of ecology innovations in different European countries. He found that when innovations originated from a close and committed community they were much more likely to stick and become integrated into the lifestyles of the residents. However, many architect-designed innovations that were imposed without the involvement of residents and without sufficient education about their role and value tended to fall quickly into neglect or were removed.⁶⁶

Creative adaptation comes from people feeling a sense of ownership and being able to participate in, shape and control their environment. This requires opening the environment up to people's needs, aspirations and ideas. The multifunctional nature of heritage infrastructure networks means there are multiple hooks and access points that can engage different communities. This creates a landscape rich in opportunities for people to connect to the heritage infrastructure and become actively involved in its use and reinvention. But first there are some barriers that need to be overcome.

From severance to reconnection

While heritage infrastructure networks can provide powerful and multifunctional platforms for places and communities to connect with other places, nature, the past and a slower pace of life, they can also generate serious physical barriers and severance in the everyday life of cities. Holbeck Urban Village in Leeds exemplifies this problem. Tucked below the main railway station just to the south of the city centre, the area is bisected by the River Aire, the Leeds and Liverpool Canal and the main railway line. It also includes the disused, 1,500-yard Holbeck viaduct mentioned earlier in this report. When the area was first developed 200 years ago, these were the life-lines that

helped make Holbeck into an engine-room of the industrial revolution. With the decline of industry, however, they became the lines that cut the area off from the rest of the city.

Stitching places back together is cycling charity Sustrans' speciality. Its £50m People's Lottery Connect2 project deliberately targets places that are difficult to connect. The numbers are impressive: 79 schemes across the country will connect people to over 2,000 doctors' surgeries and clinics, more than 800 supermarkets, 2,800 schools and over 3,000 places of worship. Sustrans uses old railways and canal towpaths to make these reconnections possible. However, as the technical director of Sustrans Huw Davies explains, these industrial routes do not automatically go where they need to go:

These old route ways were designed to carry freight so aren't always that close to where people live. You have to find the most useful routes and then it's about all the little links you put in so they connect to where people are and where they want to get to. There are lots of last little bits, or else the routes run through or by communities and don't actually connect to them.⁶⁷

Physical reconnection is only part of the story. Many of the people we interviewed in our research stressed that the process of psychological reconnection is as important and often much tougher. Talking about Holbeck, Toby Hyman explains, 'The barrier between Holbeck and the city is profound. People simply don't use it. It's seen as a frontier land of collapsed industry and a red light district. That image persists and it's still a no go area for lots of people.'⁶⁸ Some people can also be fearful about reconnection and decide that they do not want to be part of any new route or network.

For reconnection to be sustainable and meaningful, heritage networks needs to be incorporated into and adopted by the surrounding community. The waterfront in Leeds also provides a warning about selling the value of this reconnection and incorporation too low. In the late 1980s, following over 60 years in which investment and interest were lacking, the southern side of the Leeds and Liverpool Canal to the edge of the city centre began to attract attention for development. For

instance, the supermarket giant Asda was persuaded to build its corporate headquarters there. At the time, this was considered a coup, and a key step in restoring confidence in the canal as a viable location for business. Twenty years on, triumph has turned into missed opportunity. The only space that connects Asda to the canal is a 'smokers' cage', where Asda employees pace the concrete yard behind high metal bars, creating an unnerving atmosphere for people passing on the narrow strip between the cage and canal.

Making guardianship an integral part of any new gateways to reconnect heritage networks is critical. There are many creative ways in which this can be done. On the Limehouse Cut in East London, proposals are being developed to demolish a block of flats on the canal side so the water can be connected to Bartlett Park, the largest area of green space in Poplar. The plans include building a café and watersports centre, so active use is made of the water not just the towpath. In West Ham, a few hundred yards from the station there are plans to create a mounded grass amphitheatre to reconnect the Greenway with the playing fields and park below. In Bristol, as part of the new Chocolate Factory development in the east of the city, a community of 'cycle houses' is being built; instead of garages they will have direct access onto the Bristol to Bath cycleway, which runs along an old railway line.

Revealing hidden uses and value

Generating guardianship and opening up urban assets to people's creative reuse depends partly on recognising sometimes hidden existing uses, and then legitimising and helping them grow. A building or plot of land might look derelict or unused, but often people are quietly but busily making what they can of it and planting the seeds of the adaptive process.

The Ridgeway in south east London is one such place and tells the story of how an overlooked urban asset is slowly being brought back into use and reintegrated into the life of the city. The Ridgeway is a raised embankment formed by part of the Southern Outfall Sewer. It runs above ground snaking through

the cityscape from Plumstead station to the Crossness Sewage Treatment Works. Designed by Joseph Bazalgette, after repeated cholera outbreaks and ‘The Great Stink’ of 1858, the Southern Outfall Sewer was constructed in the early 1860s by the Metropolitan Board of Works. With its northern twin, which flows out to Beckton, Bazalgette’s radical piece of Victorian engineering remains 150 years on London’s sewage super-highway, dealing with millions of litres of waste a day.

Today, the main gateway onto the Ridgeway is far from prepossessing: it is a rubbish strewn spaghetti junction of an underpass opposite Plumstead Station. Those who venture to climb to the top will find giant CCTV masts and panic buttons. However, they will also be surrounded by greenery and have come across a unique view of the city – it is like being on the top deck of a triple-decker bus. On show are the inner workings of warehouses and people’s back yards, but also – remarkably in this area of London – open fields with grazing horses.

Commissioned jointly by Greenwich and Bexley councils and Design for London, Muf, the arts and architect practice, has been busy discovering the Ridgeway’s other surprises by mapping who currently uses it and how. Muf found that it was being used extensively as a breathing space, play space and foraging space. In the words of some of the people who use the Ridgeway:

It’s lovely to come down here and breath in some nice fresh air... the dog loves it down here. Plenty of squirrels to chase... It’s a beautiful thing.

Man, 50s

I like this nature because you get these people that dump stuff, but you can recycle it and use it for dens.

Boy, early teens

There used to be a lot of wild leek and wild garlic. Things like that and all the fruit and vegetables you want. If I make wine I don’t believe in buying too much. I go down there and collect everything.

Woman, 40s

The work by Muf has begun to transform perceptions of the Ridgeway. According to Rachel Morris of Greenwich Council:

It used to have a very negative perception, but the more you delve in and look at it, then the more positive it gets... We were surprised to find people were foraging for food on the Ridgeway. I'd expect that in somewhere like Hampstead Heath but not here. But it's actually a really productive strip of land.⁶⁹

Building on these findings, proposals have now been drawn up to support the growth of these uses, including developing the Ridgeway as a play and sport space and planting to create an edible landscape with orchards, berries and vegetables. As well as transforming perceptions of an overlooked asset, the Ridgeway project is also concerned with transforming perceptions of what a legitimate project is for a local authority and how it intervenes.

Building new constituencies

Creating participative landscapes, open to people's creative reuse, also involves extending a conscious invitation to new users. British Waterways is in the process of doing this for the canal network, with the aim of reaching beyond the already mobilised and enthusiastic boating community. One way it is doing this is by working with the Waterways Trust and V, a national youth volunteering charity, setting up the Waterways Action Squad, which will provide 570 places for young people over the next two years to get involved in the canals. Glenn Millar of British Waterways explains the rationale of the initiative:

In some ways it will be a clash of cultures between BW and our more traditional volunteers, and the new young people. But that can be a good thing. It's not about using volunteers to save money – in fact it probably won't – but about developing a new constituency, developing their ownership and new ways of how they can use the canals.⁷⁰

A further way of encouraging new groups to use spaces in different ways is to use heritage infrastructure as the inspiration for creativity in the form of creative arts. A good example is the work of the Culture Company in Leeds (see p31). The arts have long been associated with regeneration. From the perspective of raising an area's profile, they can bring life and a new sense of ambition. The more affordable spaces of areas that have previously been run down are appealing and versatile, and so are attractive to emergent creative and artistic enterprise. From the point of view of developers, small industries of this nature can be beneficial because they have the advantage of developing an area's profile, while often requiring only short-term or temporary leases.

The heritage infrastructure, moreover, offers further opportunities. The arts are a way of telling the stories of this infrastructure in new, fresh and innovative ways, which connect to different audiences. At the famous exhibition 'Sensation' of 1997, where many of the YBAs first made their public names, the artist Jonathan Parsons exhibited *Carcass*, a lattice-like cut-out of the nation's roadways suspended upside down.⁷¹ The work encourages a different way of looking at the UK. The roads, thin strips of paper – at most a couple of millimetres wide – appear delicate and fragile, far from the concrete spans that pass unseen underneath us, day in day out. Vein-like in appearance, the roads in Parsons' work encourage us to think about a country held together by communication links, rather than dense blocks of space. Inverting the UK, the network of communications also seems top-heavy, asking questions about the political implications of communications and roads.

In another project in 2007, commissioned by Birmingham's Ikon Gallery, the American artist Marie Lorenz used rubbish drawn from the canals in the area to build a small boat. She then took people on boat trips around the Icknield Port Loop, documenting their comments and experiences in photographs and text.⁷² In this project, she opened people to new experiences of the canals and of the city in which they lived. She also exploited the idea of the canal as a resource from which to create new meaning. As one of her passengers, Paul

Franklin, mused during his trip through the old industrial sites of Icknield Port, ‘What would you do with these abandoned places... would you leave them just like this?’⁷³

In 2009 British Waterways commissioned the development of an arts strategy, due to be launched later in 2010. The aim is to use the waterways as an inspiration for contemporary art that draws on the participation of local communities. The project will be an opportunity to find new meaning in the waterways and connect communities to the different values that others hold canals and reservoirs to represent. Creative participation of this nature is not so much about creating a final product as providing a space in which a conversation about values can take place. Doing so keeps the cycle of heritage and creativity – described above in chapter 2 – in perpetual motion. In turn, this provides and generates new sets of values around which communities can gather and by which they can connect to the landscape and spaces around them.

4 A working landscape

Resilience means building in redundancy and ensuring assets have multiple uses. So a road can't just be a highway space. It has to be a social and environmental space too.

Peter Lipman, Sustrans⁷⁴

Over 80 per cent of the built environment that will exist in 2050 has already been built. There is then a need to get more value from the existing urban fabric than at the moment. As the government has acknowledged, the UK has a history of low capital and infrastructure investment by the private and public sector over the past 30 years. This has been identified as one of the main reasons why the UK's productivity lags behind that of other advanced industrial nations.⁷⁵ However, with the imperatives of climate change and an increasingly tight fiscal environment, getting more value from the existing urban fabric demands developing a broader idea of productivity of place than just increasing economic growth.

Along with economic outputs, the concept of productivity of place needs to include how productive a place is in being able to meet everyday needs. This includes the production of sustaining goods such as energy and food and the maintenance of other social goods such as health, belonging and economic livelihood at the individual level. From a wider, political perspective, the economist and philosopher Amartya Sen believes:

Responsible adults must be in charge of their own well-being; it is for them to decide how to use their capabilities. But the capabilities that a person does actually have (and not merely theoretically enjoys) depend on the nature of social arrangements, which can be crucial for individual freedoms. And there the state and the society cannot escape responsibility.⁷⁶

Central to the greater productivity of place is the idea of the ‘restorative commons’, the public spaces, assets and resources we hold in common ownership or to which we at least have common access, of which heritage infrastructure networks form a foundational skeleton. An important part of this is a broader notion of asset-based welfare built on developing the shared assets that people hold in common, rather than private. The rewards of such an approach could be substantial. If the right patterns of participation and stewardship are developed to support these assets then they also have the potential to produce the types of social and spatial relationships that help places endure difficult or stressful episodes in wider society and the economy.

The idea of retrofitting infrastructure to deliver greater social, economic and environmental productivity is probably most developed in the retrofitting of housing stock. The twin aim is to reduce carbon dioxide emissions from housing (which, in the UK currently account for 27 per cent of the country’s total output) and adapt the stock to cope better with climate change and the challenges of increased flooding, water stress and overheating. The Labour government has pledged that 7 million homes (a quarter of the nation’s housing stock) will be retrofitted by 2020. Meanwhile the Conservatives have pledged that the entire British housing stock will be retrofitted by 2017.⁷⁷

Elsewhere, retrofitting is beginning to be thought of as a way of transforming whole cities. For example, earlier this year the architectural firm Arup launched its Brisbane Retrofit Project aimed at ‘de-carbing’ the city’s food production and transport. It is seeking to influence policy and governance in a city for which there has been little overall planning and vision for the past few decades.

Our research looking at heritage infrastructure networks shows how the wider urban fabric beyond housing could begin to help progress from the goal of system-wide retrofitting to the reality. Below we explore three areas where retrofitting has increased productivity of place: health and well-being, energy production and food production.

Health and well-being

Chief Medical Officer Professor Sir Liam Donaldson has said that to tackle the obesity epidemic and improve public health,

A mass shift in current activity levels is needed. This will only be achieved if people see and want the benefits but also if the opportunities are created by changing the physical and cultural landscape and building an environment that supports people in more active lifestyles.⁷⁸

At the moment urban environments tend to produce poor health and well-being. For example, a study of 4.4 million adults in Sweden found that rates of psychosis and depression rose in proportion to increasing levels of urbanisation.⁷⁹ The challenge is how to turn urban landscapes into environments that encourage active lifestyles and good health with prudent use of the resources available.

One place where they are trying to do this is along the Ridgeway in Greenwich and Bexley. Bazalgette's Victorian sewer infrastructure has generated a unique landscape and vista cutting across south east London and marshland tamed by the civil engineering prowess of successive generations. A diverse ecology has colonised the manmade structure and the revolutionary nature of its impact on Victorian London is all but invisible. However, the Ridgeway Project has explicitly sought to engage that radical heritage and help repurpose the structure with the same powerful ethic that sought to break the mould in the 1860s. As the lead artist for the project, Katherine Clarke, explains,

It's a radical piece of engineering responding to the public health crisis of its day: sewage. The modern-day equivalent is obesity. So we are using the same infrastructure for an equally radical response to our own public health crisis.

Another place where urban landscapes are being transformed to encourage active lifestyles is Bath, where Bath & North East Somerset Council is merging its social services with the primary care trust. An industrious and charismatic group of cycling and rail enthusiasts are busy reclaiming a stretch of the

redundant Bath to Bournemouth railway line and making it into a shared pedestrian and cycle path. Punching through two filled-in tunnels and restoring a viaduct, the four-mile route will create a direct and almost level route between the city centre and the countryside to the south of Bath, and importantly link it to a wider network of Sustrans cycle paths. The Two Tunnels steering group started some years ago with guerilla maintenance of some of the wear-worn Victorian structures, and has battled to get the council, utilities and a knot of private land owners on board; the route is due to open later in 2010. The value of this kind of route is explained by Huw Davies, Sustrans' technical director:

It may not be a utility commuter route. But it could be a leisure route where people try out cycling, enjoy it and then decide to do more cycling. It's about creating a safe space for kids to mess around and get used to cycling in big spaces. It's about creating different pathways so you create a culture of cycling.⁸⁰

However, although the provision of the right kind of space is necessary, it is not alone sufficient to create an environment that produces healthy outcomes. Active engagement and stewardship are also essential. Healthy walks and green gym initiatives are two examples of this kind of active stewardship. They also illustrate how retrofitting is not just a hi-tech civil engineering process, but is also driven by the need to be low-tech and social. There are currently 590 local healthy walking groups in the UK and an estimated 40,000 people take part in short walks each week. For example, Slough Council runs specially tailored healthy walks for Asian women, the Afro-Caribbean community and people with diabetes. More generally, a recent report by Natural England calculated that for every £1 invested in such schemes, the NHS saves £7 in reduced costs for treating conditions such as heart disease, diabetes and depression. Those participating in these healthy walks use parks, forests and canals thereby repopulating and repurposing those spaces in the process.

Natural England has coined the term 'Natural Health Service' to describe this use of green infrastructure to create a

preventative treatment that is cost-effective and free at the point of delivery.⁸¹ Lower levels of physical activity and high rates of obesity are associated with neighbourhoods with poor green space provision.⁸² There are therefore definite health gains to be won by developing equitable access to green space. Britain's heritage infrastructure network could provide part of the answer. Half the population of the UK lives within five miles of a British Waterways canal or river and nearly 1 million people live within 100 metres of a British Waterways canal.⁸³ According to Mercer's Quality of Living survey, people in deprived areas are nearly six times less likely than those in affluent ones to describe their area as 'green' – representatives from one in six urban local authorities say that their green space is in decline.⁸⁴

One example of the kind of reach that heritage infrastructure can achieve is the Greenway in east London, the above ground Northern Outfall Sewer, which runs from the Olympic site out to Beckton. In partnership with Newham Council and the local primary care trust, Wild London ran a year-long project there. As Girish Rambaran, the man behind Wild London, explained,

The Greenway represents a site of considerable ecological importance. We want to see it managed as such and for local people to take real ownership of it. The surrounding area is an area of high deprivation, and with a lot of new migrants coming in. We had a really good cross section of people who were a fairly good representation of the local population. From the classic wildlife volunteer – a retired white middle-class teacher – to Nigerians migrants recently arrived, to people with learning disabilities. All sorts. The volunteers came for a day, a week, for a year. The project is about conservation, but it's as much about developing the community's conversational and team working skills.⁸⁵

Energy

There is overwhelming scientific consensus that the danger posed by climate change caused by man-made greenhouse gases is real, serious and urgent. The Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report made clear

that immediate action is required to reduce our CO₂ emissions and to adapt to the impacts of climate change if potentially catastrophic impacts for ecosystems, humans and economies are to be avoided.

Cities are heavily implicated in the threat of climate change. The half of the world's population who live in cities consume 75 per cent of the world's energy and emit 80 per cent of the world's greenhouse gases.⁸⁶ The twin challenge is to use less carbon and produce less. Part of the answer lies in cities becoming far more productive by producing their own energy. Diversifying and localising energy production in the form of wind turbines, biomass-combined heat and power plants, photovoltaics and wave power also increase a city's resilience by making it less dependent on centralised oil production and distribution.

Places are beginning to take on this challenge. For example, Västra Hamnen ('the Western Harbour') is a new quarter in the Swedish city Malmö, built on the site of the former Kockums shipyard. With a mix of photovoltaics, solar collectors, wind power, heat pump and bio-gas, the neighbourhood of 1,000 homes and the buses that serve it are powered by 100 per cent locally produced renewable energy.⁸⁷

But as Peter Newman et al argue in their analysis of cities in a time of oil depletion and climate change, it is not just a question of new build, we need to look at the whole urban environment in a new way, integrating energy production into the very fabric of cities, 'a school is not just a school, a library is not just a library, a parking garage not just a parking garage, they are potential power-generating plants as well'.⁸⁸

Britain's heritage infrastructure networks provide a glimpse of how this system-wide integration of energy production might be achieved. In October 2008 British Waterways signed a deal with Partnership for Renewables. Over the next five years, 50 wind turbines will be built along the waterways it owns, enough to power 45,000 homes and save around 100,000 tonnes of carbon dioxide each year. In March 2009 British Waterways signed another deal with the Small Hydro Company to build 25 micro-generators over the next three years on the waterways, this

time enough to save 110,000 tonnes of carbon dioxide each year. If successful, these ventures would mean that the canal network would generate more than 20 times the electricity that it consumes. In December 2008 GlaxoSmithKline proved that canals can provide more than a picturesque backdrop when it opened its new Grand Union Canal headquarters. The building uses canal water and heat exchange technology to provide a more sustainable alternative to conventional air conditioning, reducing its energy bill by over £100,000 and saving 920 tonnes of carbon a year. It is estimated that the canal network has the capacity to support 1,000 businesses or public buildings in this way, which would generate a reduction of one million tonnes of carbon each year.

While these initiatives constitute a very small contribution to meeting the wider challenge of climate change, they do represent a significant mind-shift in how public institutions might think about using their assets. With the Climate Change Act 2008 introducing legally binding carbon budgets to cut UK emissions by 34 per cent by 2020, other public institutions could – and should – be stirred to follow the lead of British Waterways.

Food

Soaring prices for food and volatility in the functioning of global supply chains in the recession that began in 2008 played out spatially with the urban poor leading riots and protests in cities from Jakarta to Cairo to Buenos Aires. Long-term trends, including population growth, increased meat consumption among the new middle class in emerging economies, energy intensity of food production, and growing thirst for biofuels, have together created a structural shift in the balance of supply and demand for food, so such volatility is likely to become an enduring feature.⁸⁹ It is estimated that rises in the price of food in 2007–08 plunged over 130 million extra people in developing countries into poverty. The UK's towns and cities cannot assume they will be immune from such crises. As Rosie Boycott, chair of London Food, says, 'London's financial heart isn't its only weak point. The capital is acutely vulnerable in terms of its food

supplies... [because it] imports approximately 80 per cent of its food.⁹⁰

The risks of this level of dependence is made tangible by Britain's security service MI5's working maxim, which assumes that Britain is 'four meals from anarchy'. In the event of a catastrophe that stops the supply of food, the country could quickly be reduced to large-scale disorder, including looting and rioting. During the fuel protests of 2000, Sainsbury's chief executive, Justin King, warned the then prime minister, Tony Blair, that the country could run out of food in just three days if oil supplies continued to be blocked. That near catastrophe could be brought about by a small band of farmers protesting over fuel price rises demonstrates the fragility of a food supply system that is heavily dependent on imports and over-reliant on oil and a highly centralised distribution structure.

Localising and 'de-carbing' food production in cities is another evolving strategy to improve their resilience by reducing reliance on imports and oil dependent centralised distribution systems. Predicted population increases make the issue even more pressing. Dickson Despommier, a parasitologist at Colombia University, has calculated that with projected population increases the world will need 1 billion more hectares of arable land by 2050. This amounts to roughly the area of Brazil and is far more land than there will be available. Other solutions will have to be found. The result is that cities need to invest in urban agriculture so that it might protect people from food insecurity and at the same time protect the environment.

High-rise urban hydroponic (soil-free) greenhouses and embedded farms in the facades of buildings are being prototyped. But the challenge is also about using the urban land available better. As Ted Caplow of engineering company New York Sun Works points out, the average New Yorker eats 100 kilos of fresh vegetables a year and the rooftops of the city provide twice the space needed to supply the whole city. His company is installing rooftop demonstration greenhouses on three schools powered by renewable energy to grow food for consumption in the schools' canteens.⁹¹ In the UK, Dusty

Gedge, president of the European Federation's Green Roof Association, explains that even though

*London has installed 230,000 square metres of green roofs in the last four years – that's more than New York or Chicago – most of it's private, so nobody sees it. We're starting, but I'm afraid we just haven't seen the political will.*⁹²

In the UK there is growing interest in local food production. For example, according to the National Society of Allotment and Leisure Gardeners there are over 100,000 people on a waiting list for an allotment around Britain. This represents a 40-year high. Islington, Burnley and Kingston-upon-Hull all have people who have been on the waiting list for more than ten years. It remains to be seen whether this is a temporary response to belt-tightening during the recession or whether it represents a deeper change in people's aspirations and lifestyles. However, there is beginning to be an institutional response to help convert this heightened popularity into sustainable gains in the resiliency of cities.

The Queen at Buckingham Palace, Sarah Brown at Number 10 Downing Street and Michelle Obama have all recently dedicated parts of the grounds of their official residencies to 'digging for victory'. Following the example of Vancouver, which set the goal of creating 2,010 new growing plots by the start of its Winter Olympics, London Mayor Boris Johnson has set a target of creating 2,012 new growing plots by the 2012 Games with his Capital Growth project. Meanwhile, the television chef Hugh Fearnley-Whittingstall's Landshare campaign has gathered strong institutional support from the National Trust, Network Rail, British Waterways and the Woodland Trust, among others, all committed to sharing their underused land with people looking for space to cultivate fruit and vegetables.

For a model of development, a good place to look to is Todmorden in West Yorkshire, or – as it prefers to call itself – 'Incredible Edible Todmorden', a scheme that started life as a guerrilla gardening group and now represents ambitious plans to

make the town self-sufficient in vegetables by 2018. One of the most interesting developments is that community growing licences are now issued by Calderdale Council to groups that want to grow fruit and vegetables on council-owned land. As Nick Green, who received the first licence to grow, wrote in his blog, 'It signals a quantum shift in the institutional mindset. Where previously the intention was to be authoritarian and control freakish, or to abdicate responsibility totally by selling off property, this is a middle way, it signals trust.'⁹³

Heritage infrastructure networks are potentially valuable by achieving geographic spread, accessibility and scale for this kind of local food production. For example, British Waterways has pledged to use stretches of towpath and surrounding land to create allotments and orchards, including on floating barges. Schemes currently in development include a community orchard being developed along Forth & Clyde Canal in Maryhill and an allotment on the Hertford Union Canal in Hackney, which will include an 'edible wall' where towpath visitors can help themselves to the produce.

The supply of plots is only part of the story of increasing the productivity of urban land, however. The supply of land needs to be matched with growing people's skills. A disused bit of railway in the neighbourhood of Easton in Bristol show how these two elements can be developed together. Stapleton Road Station used to be well known as a place to avoid. It was badly lit, surrounded by derelict land and associated with drug taking and anti-social behaviour. A group of permaculturists had the idea of transforming the adjacent disused railway line into a community gardening project. Eastside Roots was a not-for-profit workers' cooperative and features a garden centre and rolling programme of summer fetes and harvest festivals, education classes, wild food walks and weekly skills swaps. At its heart is the idea that it should be a shared resource available for the wider community to use. Gardening tools, social spaces and a marquee can all be borrowed and education provided – it is a kind of horticultural evolution of the municipal lending library.

Nick Ward, one of those permaculturists, explained how the group

transformed it into an inviting garden space, and not only have [we] seen people return to using the train station but it provides the community with food and play resources, skills, knowledge and a venue for events... We call [it] a community gardening hub. The idea is that it's a one stop shop for all your gardening needs. So as well as people coming up here and buying plants they can also come and do training courses or put on events to try and create a bit more community in Easton... In the first year we've had over a thousand people up here coming to events, or training, or volunteering. So it's already touched the lives of a thousand people. Never mind about all the people who walk past here and see a nicer area than they had before. It's amazing what can be done with hard work and commitment from a small group of people.⁹⁴

Meshing assets

In planning terms, the non-footloose nature of canals, railways and sewers are often cited as a weakness. However, this quality can also be embraced as a strength and as a spur to the creativity and adaptation that is at the heart of place making. Heritage infrastructure networks are locally embedded, so they can be used to help create local economic, social and environmental rationale for places. Their connective capabilities enable them to provide a high leverage way to engage in a range of urban issues, assets and communities, connecting often disparate individual sites and interventions. Girish Rambara of Wild London described the value of the Greenway to East London:

It is an extremely valuable biodiversity asset. Its scale means it's essential to connect up the Green Grid in east London and all the individual sites. If you invest in the Greenway, all those individual, connecting sites benefit. So it's a key area to invest in.⁹⁵

In a different way, this kind of leverage can also been seen at work in Bath. Martin Sadd, community development officer for Bath at Bath & North Somerset Council, who is helping the Two Tunnels group develop the cycle and walking greenway in the area, explained, 'So many of our services are outsourced now – health, social care, education – there are real problems trying

to coordinate anything. I find the Greenway is a fantastically useful way to structure things and bring people and different agencies together.⁹⁶ Martin has been busy bringing together a multi-agency group of public sector organisations, businesses, housing providers, schools, neighbourhood associations and voluntary groups in the vicinity of the Two Tunnels route to explore and plan jointly how they can get the best use out of it. Over 40 people representing 40 different groups attended his first meeting. These ranged from people from the primary care trust to members of the local football club. They have already spotted opportunities to breathe new life into community halls, running a bike hire and repair service and creating safer routes to schools. Part of the value of the Two Tunnels route is the fact that it cuts through and connects different neighbourhoods with very different socio-economic profiles, creating a shared space and a shared resource.

Heritage is the product of shared senses of identity and character. It is therefore networked, and can help make connections between diffuse or underused assets, meshing them together in ways that enable new uses and through which common sense of meaning can develop. This approach is exemplified by the Ridgeway in south east London. As a linear route the Ridgeway connects a host of amenities, including Thamesmead Town Football Club, the Riverside Golf Course, Southmere Sailing Club, the Cave climbing facility, the Triangle Nursery, Church Manor allotments, the Asian Community Centre, as well as a proposed nature reserve, a youth zone and a visitor centre at Crossness. The development of the Ridgeway aims to enhance these assets by connecting them through better access to the Ridgeway, collaborative development and linking into wider strategies in the area.

A good example of how the assets of the Ridgeway are being linked into wider local strategies is a plan to encourage natural play in young children, which is essential to children's healthy mental and physical development. The Ridgeway constitutes a rare inner city resource to provide a landscape for free-ranging, natural, adventurous play and risk-taking. The aim is to link with the adjacent nursery and local primary school and

provide a landscape of learning and free-ranging play. This also ties in with Greenwich being the first London borough to initiate the ‘Forest School’ scheme, an early years educational approach pioneered in Scandinavia during the 1950s, which is based on providing young children with an education that encourages them to appreciate the natural world and take responsibility for nature conservation in later life.⁹⁷

The meshing of assets enabled by heritage infrastructure is also being developed through the canal network. In the West Midlands, the redevelopment of Stourport’s canal basin has enabled the market town to join its two neighbours Kidderminster and Bewdley and create a more reciprocal and supportive development triangle. As Stuart Buckley from Advantage West Midlands explains,

*Bewdley has begun to find a niche role with its museum and cultural offer. Stourport couldn’t compete with Kidderminster on retail and so needed to find its own role. Now with the basin it has an asset that can complete the other two towns, and they can all act as feeders for one another in terms of visitors.*⁹⁸

Elsewhere, British Waterways and the Woodland Trust are currently joining forces to map all the public forests in the UK against the canal network. The aim is to open up access by foot, boat and cycle and enable people to reach parts of the forests that are not accessible to the public at the moment.

5 Implications for policy and practice

Building character

The Canadian social geographer Susan Feinstein asked the essential question, ‘Can we make the cities we want?’⁹⁹ The final part of this report is concerned with how political leaders, policy makers, practitioners, developers, civic agencies, communities and individuals can use heritage infrastructure networks to help get closer to the resilient city.

In this report, we have examined instances in which resilience is born of a sense of community, neighbourhood and a dynamic, living understanding of heritage. At sites like Pontcysyllte, local citizens have come together around an obvious site of local pride. At the Ridgeway in south London, people’s interests have coalesced around uses that are adaptations of the heritage infrastructure around them, which hitherto were less obvious as assets. In each case, heritage is organic and its strength and resonance come from the character that animates people’s connection to their local area. Community involvement preceded the designation of Pontcysyllte as a World Heritage Site; at the Ridgeway, the heritage of use is contemporary and organic and it is developing new character, meaning and value in the various ways in which it is being used.

Character of place is central to resilience. An important part of ‘making the cities we want’ lies in using what is already there. Some of this is heritage in the widely recognised sense of historic infrastructure like mills. Some is reclaiming heritage by using the cuttings, nooks, crannies and alleyways to give stories and character to an area. In the wake of the credit crunch, the low capital environment of the recession should not mean that towns and cities are lulled into an enforced sense of modesty and lost ambition. The picture that is emerging from examples we have explored is that the ‘resilient city’ offers the beginnings of a

potentially radical post-urban renaissance story. As Matthew Murphy of the London Development Agency says, reflecting on plans for the outfall sewer in London, 'Before, in the boom, we probably would have ended up with a 70-foot rusting man on the top. Now we are looking deeper and finding that the usual prescriptions are not necessarily what a place needs.'¹⁰⁰

Changing attitudes

All too often the democratisation of place is seen by agencies and developers seeking to reinvent areas as complicating: competing and conflicting interests seem granular and too fragmented to form the concrete platforms needed for major projects. In fact, getting closer to the needs, values and aspirations of places and the people who live, work and spend time in them is a fundamental part of resilience. In times of adversity, hope comes not in the form of narrowly mechanistic government committees and emergency services – the conventional conception of resilience – but in the wider ability of social and natural systems to self-organise and adapt. This is a deeply democratic and participative idea and requires putting trust and the means of production – design, stewardship and power – in people's hands at the local and neighbourhood level.

Agencies and organisations can help create more resilient places by opening heritage infrastructure networks to people's needs, values and aspirations. The examples in this report – which include community-led and agency-driven work – show how successful this can be. Schemes can be large, like the one at Stourport, or they can take the form of smaller interventions such as The Culture Company's artistic projects in Leeds. In different ways these projects have enabled and helped animate community interaction and contribution. Making this practice more widespread and mainstream will be challenging, but it must be seen as an opportunity rather than an obstacle. Alongside strengthening planning and developing new policy frameworks, the process of opening up is also about changing the behaviour, language and culture of public and private agencies at the local level and how these in turn shape the

conception, design and implementation of any physical intervention or redevelopment.

This change of language and culture is of particular importance as the management of Britain's infrastructure undergoes review, with for example the recently established Infrastructure Planning Commission (IPC). In the search to maintain and develop more sustainable, resilient infrastructure to support more sustainable patterns of living, it is vital that this process is not treated as simply a technical and physical exercise. It will also be about hearts and minds. Organisations – public, private and community – need to think and operate in a way that reflects this reality. In the final chapter, we outline ways in which to develop the resource of heritage infrastructure.

6 Recommendations for making the most of heritage infrastructure

This report is a call to think anew about the heritage infrastructure that characterises towns, cities and the wider landscape in three general ways:

- Agencies, authorities and communities responsible for heritage infrastructure must be more aware of its *value as a community asset*.
- For old, disused infrastructure to become heritage that is characterful and meaningful to people, it must be *open to their different values and uses*.
- Realising the potential of heritage infrastructure will *require building capacities, abilities and readiness* from national and local authorities, responsible agencies and the public.

Recommendations for each of these areas are laid out below. Specific recommendations are emphasised in the text.

Revalue urban assets

Caring for the material world ‘matters because it communicates the values of the past, because it allows us to negotiate between values in the present and because it allows us to identify things that we think will be important in the future’.¹⁰¹ Heritage infrastructure networks have the potential to provide multifunctional working landscapes that increase the physical and emotional resilience of places. However, currently many assets are generally not viewed or valued in this way. Instead they are often seen, at worst, as liabilities and, at best, as often cumbersome artefacts from the past, best preserved in the aspic of rules and regulations.

Realising the potential of these assets depends on mobilising the enterprise of citizens, but this needs to be supported by

long-term political vision, leadership and commitment at the local level. Or as Huw Davies from Sustrans puts it, ‘you need political will and officer oomph’.¹⁰² However, engaging local political leaders in revaluing and repurposing heritage infrastructure networks is made harder by the fact that place and good design are consistently low in the priorities of elected leaders and public sector managers at all levels. Highways departments and transport and utility providers are particularly weak in this area, tending to favour conventional capital-intensive, technologically based approaches to softer community approaches. The task is complicated further by the fact that heritage infrastructure networks often cross local and regional administrative boundaries.

A key part of meeting the challenge is changing perceptions about which projects are appropriate for a local authorities. As one of the Ridgeway project team explained, ‘This stuff isn’t sexy for local authorities. The outcomes of the individual parts aren’t big. But when you add them all together, then it becomes significant.’ An important part of this shift in perspective requires developing a relationship with a project and site that is not simply commercial and dominated by land values. Change in language will also be important. While attractive to leaders in city hall keen to prove they are ambitious and ‘doing something’, the language of ‘transformation’ and ‘change’ habitually used to describe development plans are often alienating and frightening for the people who live there and who seldom have a desire to be ‘transformed’. The message from the Ridgeway in London, the Two Tunnels Project in Bath, Holbeck in Leeds and other examples cited in this report is that development is not necessarily about massive changes: small interventions can be equally or more valuable and effective. Instead, the process needs to be about recognising, revealing and growing the value that is already there. While the development of heritage infrastructure networks must be taken forward at the local level, national and regional policy can help signal the value of heritage infrastructure networks and encourage engagement at the local level. To do this, *national standards and structures should provide for the particularity that makes place.*

- *Strategic resilience thinking.* In April 2008 Scotland established the Food Resilience Advisory Board. *The UK could establish a similar resilience advisory board for places, focused on non-emergency provision, such as building capacity and skills and ensuring the national legal and policy framework is as supportive as possible for towns and cities wishing to develop their resilience.*
- *Strengthen spatial planning.* Each heritage infrastructure site and network has unique characteristics and specific planning policy challenges. *Nonetheless, much could be done so the key planning policies better recognise the full value and functions that heritage infrastructure could provide.* The most important planning policies include ‘Regional spatial strategies’ (PPS11), ‘Planning for open space, sport and recreation’ (PPG17), ‘Local spatial planning’ (PPS12), ‘Planning and the historic environment’ (PPG12), ‘Development and flood risk’ (PPS25) and ‘Planning for prosperous communities’ (PPS4). PPS4 and PPG17 are currently out for consultation and opportunities to strengthen support for heritage infrastructure that future reviews covering other aspects should be taken.
- *Resilience of place indicators.* Working through local strategic partnerships and multi-area agreements, *local authorities should consider developing resilience of place measures for existing and new developments.* There is no one size fits all approach for resilience and indicators would be developed according to local need and aspirations, and open to review and suggestions by the public and community groups.

Open up urban assets

It is the opposite of if ‘you build it, they will come’... It’s more find the people and they will create it, they will build it.

Catherine Clarke, Muf

There is a double imperative of winning hearts and minds: stewardship and creativity. As Matt Murphy of the London Development Agency, one of the funders behind the Ridgeway project, says, ‘Improvement needs to be people first or it will be

trashed. What we need is for local neighbours to look after it and feel like it's theirs.¹⁰³ Paul Brickell of Leaside Regeneration explains that the public realm is frequently beset by a negative cycle of 'we withdraw, you secure', which follows the fateful sequence create–wreck–lock. In other words, a new public space is created, it then gets vandalised, people respond by demanding locks, gating and CCTV and reward this securitisation with refusing to use the space any more because it clearly doesn't look safe.¹⁰⁴

The challenge is how to reoccupy these old assets to generate more social patterns of use and relationships that are more likely to negotiate differences. The answer lies in building new constituencies and tapping into the creativity of people who are already using the area or site. For example, detailed survey work on the Ridgeway in south east London revealed the uses that people have found and the value that they are already creating in what seemed, superficially, the most unpromising of environments. These included play, foraging for food, escape and adventure. These nascent creative pro-social uses are now being used as the basis to develop the Ridgeway as an edible landscape with foraging, playing and sporting activities. As part of this, the aim is to switch resources from the current emergency provision in the form of CCTV and panic buttons to social provision such as funding community development, activities and events.

Here are two recommendations for helping organisations develop a more open culture towards the reuse and repurposing of urban assets:

- *Develop an urban right to roam.* While heritage infrastructure networks can provide powerful and multifunctional platforms for places and communities to connect with other places, nature, the past and a slower pace of life, they can also generate serious physical barriers and severance in the everyday life of places. Guaranteeing public access is the first step to opening them up to creative reuse. *Organisations that own or are responsible for heritage network infrastructure should come together to develop an urban right to roam with a common set of objectives and standards for*

opening up access and creating links with local communities. They should work in partnership with local authorities and others responsible for green infrastructure and public space to create functioning networks of commonland routeways that run through cities, bringing a wide range of urban experiences and geographies within people's reach.

- *Experiment with temporary uses.* The attitude of infrastructure owners towards risk can hinder the creative reuse of heritage networks. There is an understandable and legitimate desire to minimise financial and operational risk and liability and an obvious need to maintain the integrity and function of structures. Similarly, if a temporary use is successful, it is often difficult both to use it for another purpose, and to maintain good relations with those who have been using it once it has been removed. Such concerns can discourage reuse. In the course of our research, we found many instances of this in the case studies, which were often compounded by the fragmentation and complexity of ownership. For example, stitching together the land for the Two Tunnels route has involved painstaking work to identify owners and secure permissions, involving Network Rail, the local authority, the water utility company, a Transylvanian property magnate, a Hollywood star and half a dozen small private landowners. Throughout the country there are many examples of heritage infrastructure that are not currently being used and that cannot readily be developed.

However, temporary use can be a less threatening way to test ideas and set precedents to which infrastructure and land owners can be more amenable. Temporary uses can help build new constituencies, bring in new people, test different ideas and through practical learning find new, sometimes surprising, uses for a site. As examples in the Netherlands and Denmark have shown, using temporary development in this way can help improve the quality of development overall. *Agencies responsible for heritage infrastructure networks and developers with vacant plots should proactively invite temporary use of sites and spaces, for example through arts, environmental and health events and activities.* Local

authorities should identify social development zones within their areas where development control, change of use permissions and planning regulations are relaxed to help encourage temporary use (box 3).

Box 3 **Experimenting with temporary uses**

*In August 2009 the View Tube opened on the Greenway Northern Outfall Sewer, providing a unique vantage point to watch the construction of the Olympic Park. Four months previously it wasn't even in the twinkle of anyone's eye. Thames Water, the Olympic Delivery Authority and the London Thames Gateway Development worked together to overcome concerns about placing a structure on the Greenway and some nimble work by Leaside Regeneration meant that in just three months and two weeks, cargo containers equipped with a café, bike hire, class room, toilets and viewing tower were dropped into the site and now sit atop the sewer. Paul Brickell from Leaside Regeneration explains how talking to the right people was crucial: 'Once we got to speak to the engineers on the ground, things starting getting easier. They have a totally different understanding of risk and what's possible. They were much more relaxed and said everything up to four storeys is fine.'*¹⁰⁵

The View Tube has a licence to be in place for five years. After that its future is up for grabs. Paul Brickell's hope is that the View Tube is just the first of three such staging posts in a series to help bring some much needed hospitality and animation to the Greenway.

Social works

In Leeds, the local authority has begun to recognise that its redeveloped canal and river waterfront is weakly integrated into the mainstream fabric of the city. As the chief planner at Leeds City Council, Phil Crabtree, talking about Clarence Dock candidly put it, 'Why doesn't this place work? Where are all the

people?¹⁰⁶ A new Waterfront Association bringing together residents, local businesses and public agencies such as the council, British Waterways and the Environment Agency has now been set up. It aims to create a shared community and shared understanding of issues facing the waterfront, and identify practical steps and projects that can improve it, from running events to creating legible maps. An important part of the programme is organising regular walks along the waterfront so people can see and engage as a group with what the problems and opportunities are. This helps to develop the relationships between people and organisations that will enable each to take action and ownership in relation to the spaces in question.

The process of reintegrating heritage infrastructure networks into the everyday lives of cities takes time and needs to be multidimensional, with physical improvements supported by making links into education, training and the local economy. Identifying and creating opportunities that strengthen integration is an ongoing process. To achieve this, *agencies responsible for heritage infrastructure networks should undertake audits of amenities, organisations, destinations and communities close by, and consider how any interventions can be co-developed.*

Build capacity

To realise the potential of heritage infrastructure's contribution to making places more environmentally, socially and economically resilient, the assets of these infrastructures need to be woven into public policy and services. The Green Grid in East London shows one way how this can be done. The Green Grid is one of four sub-regional landscape frameworks developed for the Thames Gateway and the first spatial framework of its kind to use a landscape and human-centred approach to green infrastructure. It focuses on connectivity, linking housing, town centres and employment through green spaces such as waterways, parks and gardens, including the Greenway and Ridgeway.

However, even where the policy framework is supportive, a delivery gap tends to open on the ground. Matt Murphy of the

London Development Agency explains,

The Green Grid has been helpful. It's in the supplementary planning guidance. But down at the local level, there is no awareness of how projects fit into and contribute to this bigger concept and vision. It's a brilliant coup. [There is] great credibility and buy in at the high level, but that evaporates in the local context. And the real question is what happens at that end.

These are some proposals that could increase capacity at the local and community level:

- aid producers
- raise awareness and growing skills
- recognise the different values that make up heritage
- rescale interventions
- avoid eroding capacity

Aid producers

Good ideas and people's enthusiasm can quickly get squashed by paperwork and regulation. For example, if a group of neighbours wants to run a community festival on a canal towpath they might suddenly find their hopes thwarted as waste management plans, risk assessments, liquor licence applications and even flood-risk assessments need to be filled out. To provide for this, we propose that a '*producer aid*' scheme should be established. Producer aid would provide a bank of skills and time to which individuals and groups could apply for the professional help they need to make an idea become reality. It would work in a similar way to legal aid, which provides services to people without the resources to pay for their own legal representation. Professional aid would be given to support people through funding processes, insurance, licensing and health and safety processes, and build people's skills in the process. *Local authorities, agencies responsible for heritage infrastructure and local businesses could donate officer and employee time to producer aid banks.* They could also provide staff to take

part in regular, drop-in, ‘ask the expert’ sessions for people in the community to get help and advice.

Raise awareness and growing skills

Local authorities often lack the practical and leadership skills to deliver the joined up planning and management needed to realise potential of heritage infrastructure. One of the first steps to remedying this should be *a concerted effort on the part of some of the agencies responsible for heritage infrastructure to raise awareness of the potential highlighted in this report and emphasise the contribution it could make to agenda such as community cohesion and neighbourhood.* Part of this should focus on the linear aspect of infrastructural assets like canals and disused railways, encouraging councils to think of them as routeways and lines of connection between different areas as well as constituent parts of those areas.

Leadership could come from a quarter that has thus far been controversial. In 2009 a new Infrastructure Planning Commission (IPC) was launched, an independent body to take decisions on planning applications for ‘nationally significant infrastructure projects’, which include ‘railways, large wind farms, power stations, reservoirs, harbours, airports and sewage treatment works’.¹⁰⁷ The Commission was enshrined in Planning Act 2008, but has met with criticism from environmental campaign groups and others because it is thought unaccountable: the Conservative Party has pledged to abolish it as a quango.¹⁰⁸ *By thinking afresh of how existing infrastructure might most effectively be used and championing the involvement of communities, the IPC could both address some of this criticism and provide leadership in meeting the concerns raised in this report.*

Recognise the different values that make up heritage

Greater attention should also be paid to different types of heritage, with the tangible forms of buildings and infrastructure providing access to the intangible heritage of ideas and concepts. Currently, the heritage elements of infrastructure that have gained greatest attention are specific and high profile buildings.

As is well recognised in the heritage and local authority sectors, these have a big part to play in councils' tourist, cultural and community strategies – Pontcysyllte is a high profile example; sites like Ironbridge Gorge and the Black Country Museum are others. However, alongside such iconic sites, councils should pay greater attention to the heritage of networks and the connections between communities and ideas that they represent. By working with members of those communities and local historians – amateur as well as professional – councils can draw on these connections to contribute to current strategies. As the example of Tipton (see p32) shows, this can also be a powerful way of connecting new communities to the places in which they live. Community engagement of this nature is too often thought of as an end, where in fact it is a means. *Councils must task, train and support officers to work with communities to build a vision for place, and heritage infrastructure – as this report shows – can be a stimulus and point of connection in doing so.*

Rescale interventions

Interventions for the redevelopment of sites need to be scaled to the right level so that communities are practically able to take the lead and are not inappropriately burdened. For example, on the Ridgeway planting orchards and fruit bushes with a three-year coppicing schedule is proposed so it will be manageable for local community groups to take ownership. Rather than sinking resources into instant big-ticket icons, the emphasis needs to be on investing time in getting the critical long-term frameworks and agreements in place, so that each small, piecemeal step and intervention cumulatively adds and builds coherence over time. The approach to community engagement, design, land ownership and access all need to be mapped out and people have to have faith in their constancy, predictability and transparency. For example, the Ridgeway project has prioritised developing a design code for signage and access, which can be implemented over time, is practical and vandalproof, and helps cumulatively to build the identity and brand of the site.

Avoid eroding capacity

Public and heritage infrastructure agencies should also learn to work better with communities. When you ask Frank Thompson, the chair of the Two Tunnels Project, what the toughest part of the project has been, he replies with a sigh and says that they have had to win, rewin and win again the consent and support of the council.¹⁰⁹ Volunteers like Frank cannot be taken for granted – not many people are in the position to gift three days a week and have the necessary skills to push an idea through a labyrinth of committees or the patience repeatedly to smooth over lurches in decision-making and budget allocations.

Conclusion

We began this report with the example of the High Line in New York. Above all else, the story of the High Line is one of spotting and realising potential. The flowers of Piet Oudolf's gardens represent among other things new life, new meaning and new opportunity. It would have been just as easy to remove the iron gantries of the railway as it would to reinvent them as an urban park.

The High Line was part of the historical landscape. It has now become part of people's futures. Throughout the UK, heritage infrastructure is characterised by nooks, crannies, stories and uniqueness. They can be what makes a space a place and – as the 'Dark Arches' in Leeds illustrate – the smallest of switches and interventions can bring them back into people's lives and animate senses of neighbourhood. This happens on an individual level, as in the idiosyncratic use that characterised the Ridgeway, and it can also take the form of a larger enterprise, for example through organisations like Sustrans. The challenge will be in coordinating and making the most of all these interventions in ways that remain faithful to the individuality and organic sense of identity that they represent. As this report has shown, the recession both prompts the need to think in this way and is also a stimulus to think of places in a different way. The heritage infrastructure of the public realm can also be the infrastructure of a resilient society.

Appendix

This report was developed using a process of:

- in-depth desk research into the history of heritage infrastructure
- in-depth desk research into regeneration and urban
- interviews with specific stakeholders (see below)
- in-field research in three case study areas (see below)

Specific material for this report was gathered between March and October 2009. We also interviewed staff at British Waterways offices throughout the UK in connection with the case studies and examples mentioned in this pamphlet.

Specific interviews

Our conversations with many individuals connected with the heritage infrastructure have contributed to the development of this research and we thank those who spared the time to be interviewed:

Vanessa Allen, Leeds City Council

Tony Ambrose, Sustrans

Pauline Annis, Stourport Forward

Richard Bowker, National Express

Paul Brickell, Leaside Regeneration

Chris Brown, Igloo Regeneration

Duncan Buchanan, The Department of Transport (DfT)

Stuart Buckely, Advantage West Midlands

Neil Buxton, The Association of Community Rail Partnerships
(ACoRP)

Phil Crabtree, Leeds City Council

Adrian Curtis, Groundwork Leeds

Huw Davies, Sustrans

Graham Devlin, consultant on British Waterways' Arts Strategy
Geoff Dyer, Network Rail
Peter Elia, West Ham New Deal for Communities
Keith Falconer, English Heritage
Mike Finkill, Isis
Clive Henderson, The Inland Waterways Association (IWA)
Toby Hyam, Creative Space Management
Anne Jenkins, The Heritage Lottery Fund (HLF)
Sue Kempster, Pontcysyllte Aqueduct Community Association
Jason Kerry, Groundwork Leeds
Katherine Klarke, Muf
Graham Lennard, Birmingham City Council
Peter Lipman, Sustrans
Duncan Mackay, Natural England
Gareth Maeer, The Heritage Lottery Fund (formerly of British Waterways)
Fiona Mannion, The Town and Country Planning Association (TCPA)
Rachel Morris, Greenwich Council
Matthew Murphy, Design for London, London Development Agency
Sarah Nason, The Department for the Environment, Food and Rural Affairs
Martin O'Keefe, The Birmingham Canal Navigation Society (BCNS)
Chris Parry, The Wildlife Trust
Girish Rambaran, London Wildlife Trust
Martin Sadd, Bath & North Somerset Council
Ray Shill, The Birmingham Canal Navigation Society (BCNS)
Nicola Stephenson, The Culture Company
Ferry Swift, Network Rail
Frank Thompson, Two Tunnels Project

Case studies

We also identified three case study areas in which we focused on specific elements and different contexts of the heritage

infrastructure. Researchers visited each area for three days in the summer of 2009 when we:

- undertook preliminary desk research into the area
- interviewed stakeholders in the regeneration of the heritage infrastructure
- interviewed local residents and users
- conducted a field survey, interviewing users encountered in the area to assess their views of the heritage infrastructure and attitudes they brought to place

Stourport-on-Severn

Stourport is a small market town in Worcestershire, about an hour's train ride from Birmingham. Much of the Georgian architecture of the town remains, but is in a very run-down state. It is one of three larger towns in the area, the others being Kidderminster and Bewdley. However, Kidderminster overshadows Stourport as a retail and residential centre, and Bewdley is more developed as a heritage and tourist destination.

Stourport is unique because it is a town that developed around a canal basin. Since the eighteenth-century heyday of the canals, the town's fortunes have declined. It came to function as a holiday destination for the Midlands and has come to rely on a seasonal trade of holiday makers, more so since the closure of a chemical plant on the outskirts of the town; in recent years, the tourist market has also dwindled. In the twentieth century, some of the canal basins were filled in and businesses associated with the canals, such as the Tontine Hotel, closed.

In recent years, a community group – Stourport Forward – has come together to campaign for the preservation of the basins and has been successful in campaigning for the allocation of public money. This has in turn paved the way for private investment. The ambition is to use Stourport's heritage to encourage tourism and promote the town as a viable leisure destination and hence an area in which business might invest and in which young professionals might consider settling.

The case study examined the community involvement in the preservation of the heritage infrastructure and the context of a small market town. It also provides an example of private and public interests being combined.

Leeds

The Leeds case study provided the context of a large, established city in which regeneration has played a part in an urban renaissance. We examined two specific examples of heritage infrastructure: the Holbeck regeneration area, a run-down area immediately to the south of the city centre, and Clarence Dock, an example of canal-side regeneration.

Holbeck is an area of Leeds that has suffered since the closure of factories. It has become known as a hotspot for crime and, in particular, prostitution. It is bordered by the heritage infrastructure of the canal and the Holbeck Viaduct, which sweeps from the centre of the city and over the Holbeck area. Holbeck has recently benefited from the creation of small complexes, built within former industrial premises that provide space for SMEs, cafés and bars. It has also been the focus of a wider scheme to regenerate the area, but this has been put on hold because of the recession.

Clarence Dock is to the east of the city centre. The dock originally served the Leeds and Liverpool Canal and the Aire Navigation. It was redeveloped between 2001 and 2007 as a retail and leisure complex and is also home to the Royal Armouries Museum and several large residential complexes. However, it has not proved as successful as hoped and it competes with other areas of Leeds both as a leisure destination and as a residential centre.

The two areas are connected by a network of canals that skirts the city centre. The 'Dark Arches' comprise a subterranean complex through which the River Aire flows into the canals underneath Leeds Station. For years, this area was considered a threatening no-go area. It has since been cleaned up and redeveloped as a thoroughfare connecting the new developments around the canal and Holbeck with the city. Lined with shops,

this is called Granary Wharf. It is also the site of an art installation in which the walls have been clad with sound-absorbing wall-panels and are lit by thousands of LEDs. The scheme was developed by the Leeds-based architectural practice Bauman Lines in collaboration with a German artist, Hans Peter Kuhn, and local graphic designer Andy Edwards. It was supported by Leeds City Council in association with the regional development agency Yorkshire Forward.¹¹⁰

South London

The Ridgeway forms the visible embankment of earth and vegetation over the Southern Outfall Sewer in London. The Ridgeway runs from Plumstead Station to Crossness. When the Southern Outfall pipeline was constructed in the 1860s it crossed an area of open, inter-tidal marsh, which was subsequently gradually drained and crossed with road and rail infrastructure and developed from the early twentieth century onwards. The neighbourhood of Thamesmead lies to the north of the Ridgeway, and the neighbourhood of Abbeywood lies to the south, much of both built on land formerly belonging to Woolwich Royal Arsenal. Thamesmead was originally conceived as an architecturally futuristic town in the 1960s by the Greater London Council. However, a combination of the form of the high density development and its lack of connectivity with the surrounding area has helped create an isolated community, which experiences disproportionately high levels of multiple deprivation.

The Ridgeway Project aims to bring the Ridgeway back into community use by developing it as a landscape for foraging and playing. The project is being led by Greenwich and Bexley councils with support from the London Development Agency. The architecture and art agency Muf has been responsible for developing the proposals.

The remote and uninhabitable nature of the environment made the Plumstead and Erith Marshes an ideal location for Woolwich Royal Arsenal to establish ordnance-testing grounds and locate gunpowder magazines and other explosives storage

facilities; the marshes were therefore rendered even more isolated, for reasons of safety and security.

Bath

Bath is a small but prosperous and growing city, where a higher proportion of the population is in work, better educated and in better health than the national averages. The city is a World Heritage Site, renowned for its Roman and Georgian architecture and heritage.

The case study for this report focused on the often overlooked heritage of Bath – its Victorian railways. The blue-brick patchwork Victorian structures might be unglamorous, but they contain a certain romance – the line carried millions of people to holidays on the south coast, carried the beer from Burton to Dorset, and carried the coal that gave Bath's buildings the grimy black and silver appearance they had before they were cleaned.¹¹¹

The volunteer Two Tunnels group is working to bring back into use part of the old Bath to Bournemouth railway line and make it into a shared pedestrian and cycle path. Punching through two filled in tunnels and restoring a viaduct, the four-mile route will create a direct and almost level direct route between the city centre and the countryside to the south of Bath, and importantly link it to a wider network of Sustrans cycle paths.

The project itself is one of Sustrans' 79 Connect2 projects, which two years ago won a national vote for money from the National Lottery.

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This project has been supported by:



Towns, cities and landscapes are haunted by the ghosts of networks past. Disused railways, old routeways and quiet canals remain leftovers from the industry and commerce of yesteryear. Too often, these are dismissed as outdated or as the parochial interests of a few. In contrast, this pamphlet argues that the heritage infrastructure of the public realm can play an important part in addressing the challenges of today.

Infrastructural networks shape the way that we think about place. They govern the way that we connect to our physical environment and how places within it connect with one another. The networks of the past comprise a visible and everyday heritage that people can adapt and to which they can respond. Railways, canals, sewers and industrial routeways can be reappraised, repurposed and reused to meet emerging and future needs.

In a world in which financial and material resources are short, this pamphlet examines detailed examples of how communities, businesses and local government have come together to make use of heritage infrastructure, and looks at lessons that they might hold more generally. The recession need not lead to a halt to development: it can prompt us to alter practice and behaviours.

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ISBN 978-1-906693-43-5 £10

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