

# towards a smart and sustainable reading 2050 vision

With the development of city visions playing an important role in attempts to overcome the continuing disconnection between short-term planning and long-term environmental change, **Tim Dixon** and **Kim Cohen** discuss how Foresight-based techniques, such as backcasting, are being used to develop a city vision for Reading 2050



David Merrett – Wikimedia Commons

**Above**

Contemporary and historic Reading – The Blade from Reading Abbey

In an already heavily urbanised society such as the UK (where 82% of the total population live in urban areas) there is no doubt that cities have become a main focus for much of the current policy discussion and debate, particularly at the interface between planning and sustainability. The growth of cities is also a global phenomenon: today more than 50% of the world's population live in cities (around 3.6 billion people), and by 2050 this figure is set to grow by 84% to some 6.3 billion (or nearly 70% of the global population).

Of course, cities can be vibrant hubs of enterprise and innovation, bringing together business, local government, investors and higher-education institutions to generate economic growth and new jobs and new technologies, and they can also act as centres for social innovation and social learning.<sup>1</sup> However, the concentration of people in cities also has huge implications in terms of environmental impact, resource depletion, deteriorating ecosystems and climate change, all of which present major challenges in meeting the goal of sustainable development. Many cities have also struggled to cope with the disconnection that exists between long-term environmental change and shorter-term planning horizons, and this has often meant that cities have taken a relatively short-term view of the future – for example because of political resistance, inertia, lock-in or fragmented decision-making.<sup>2</sup>

But things are changing. An increasing number of cities in the UK and internationally have developed visions of how they see their future to 2020, 2050 and beyond. Aside from increasing urbanisation and the imperative to tackle climate change, part of the drive for this in the UK comes not only from the increasing focus on devolving powers from central government to cities, but also from a real desire for cities to think ahead and develop strategies which will help them in a transition to a more sustainable future. These visions (or shared expectations about a plausible and desirable future) differ in their shape and form, but they are a powerful way of promoting discussion and debate, providing a sense of purpose and mobilising resources so that a city can plan for, and move to, a sustainable future.<sup>3</sup>

Cities are therefore under pressure to take a long-term perspective. Thinking about the future, for example, opens up a possibility space for discussion and debate, free from the constraints of short-term thinking. There has also been a move towards co-creation of visions. In this sense, 'co-creation' in some cities sees universities being positioned as key stakeholders and facilitators in helping to develop a valid city vision.<sup>4</sup> This perspective has also found translation through the development of 'urban transition laboratories',<sup>5</sup> opening up possibilities for exhibition spaces or 'urban rooms' as promoted by Terry Farrell and exemplified by Newcastle's City Futures project.<sup>6,7</sup>

This article outlines the development of a smart and sustainable 2050 vision which is being created for Reading, a major urban area in Berkshire, UK. We explore what is meant by a city vision and we examine some of the tools that can be used to develop city visions, before focusing on the Reading 2050 vision in more detail. Finally, we draw conclusions from the Reading 2050 work.

### **What are city visions and why are they important?**

Visions of cities, or at least the tradition of imagining urban futures, are not new: there is a long history stretching back to Plato's *Republic* and Thomas More's *Utopia*, and planning and architecture are replete with examples of visionary urban thinking emanating from the early work of Howard and Geddes.<sup>8</sup> In the 21st century what is new is a growing focus on developing city-specific visions.

In the UK, for example, Bristol's 2020 vision, and its smart city vision, is based on 'people, place and prosperity', a desire to be a 'Global Green Capital', and an aspiration to be a centre for smart city thinking.<sup>9</sup> In Canada, Vancouver aims to be the world's greenest city by 2020, with tough targets set for greenhouse gas emissions and a desire to create a city which is resilient to climate change.<sup>10</sup> In Denmark, Copenhagen's vision is based on a target to be carbon-neutral by 2025, underpinned by a highly successful walking/cycling policy agenda and a strong focus on renewables.<sup>11</sup> Looking further ahead into the future, Glasgow has developed a vision for 2061, which is now also underpinned by its aspiration to be a leading 'future city' with smart technology at its core.<sup>12</sup> Smaller urban areas have also developed visions. In the UK, for example, Milton Keynes is working with business and other stakeholders to develop a 'smart vision' with a strong focus on electric vehicles and smart technologies.<sup>13</sup>

The best city visions are something more than simply a branding or re-branding exercise. Although a successful city vision only becomes a success when the vision is realised, best practice visions not only clearly link together strategies, plans and actions, but also integrate the vision clearly with climate change, energy, infrastructure, economy and people. Moreover, successful visions need to be politically viable, analytically sound, and participatory so that stakeholders form part of the inclusive process of formulating the vision.<sup>2</sup>

More recently, the UK Government Office of Science Foresight programme on Future Cities has placed a strong emphasis on the co-creation of city visions, and UK cities have engaged in this process in a variety of ways through scenario development, exhibition spaces, and design challenges.<sup>14</sup> To connect with this work the University of Reading partnered with Barton Willmore and Reading UK CIC (the economic development company for Reading) to develop a Reading 2050 vision.

## Why do we need a vision for Reading 2050?

Although Reading is not yet officially a 'city', it forms part of one of the most economically vibrant and connected urban areas in the UK: Reading, as part of a wider Reading/Wokingham urban area (including Arborfield, Woodley, Theale (West Berkshire), Crowthorne, Earley), has a population of 318,000 (2011 figure), which is set to grow to 362,000 by 2037.<sup>15</sup> This presents big challenges in maintaining Reading's competitive edge and dealing with the important environmental and socio-economic issues arising from its continued economic growth. Developing a Reading 2050 vision which is both 'smart' and 'sustainable' is an important step in supporting longer-term planning and development in Reading.

Reading's geographic location at the confluence of the Thames and Kennet rivers, and its location 40 miles west of London, explain the ancient origins of its success as a trading centre and centre of commerce and manufacturing. The Reading of today, however, is also very different from the Reading of 40 years ago. Despite its rich history stretching back to the founding of Reading Abbey in 1121, the 'beer, biscuits and bulbs' (and bricks), for which Reading was rightly famous, have long since gone. Today, Reading's economy, which is highly connected nationally and internationally, is one of the strongest in the UK, and is based on high-tech industry, innovation and inward investment. Reading is also one of the top five 'city' economies in the UK, with a strong track record in inward investment and economic growth. Reading's success is based on its physical and virtual networks in an increasingly globalised world.<sup>16</sup> It is also a classic example of an 'under-bounded' urban area, where its administrative boundary is smaller than its wider urban footprint.

However, vibrant economic activity and a growing population come at a price, and that price is reflected not only in greenhouse gas emissions, but also in outdated and congested infrastructure, areas of deprivation, and a sense that Reading could, and should, be a more liveable place.

For example, Reading's success as a busy commercial centre stems from the fact that nearly half of its carbon footprint comes from its commercial activities, but Reading also has a large number of older, pre-1919 terraced houses,<sup>17</sup> which are often poorly insulated and inefficient in energy terms, and many of which will still be standing in 2050. Reading's new City Deal also makes it clear how important it is to tackle the issues of deprivation and joblessness, especially among young people.

It is this historic legacy and infrastructure lock-in that often makes it difficult to re-engineer or retrofit an urban area like Reading in order to adapt to and mitigate for the effects of climate change. Indeed,

the 2014 floods in Reading, arising from its location straddling the Thames, brought the issue of flood prevention and adaptation into sharp focus in the town. Changing business' and peoples' behaviour in order to tackle these issues is a complex task, and will require strategic thinking, new partnerships, and even new forms of governance and institutional structures.

This has been recognised in some of the reports which have focused on futures thinking in Reading over the last ten years. For example, in 1998 Reading Borough Council published *Reading City 2020*, which saw Reading as a 'continental-type city with squares and plazas and open spaces'. Other visions such as Reading Local Strategic Partnership's *Reading City 2030*, published in 2011, have also attempted to scope out the sort of place Reading should be in the future.

More recently, in 2013, Reading Climate Change Partnership published *Reading Means Business on Climate Change*, a climate change strategy for 2013-2020. This aims to reduce the carbon footprint of the borough in 2020 by 34% compared with levels in 2005, and also suggests that 'low carbon living will be the norm in 2050'. Finally, in 2013 Barton Willmore produced a report in its young professionals workshop series, entitled *Reading 2050*, which set out some of the key development and growth areas that Reading might exploit through to 2050.<sup>18</sup>

Despite this, we do not yet have a clear sense of how Reading should evolve through to 2050, either to fulfil a shared aspiration, or to paint a picture of the sort of place Reading could and should be. Developing a Reading 2050 vision today is therefore very important because:

- We need a better understanding of what a low-carbon future would look like for Reading.
- Creating a clear vision would help to attract further inward investment and would help Reading to retain and enhance its competitive edge.
- There is a real opportunity to harness Reading's economic growth potential in alliance with a focus on sustainable and low-carbon living, which links with the plans of the Thames Valley Berkshire Local Economic Partnership.

## Developing a city vision for Reading to 2050

The starting point for our work was not to develop a masterplan for Reading, but rather a vision. More formally, a vision is a shared expectation about a plausible and desirable future. In futures (or 'Foresight') thinking, 'backcasting' is often used to generate a desirable future, and then look backwards from that future to the present in order to strategise and to plan how it could be achieved. In other words, a vision or visions of a desirable future are first defined and then pathways (or roadmaps) to that future are developed.<sup>2</sup>



**Above**

Reading 2050 workshop

**Table 1**  
**Focus of breakout groups at the Reading 2050 workshop**

<b>Place and environment</b>	<ul style="list-style-type: none"> <li>● Built environment</li> <li>● Transport/mobility</li> <li>● Land use</li> <li>● Physical environment</li> <li>● Climate</li> </ul>
<b>People and lifestyle</b>	<ul style="list-style-type: none"> <li>● Values/behaviour</li> <li>● Social equity and inclusion</li> <li>● Health and wellbeing</li> <li>● Social capital</li> </ul>
<b>Economy and employment</b>	<ul style="list-style-type: none"> <li>● GDP/growth</li> <li>● Jobs</li> <li>● Population</li> <li>● Trade and exchange</li> </ul>

An example of this approach is the EPSRC Retrofit 2050 programme,<sup>19</sup> in which the University of Reading was a key player. This research scoped out three generic visions:<sup>20</sup>

- **Vision I: Smart-networked city:** The city as a hub within a highly mobile and competitive globally networked society. Pervasive, information-rich virtual environments integrate seamlessly with the physical world. ICTs provide real-time information to drive efficiencies through automation and intelligent control, and advanced market-oriented solutions allow for the internalisation of environment costs. This is an open, outward-looking society in which the mobility of people, goods and services remains high.
- **Vision II: Compact city:** The city as a site of intensive and efficient urban living. Urban land use, buildings, services and infrastructure provision are optimised in order to create dense urban settlement forms that encourage reduced demand and more efficient use of energy and resources. Concentration in urban centres reduces pressures on the periphery. Significant efficiencies are obtained through systems integration and re-design.
- **Vision III: Self-reliant green city:** The city as a self-reliant bio-region, living in harmony with nature. A self-replenishing, largely self-reliant system of circular metabolism, where resources are local, demand is constrained and the inputs and outputs of the city are connected (cradle to cradle). In many ways this is an inward facing society, but one conscious of its global responsibility to 'live within its limits'.

Of course, these are not mutually exclusive visions and are also designed to provide 'jumping off' points

for developing futures-based thinking. To develop the Reading 2050 vision we combined elements of a smart city (vision I) with those of a sustainable city (visions I to III). This was because Reading already has a long-term aspiration to be 'low carbon' by 2050, but also has a strong technology and green technology focus in its existing economy. Moreover, a 2050 time horizon provides space to think beyond today's immediate problems, and facilitates a greater sense of strategic thinking by identifying desirable as well as undesirable outcomes.

A 'smart and sustainable' city can be defined as:<sup>21</sup>  
*'A city that leverages the ICT infrastructure... to:*

- *Improve the quality of life of its citizens.*
- *Ensure tangible economic growth... for its citizens.*
- *Improve the well-being of its citizens...*
- *Establish an environmentally responsible and sustainable approach [to development].*
- *Streamline [and improve] physical infrastructure...*
- *Reinforce resilience [to] natural and man-made disasters...*
- *Provide effective and well-balanced regulatory, compliance and governance mechanisms.'*

This definition provided the starting point for developing a vision for Reading 2050, with the Reading/Wokingham urban area<sup>22</sup> as the primary focus. In May 2014 we ran a workshop which was attended by more than 50 invited delegates from Reading and its wider area, including major employers, academics, investors, entrepreneurs, planning experts and a wide range of Reading stakeholders. The aim of the workshop was to take the first steps towards developing a smart and sustainable vision for Reading 2050. Working in groups, we ran three main sessions during the workshop. As set out in Table 1, in the first two

sessions we used three key elements as the focus for discussion and debate. The three sessions comprised:

- **Session 1 – What should a smart and sustainable Reading look like in 2050? (Developing the vision):** What should Reading look like in 2050, how will it feel, and what will it be like living there? How do we join smart technologies with sustainable thinking in Reading to set it apart, building on the strengths Reading already has?
- **Session 2 – How do we achieve a smart and sustainable Reading by 2050? (Developing the roadmaps or pathways to the future):** What do we need to do, and by when, to achieve the smart and sustainable vision for Reading?
- **Session 3 – ‘Urban design’ scenarios:** This session scoped out the physical changes which could support the smart and sustainable vision, in the short, medium and long term. Group work examined, through base maps at large and smaller scales, how specific key developments might emerge and what infrastructure changes were needed. We used ‘postcards from the future’ to summarise the thinking of groups in sessions 1 and 2, and these were at the heart of developing the urban design scenarios for session 3.

### The vision so far

The workshop suggested that within the three pillars of sustainable development key features of Reading were important to nurture and to enhance

(see Fig. 1). Part of the vision places an emphasis on ‘place and environment’, based on the following narrative:

*‘... a city region with an internationally recognised economy focusing on the application of green technology solutions for a low carbon world.*

*‘The city has attracted many new businesses to relocate and has addressed climate change adaptation and mitigation through a resilience strategy and action plan.*

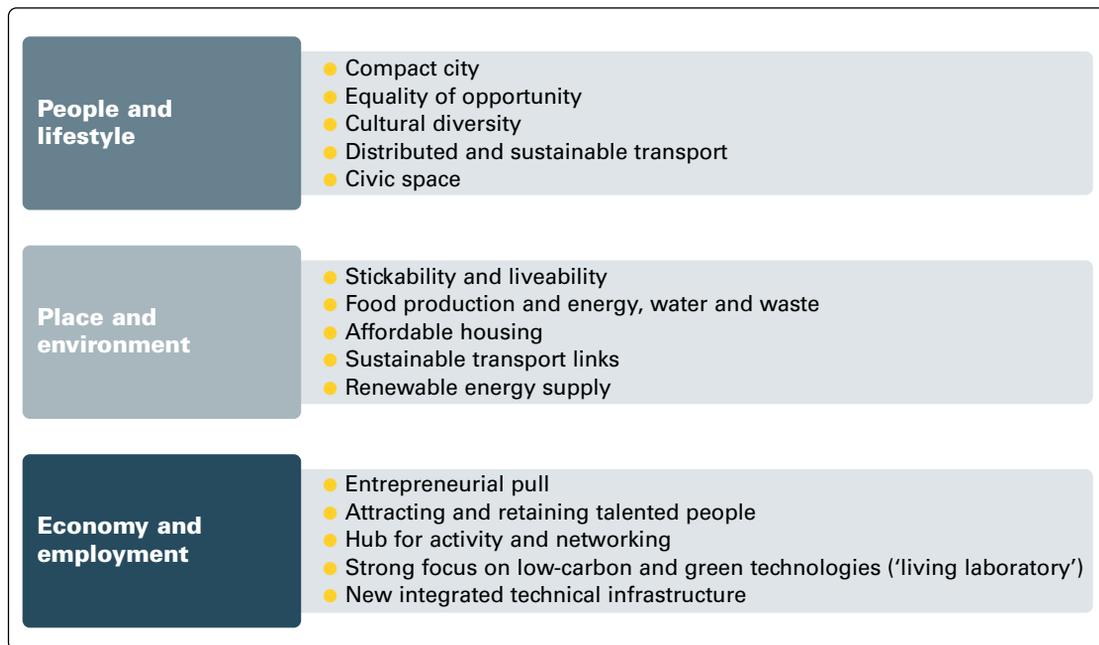
*‘Reading has used its expertise in high tech to develop a fully rolled out smart grid and smart meter system and new smart technologies are at the heart of the city’s transition to a sustainable future.*

*‘It is a city which has a sustainable transport system (based on a modal shift to walking and cycling and zero emission vehicles and free public transport) and is a place which attracts and retains talented people and provides equal opportunities for all.*

*‘The city has a large proportion of its energy generated from renewables, and food production for the city is maximised through urban farms and allotments.*

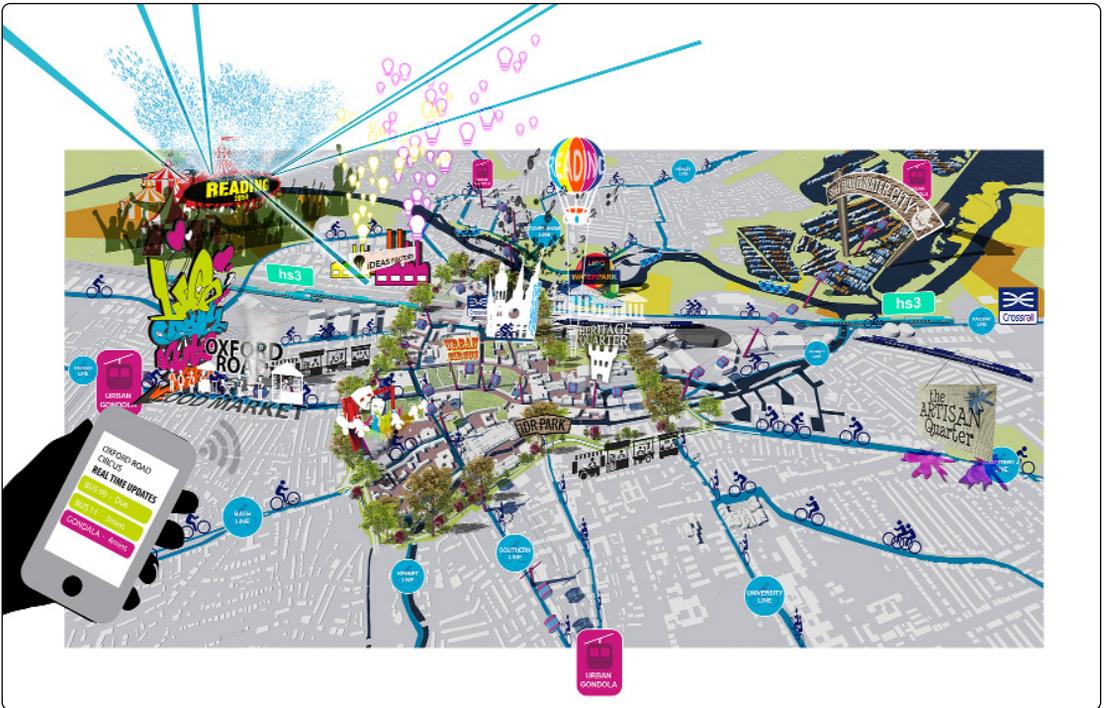
*‘The city has been retrofitted at scale to make a high quality built environment, which is energy, water and waste efficient.*

*‘Low carbon living is the norm and the city is a leading exemplar of smart and sustainable living in the ‘Green Thames Valley’ and beyond.’*



Above

Fig. 1 Building blocks for the Reading 2050 vision



Above

Fig. 2 Smart and sustainable Reading 2050 – synthesis and visualisation

However, people and the economy are also clearly important in the vision: to illustrate this some of the key elements of this vision have been synthesised and visualised in Fig. 2.

In terms of how Reading might look and feel in 2050, we also developed three scenarios based on some of the ideas generated in Fig. 1 and Fig. 2. These are:

- 'A CITY OF FESTIVALS & CULTURE... would build on the success of the iconic Reading Festival to deliver arts and culture to people of all ages and ethnicities. We would look to facilitate community interaction and opportunity within Reading, weaving the music festival back into the city, offering vibrant public gathering spaces and integrating and celebrating our city's heritage. Comedy, independent retailers and pop up shops, street cafes and markets, art exhibitions, sporting events, religious and international festivals, could all be celebrated and woven throughout the urban fabric to bring our city to life.'
- 'A CITY OF RIVERS & PARKS... recognises how water has shaped much of Reading. Not just the River Thames, but the River Kennet, the Kennet & Avon Canal and the Holy Brook all weave their way through and under much of our city, defining and offering opportunity via their river banks and crossings. The city would celebrate Reading's waterways, opening them up to offer recreational

spaces such as animated parks, a lido, food production opportunities and city centre waterside living. Greening the IDR [Inner Distribution Road], through a modal shift in transportation, will create an enhancing green ring around the city, as opposed to the current constricting concrete one, while regular open space and green roofs provide lungs for the city as we seek to increase density and improve sustainability.'

- 'A GREENTECH CITY... builds upon the established technology focus of our city. It celebrates and encourages diversity through business incubation units, 'Ideas Factories' and a city centre University campus through which to exhibit and test cutting edge ideas and approaches, no matter what faculty they are emerging from. Retrofitting existing buildings and the development of new iconic architecture will provide some of the greenest accommodation possible for incoming businesses, while a Reading 'Oyster' card, a comprehensive cycle network and Urban Gondolas or a Rapid Transit System connect the city from east to west, and north to south, relieving the town centre of congestion.'

Finally, we considered how we could achieve a smart and sustainable city through a detailed roadmap. Inevitably, leadership is a critical issue, as is gaining support early on for the vision.

**Table 2**

**Roadmap for a smart and sustainable Reading 2050**

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**2014-2020**

- Develop the vision and brand.
  - Review how leadership can respond to the challenges.
  - Undertake social, economic and environmental assessments.
  - Develop a flexible futures framework for short-, medium- and long-term development.
  - Complete crossrail, and consider opportunities for rapid transit, a third river crossing and further improvements to the walking and cycling network.
  - Establish and drive a programme for big-data broadband delivery.
  - Review self-sufficiency in energy production options and establish the key waste and water enhancements required.
  - Begin a retrofitting programme and consider means to drive for high-quality, sustainable architecture.
  - Achieve city status.
  - Assess cultural opportunities, potential for growth, and the requirements to support this.
  - Explore financing opportunities at central government, LEP, and local authority levels.
  - Focus on how the riverside can be developed.
- 

**2020-2050**

- Support the ongoing vision evolution and the promotion of Reading City.
  - Strong collaborative leadership is in place and facilitating joined-up thinking across Greater Reading.
  - Consider flexible-futures framework successes and continue to evolve.
  - Deliver sustainable low-carbon building as the norm.
  - Explore and utilise financing opportunities such as TIFs (tax incremental financing), carbon bonds, crowd-funding and Local Investment Funds.
  - Progress plans for rapid transit and deliver a third river crossing and free public transport.
  - Enhanced cycleways and footpaths and road-pricing are driving changes in behaviour.
  - Establish a thriving cultural calendar with enhanced facilities and promotion.
  - Deliver a business hub and flexible commercial space opportunities.
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**2050+**

By 2050 Reading is a smart and sustainable community which, through strong leadership and growing confidence, is looking to how it now makes the most of its infrastructure and dynamism to continue to grow and diversify and remain a leading, visionary city. It has become a city with:

- city-region and international status;
  - a strong identity and confidence in its status as a destination;
  - smart and green technologies throughout;
  - a continually evolving future framework;
  - a strong and resilient economy;
  - an integrated, efficient and sustainable transport network;
  - a growing programme of community and cultural events;
  - flexible working environments and a diverse sector presence; and
  - an improved use of Reading's riversides.
- 

Table 2 considers just some of the short-, medium- and long-term objectives which were identified through the workshop.

**Lessons learned and next steps**

Creating a coherent vision for a city is a challenging process. It requires resources, a coherent plan and clear leadership. Often the visions for cities that have been developed lack credibility because they fail to connect and link with existing plans and strategies, and may be driven from a narrow perspective, or may simply produce intangible, vague or unmeasurable goals.

Sometimes multiple visions for cities have also been developed by different groups, leading to confusion, fragmentation and over-complexity; and resistance to change from vested-interest groups can pose real challenges for co-created visions. Thinking at city scale therefore requires thinking across boundaries and across interest groups, and the use of imaginative and innovative ways of engaging with communities.

The Reading 2050 project is very much at the start of its journey, and further dialogue and consultation with key stakeholders is planned. This is not a masterplan, but rather the start of a process

which we hope will continue to evolve. We will be focusing our efforts on communicating and working with business, the local authorities, the Local Enterprise Partnership (LEP) and other stakeholders to develop the vision. In the short term we feel it is important to:

- establish a clear vision and identity – the process we have started is the beginning of that journey;
- create a Reading Futures 2050 Group – to help drive a new Reading 2050 vision;
- join up thinking around ‘Greater Reading’;
- improve transport and infrastructure; and
- create innovative partnership and joint funding models.

The work we are doing for Reading 2050 is an example of a co-created project, and other cities throughout the UK are working with a range of partners to develop visions, as part of the Foresight Future of Cities programme.<sup>23</sup> As the vision for Reading evolves we will be developing other activities, not only based around workshops and urban design activities and events, but also connecting through to the new Happy Museum project in Reading,<sup>24</sup> which will also explore the past, present and future of Reading.

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● Further information on Reading 2050 can be found at [www.bartonwillmore.co.uk/reading2050/](http://www.bartonwillmore.co.uk/reading2050/). A summary report is available at [www.bartonwillmore.co.uk/resources/towards-a-smart-sustainable-reading-uk-2050](http://www.bartonwillmore.co.uk/resources/towards-a-smart-sustainable-reading-uk-2050)

## Notes

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