



# BRISTOL RESILIENCE STRATEGY

PIIONEERED BY THE  
ROCKEFELLER FOUNDATION

100

RESILIENT

CITIES





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Thank you to the many people from Bristol and beyond, especially the team at Arup, that have contributed – by encouraging, challenging and inspiring - to the development of this strategy.





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# Extract from Bristol Bristol



by Miles Chambers (Bristol Poet Laureate)

[milesiltonchambers.com](http://milesiltonchambers.com)

Bristol, Bristol the city that was built on the bricks of heroic hardship.

Bristol, Bristol the place of dreams and possibilities the place of creative aspirations culture commerce and its own seductive music.

Bristol, Bristol a place still haunted by the ancestral ghost that echoes the historical hangover that yet sobered us up to what time hasn't changed

Bristol, Bristol. Take a walk. Be inspired. Feel the magical connection see a positive future come dance in this festival of ideas.

See, we don't have to wait for carnival every year. The party is right now right here,

This very stage, the very atmosphere is encouraging us to lose our fear cause geographically there's no no go areas round here.

Stand on the suspension bridge see the communities, within a community,

Integrated no segregated and in the distance you can almost reach out and grab Glastonbury.

Oh, city of paradoxes why all this controversy,

Oh, conflicting urbanisation I love you but what are you doing to me?





Admits the beauty I regularly see the women of the  
street exploiting their femininity,  
Being exploited by their calamity.

I love you Bristol, I love the clamour of the weekend  
drinkers and the hustle and the bustle of the 9-5.

I hate you Bristol as I watch every day the young  
kiddy with the old weathered face in a Tesco shop  
doorway clinging to his blanket of security begging  
to survive.

I belong here Bristol amongst the riots and the  
protest, amongst the fighting for equality,

I belong here Bristol amongst the ranters and the  
ravers, the Gospel singers the multi-cultural students  
studying effectively,

I belong here Bristol With the Bristol blue taxis the  
cheers drive shirt and jeans top blokes braving the  
winter streets to look cool,

Oh, city of paradoxes where you gonna take me  
today.

Oh, conflicting urbanisation are you gonna show me  
a better way.

So what fate awaits this colourful city.

We need to consider every beneficial possibility.

Transport punctuality,

Drugs and social policy,

Religion ethnicity,

Multiculturalism and unity,

Economy and prosperity,

Education and opportunity,

Business and creativity,

Media and honesty,

Religion and spirituality,

Acknowledgement and generosity,

I belong here with the good schools offering a good  
future to a bad past. The bad schools offering a bad  
future to a good past.

It's here on these streets that the youth are spitting  
the lyrics of the future that will change the wrong  
decisions of the past.

I belong here! Right now in this place we have the  
opportunity to be something great, something  
amazing together...

To utilise the collective potential of us all. That will  
make this place unique and special... Let's answer  
the call. I belong right here!



## Letter from the Mayor

# Marvin Rees



Marvin Rees  
Mayor of Bristol

Bristol has consistently been voted one of the best places to live. It's a city full of green space, a vibrant culture known for its colourful houses, grand bridges, hot air balloons and Banksy. And it is a great city, a prosperous city, all this is true.

But there is another Bristol, one that tourists and even some of our citizens never see – the city of poverty and inequality. We have 42 areas among the 10% most deprived in England and 16% of our residents live in poverty. There is a persistent life expectancy gap between the most and least deprived areas (an estimated gap of 9.6 years for men and 7 years for women).

And we know that the future will be even more challenging for cities like Bristol. We need to be prepared for more extreme weather, a growing and ageing population and a changing job market. All of these factors will impact most on our poorest citizens unless we focus on making their lives, and their children's lives, better.

That is why I am committed to taking the long view to lead Bristol towards a future where nobody is left behind. As set out in this 50 year strategy, my vision is to build a liveable city of opportunity built on fairness and inclusion. A resilient city, both socially and environmentally, which offers prosperity for all.

We cannot achieve this alone. We need all our city organisations – and our citizens – to work together towards shared priorities. The Resilience Sounding Board has modelled this new way of working and the Resilience Strategy gives us a compass for our future direction of travel. We could not have done this work without the inspiration and support of the 100RC and the other cities in the network and we are truly thankful and proud to be part of this global movement.

Building a resilient Bristol will be difficult and it will take time. But together we can do it if we start now.

A handwritten signature in black ink, appearing to read 'M Rees'.

**Marvin Rees**  
Mayor of Bristol

## Letter from the President of 100 Resilient Cities

# Michael Berkowitz



Michael Berkowitz  
President of 100 Resilient Cities

On behalf of the entire 100 Resilient Cities team, I want to congratulate the city of Bristol on the release of the Bristol Resilience Strategy. In this bold strategy, Bristol is taking an honest and proactive view of the challenges the city faces today and in the fifty years to come. It shows no complacency with the leaps Bristol has already made, and unlocks resilience paradoxes by transforming them into opportunities.

Bristol's entrepreneurial, creative and pragmatic spirit is reflected throughout this strategy. It represents a call to action for all Bristolians in a pursuit to strengthen social and environmental justice. None of this could have been possible without the excellent engagement of the Resilience Sounding Board members. With backgrounds ranging from community organisations to universities and local businesses, these Bristolians ensured multi-stakeholder voices were heard. I also want to thank Bristol's Chief Resilience Officer (CRO), Sarah Toy, for her tireless dedication in driving the Bristol Resilience Strategy process forward.

The release of the strategy marks an important milestone for the city. Yet the work is far from over. Mayor Rees's establishment of the City Office will be an innovative way to include a wide range of stakeholders working on resilience challenges in Bristol. Actions that address homelessness and enhance opportunities for meaningful work experience are but a few points named in this strategy that will secure a more resilient and equal Bristol.

As one of the cities selected in the first round of the the 100 Resilient Cities Challenge, Bristol has been on the forefront of leading our global resilience movement. We anticipate that the implementation of this strategy will become a best practice that other cities within the 100RC Network will emulate. We are thrilled to celebrate Bristol's achievement in releasing the Bristol Resilience Strategy, and look forward to our continued partnership as Bristol spreads the urban resilience movement to cities across the United Kingdom and the world.

Sincerely,

A handwritten signature in black ink, consisting of a stylized 'M' followed by a horizontal line.

**Michael Berkowitz**  
President, 100 Resilient Cities

# FOREWORD FROM RESILIENCE SOUNDING BOARD

## VISION

*Our vision: By 2066 Bristol is a flourishing, welcoming city which inspires confidence in local and global investors, and our success is shared by all. Our neighbourhoods are affordable, attractive, healthy and well-connected places where people of all ages and backgrounds trust and help each other. Our infrastructure and services are flexibly designed and managed to cope with uncertainty.*

**Bristol believes that resilience = flourishing for all in the face of future uncertainty**

## THE WORLD IS CHANGING; BRISTOL IS CHANGING

Bristol is an independent-thinking, sustainable and culturally diverse city with a high quality of life. Bristol is thriving.

But there is no room for complacency. Our city – and the wider world with which it is vitally interdependent – is an increasingly complex and uncertain place. Changes are occurring at unprecedented rates in our economy, job markets, technology, environment, politics and population, and consequently our challenges are becoming both more severe and more unexpected. The city region's economic and physical growth, consequences of our success, also mean rising resource consumption and greater demands on health services and infrastructure. Meanwhile, our more chronic challenges remain: the gap between the rich and poor in Bristol is unacceptably wide, and growing; our current infrastructure connects us but also divides us; and our ambitions to be truly sustainable are constrained by our own resistance to change, national and international policies, and a lack of appropriate financing.

These challenges will not be resolved quickly; they will require investment, greater trust and social cohesion, and new social and technological innovations. Building a resilient future will be difficult and it will take time. And so it must start now.

That journey, however, is also an opportunity. The truly resilient cities of the 21st century will not simply manage risk or deal with challenges. They will evolve and become stronger through creativity, adaptability and flexibility. By enabling the capacity and ingenuity of all of their citizens, these cities will use every disaster, crisis or challenge to recover in a stronger, smarter and fairer way.

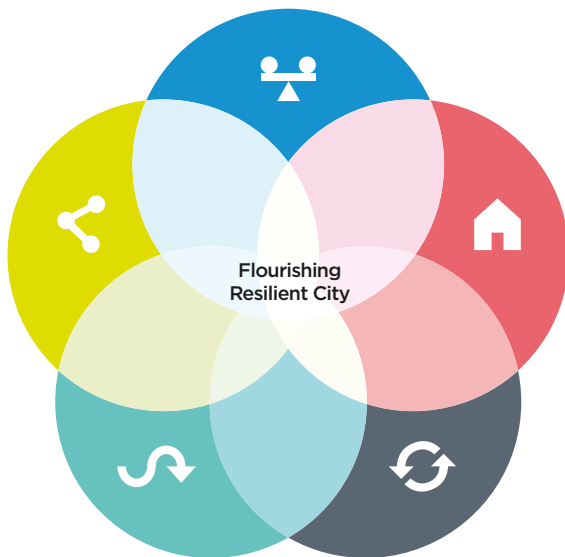




## COLLECTIVE ACTION

The vision of resilience articulated here is a distinctively 'Bristol' vision, and it is a genuinely collective one, emerging from not only rigorous data analysis but also the experiences and opinions of thousands of Bristolians, as well as national and international friends. The Resilience Sounding Board was created to provide diverse perspectives and to critically challenge one another and the political leadership of the city. The Board includes those familiar with the expected resilience topics, including infrastructure, planning, climate change, disaster management and transport, but also those familiar with digital media, finance, social cohesion and the voluntary sector. But the Board knows that it does not have most of the answers, nor speak for all of Bristol, and we hope that we have approached this task with humility. We have engaged over 1600 people from across the city and we have learned from and been inspired by them. Moreover, many of our Board members embarked on complementary initiatives, bringing in the perspectives of thousands of others. Throughout, our approach was to look backwards from a 50 year future vision to the present day, debating and discussing where and how we can work together with confidence to unlock creativity, disrupt business as usual and take the "right" next steps to set us on course. We thank all of you with whom we have engaged and all of those with whom we hope to engage soon.

Based on those diverse perspectives, we have co-created this Resilience Strategy, comprising a 50 year vision, resilience pillars, goals and transformative actions, all outlined in this document. In the spirit of resilience, this is not a fixed strategy replete with actions that might become inappropriate in our changing world, but rather a framework. There are too many unexpected challenges awaiting us and too many brilliant ideas waiting to be unleashed to dictate what actions must be taken. More fundamentally, resilience is not about proposing simple solutions to complex problems but about creating a political, cultural, and social framework that embeds resilience in every day decision-making. To stimulate action and debate we do propose some initial actions, but we intend these to be only the start, seeds of change, that along with many others will help our city adapt, survive and flourish in the face of future uncertainty.



#### Fair

Every person living in Bristol has the assets and opportunities to enjoy a good quality of life.



#### Liveable

The city centre and neighbourhoods are great places for people of all ages to live, work, learn and play.



#### Sustainable

The city and region prosper within environmental limits through adopting new behaviours and technology.



#### Agile

Bristol citizens and leaders make agile decisions based on shared priorities and real-time information.



#### Connected

A strong network of local communities and organisations promotes trust, cooperation and shared action across the city.

**Ann Cousins**, Senior Consultant and 100RC Strategy Partner, Arup

**Clare Reddington**, Creative Director, Watershed

**Di Robinson**, Director of Neighbourhoods, Bristol City Council

**Doug Owen**, freelance human factors consultant

**Ian Barrett**, Chief Executive Avon Wildlife Trust and West of England Local Nature Partnership Board

**Ian Roderick**, Director, Schumacher Institute

**James Vaccaro**, Strategy Director, Triodos Bank

**Jim Gillman**, Head of Civil Protection Unit, Bristol City Council

**Jim Longhurst**, Assistant Vice-Chancellor, Environment and Sustainability, University of West of England

**Kalpna Woolf**, 91 Ways, LEP Skills

**Michele Farmer**, Early Intervention Service Director, Bristol City Council

**Nick Sturge**, Director of Engine Shed and SETSquared

**Patric Bulmer**, Director of Environment, Bristol Water

**Paul Hassan**, Locality and (ex) Voscur

**Peter Lipman**, Global Transition Network and ex-Sustrans

**Rich Pancost**, Head of Cabot Institute, University of Bristol

**Sally Hogg**, Health Places, Healthy People Manager, Bristol City Council

**Sarah Allen**, Bristol Operations Director, Avon Fire and Rescue

**Sarah Toy**, Chief Resilience Office, Bristol City Council

**Stephen Hilton**, Director of Futures, Bristol City Council (Chair)

**Sumita Hutchinson**, (ex) Equality and Community Manager, Avon and Somerset Police

## NAVIGATING OUR JOURNEY

This Strategy – in the spirit of something that is both complex and collaborative – is intended to be a dynamic process that will change over time as more people become involved, our collective thinking evolves and new challenges and opportunities emerge. We did not start from scratch, but built on some visionary work already done in the city such as High in Hope 2050 produced by The Initiative, Business West<sup>1</sup>. We see this Strategy as a compass by which to seek and find a wide range of exciting and transformative actions – many of which have not yet been thought of or tested at a city scale.

In other words, we are on a journey. The Strategy will need to have a clear owner and be resourced to make sure it can be implemented. Eventually, it must be adopted and its spirit incorporated across the city; but crucially at this early stage, it must be embedded in the political institutions of Bristol.

Therefore, we call for a legacy structure that can implement the first steps of this Strategy while convening a city-wide approach to building resilience. But that legacy eventually will be owned by all of us, and so this document is most of all...

## AN OPEN INVITATION

The members of the Sounding Board are fully committed to supporting the delivery of this Strategy, whether as representatives of their organisations or as your fellow citizens. We hope that it can catalyse new ideas and inspire all of us to work together. We invite you – as an individual or as part of an organisation – to be part of this exciting journey. Contribute to the development of the initiatives proposed here and propose your own. Share your plans to become more resilient and your plans to help others. Challenge yourselves, each other and us to live up to the ideals presented here. We must be creative, flexible and adaptable but most of all, we must work together – the best way to become resilient is for all of us to become resilient.



# 1. INTRODUCTION AND CONTEXT



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**Currently, economic and physical growth is coupled with a growth in resource consumption, a trajectory that Bristol and other cities around the world will be unable to sustain as they continue to expand.**

## WHY URBAN RESILIENCE?

We live in a fast-changing, globally connected world. Bristol, like many other cities, faces challenges from a growing and changing population, climate change, resource scarcity, ageing infrastructure, changing patterns of world markets and employment, disruptive technologies and social and health inequalities. Currently, economic and physical growth is coupled with a growth in resource consumption, a trajectory that Bristol and other cities around the world will be unable to sustain as they continue to expand.

The scale of urban risk, in particular, is increasing due to the growing number of people living in cities. Risk is also increasingly unpredictable due to the complexity of city systems and the uncertainty associated with many hazards – most notably climate change. Communities and economies will need to develop the capacity to survive, adapt and thrive in the face of multiple and unpredictable disruptions in order to be resilient.

With growing recognition of these challenges, programmes to build “resilience” are being developed and implemented by a range of international, national and local organisations.

Resilience is a term that emerged simultaneously from the fields of engineering, ecology and psychology in the 1970s, to describe the capacity of a system to maintain or recover functionality in the event of disruption or disturbance. It is applicable to cities because they are complex systems that are constantly adapting to changing circumstances.

100 Resilient Cities (100RC) — Pioneered by The Rockefeller Foundation supports 100 selected cities around the world to become more resilient to physical, social and economic shocks and stresses across the city system ([www.100resilientcities.org](http://www.100resilientcities.org)). 100RC provides this assistance through:

- Funding for a Chief Resilience Officer(CRO) position for two years
- Resources and support for preparing a resilience strategy
- A network of cities which face a diverse range of resilience challenges and provide opportunities for information sharing
- A range of services brought to the city public, by private and academic organisations (called Platform Partners)

All 100RC member cities have used the same working definition of urban resilience:

*Urban resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt and grow no matter what kinds of chronic stresses and acute shocks they experience.*

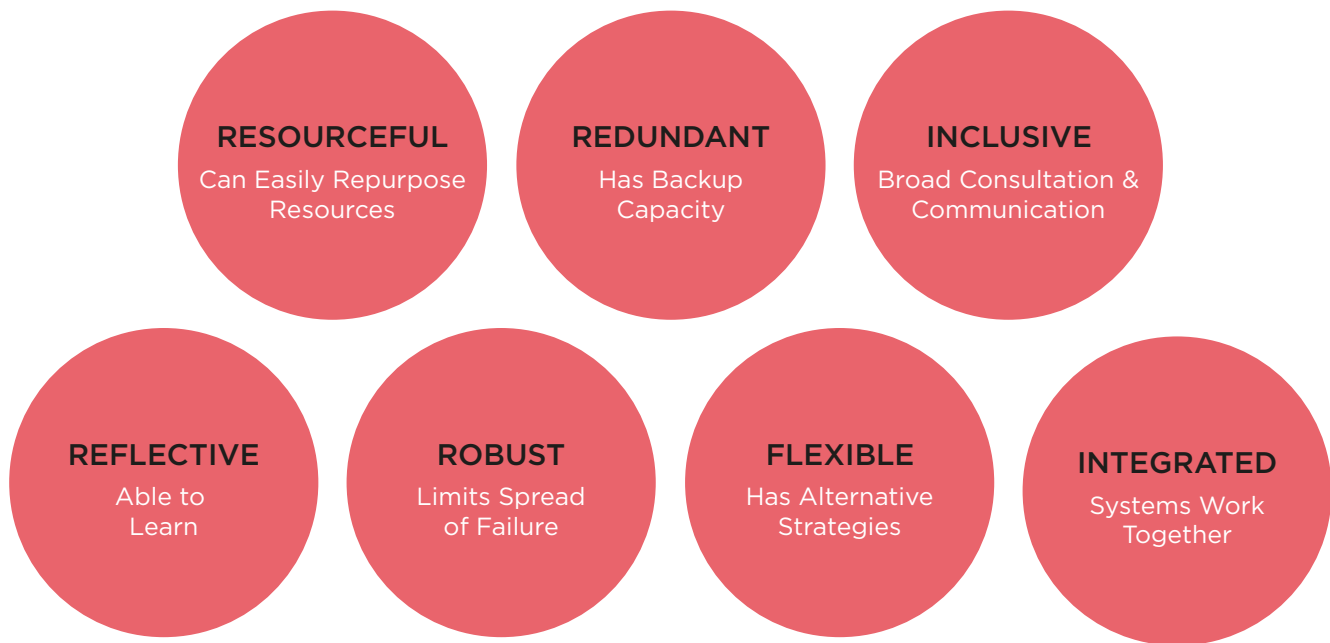


Figure 1 Source: Arup and The Rockefeller Foundation, City Resilience Framework, 2014

**For Bristol, Resilience =  
Flourishing for all in the  
face of future uncertainty**

Stresses are chronic conditions which weaken the fabric of a city on a daily or cyclical basis; examples include high unemployment, health inequalities, inefficient public transport systems, endemic violence, and chronic food or water shortages. Acute shocks are sudden, sharp events such as terrorist attacks, fires, floods, earthquakes, and disease outbreaks.

By addressing both the shocks and the stresses, a city becomes more able to respond to adverse events, and is overall better able to deliver basic functions in both good times and bad, to all communities.

The qualities of resilient systems shown in Figure 1 are important in preventing the breakdown or failure of a system or of enabling appropriate or timely action to be taken. Cities can determine their overall resilience by understanding the presence or absence of these qualities within their systems and services.

Bristol has taken the broadest possible view of resilience to help understand how the city can continue to flourish in the face of rapid change. Our focus is on ensuring that resilience helps to break away from “business as usual” to take the city towards a flourishing future by securing multiple, cross-sectoral benefits from every (resilience-related) initiative undertaken.

We also want to demonstrate our commitment to delivering the global 2030 Sustainable Development Goals (SDGs) as they provide an overarching, long term framework which reconciles environmental priorities with equality and economic opportunity.

100RC is particularly exciting for Bristol as it builds on the success of the city’s year as 2015 European Green Capital. Joining the 100RC Network is an opportunity to consolidate the city’s ambition to be a world leader in resilient and sustainable city development. Our view is that sustainability and resilience are inextricably linked.



## CITY OF BRISTOL



HEALTHY LIFE EXPECTANCY  
GAP OF **16 YEARS**



EUROPEAN  
GREEN  
CAPITAL  
IN 2015



45 RELIGIONS



187 COUNTRIES  
OF BIRTH



BRISTOL WAS  
FOUNDED IN THE  
EARLY 11TH CENTURY

● BRISTOL



POPULATION

442,500<sup>1</sup>

528,200<sup>2</sup>

<sup>1</sup>2014 <sup>2</sup>2037 (PROJECTED)



91 LANGUAGES

**This Bristol 50 Year strategy sets out a direction of travel to:**

**Bring city stakeholders together around a shared vision and ambitions.**

**Encourage a city-wide conversation about our common future.**

**Model a new form of collaborative city leadership.**

## **WHY NOW AND WHY 50 YEARS?**

In Bristol our resilience work is looking forward 50 years, to 2066 and beyond. We have used a range of tools and engagement methods, with support from the Government Office for Science Foresight Future of Cities Team and others, to develop a shared vision of the future and a direction of travel.

By developing an ambitious, long-term trajectory for the city, Bristol can rise to the global and local challenges that we face. Working backwards from a 50 year future to the present, we aim to unlock creativity and innovation and be confident that we are taking appropriately bold and ambitious steps in the short term.

This 50 year look ahead has helped us to realise the need for action now. In order to develop a flourishing future for Bristol, and improve our resilience to future uncertainty, we cannot wait for change to happen in the future. The UN recognises that people are already moving because of climate stresses and changing weather patterns<sup>2</sup>. Many people are already taking action on issues such as these globally. Bristol has the opportunity to be at the vanguard of change - for example by leading on the Sustainable Development Goals, but more action is required across sectors now to move us to a flourishing future for the city.

## **LEARNING FROM OUR PAST**

Bristol's growth and change as a major city since its humble beginnings in the 11th century has much to teach us about future resilience. Significant social shifts can happen quickly and transform the city (as was seen through the closure of docks or building of the M32, for example) whilst other aspects of the city seem to go in cycles (immigration, regional governance for example). Being a resilient city means taking all of this in our stride, whilst constantly placing the welfare and quality of life of citizens at the heart of all action.

Over the past centuries, we have seen a number of transformations in our city. These stories can help to inform our future trajectory:

- We've moved from being an important node in the slave trade, to bus boycott and riots, to electing the first mayor of African or Caribbean heritage in Europe in 2016<sup>3</sup>.
- Bristol has strong association with Isambard Kingdom Brunel and the history of the railways, and has had a major port for centuries. In 2003 Concorde's last ever flight marked Bristol's significance as a hub for the aerospace industry, and in 2016 Bristol is home to a driverless car pilot<sup>4</sup>.






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**Our Chief Resilience Officer, Sarah Toy (pictured above) led the development of this resilience strategy and is responsible for the integration of resilience thinking across the city, linking to a global network.**

- Bristol's food history was marked by significant family businesses such as Fry's chocolate manufacturer, and is now a hub for independent food production and retail, winning silver status as a Sustainable Food city in 2016<sup>5</sup>.
- Bristol's cultural history is significant; Bristol Old Vic is the oldest continually-operating theatre in the English speaking world<sup>6</sup>; and continues to evolve, with world-class 21st century animations and as home to Europe's largest street art festival, Upfest.
- The tobacco industry was a significant employer in Bristol, with Wills having the largest factory in Europe in 1970<sup>7</sup>. In the 21st century, we are spearheading anti-smoking action, with the first outdoor spaces in the UK designated as 'no smoking' in 2015<sup>8</sup>.
- Civil protest around change has always been a feature of life in Bristol, with bridge tolls in 1793 and resident parking charges in 2015 sparking protests.

## UNLOCKING THE FUTURE

Bristol is internationally recognised as a city leader in renewable energy and smart city digital innovation. It is also proud of its independent spirit and its sense of creativity and fun.

This means that there is already a wealth of initiatives across the city challenging "business as usual" thinking, with the aim of disrupting patterns to stimulate new (positive) behaviours. These initiatives – being spearheaded by public, private, voluntary and community organisations and individuals – are all important parts of the resilience jigsaw as they provide weak signals of future change. The city now has an opportunity to build on and connect these initiatives to underpin our resilience-building activities.

The development of the 50 year strategy, led by the Chief Resilience Officer (CRO) Sarah Toy, has prompted us to think more deeply about what these innovations have in common and what they collectively signal about the future of the city and their potential for scaling up.

City "pattern disrupters" have been identified as already challenging business as usual; these range from the establishment of municipal energy and waste companies to the development of Bristol's own currency, the Bristol Pound<sup>9</sup>, and from the development of a Bristol approach to citizen sensing<sup>10</sup> to a new approach to river catchment management. Each of these actions either stretch the current system in some way, or operate outside the system entirely. Either way, they are actions that could begin to transform the city's systems if they are scaled up.

## 2. UNDERSTANDING RESILIENCE

### OVERVIEW

Throughout the resilience process we have modelled some of the complexity of systems changes by creating an iterative, non-linear, human-centred or so-called “messy” method, involving: building new relationships (and challenging existing ones), talking about shifting power and engaging in open-space conversations and encouraging non-linear collective inquiry and collaboration.

This also involved mirroring some of the qualities of resilience - striving always to be reflective, inclusive, flexible and integrated.

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Throughout the resilience process we have modelled some of the complexity of systems changes by creating an iterative, non-linear, human-centred method.



150

meetings / interviews



17

public events



1,600

people

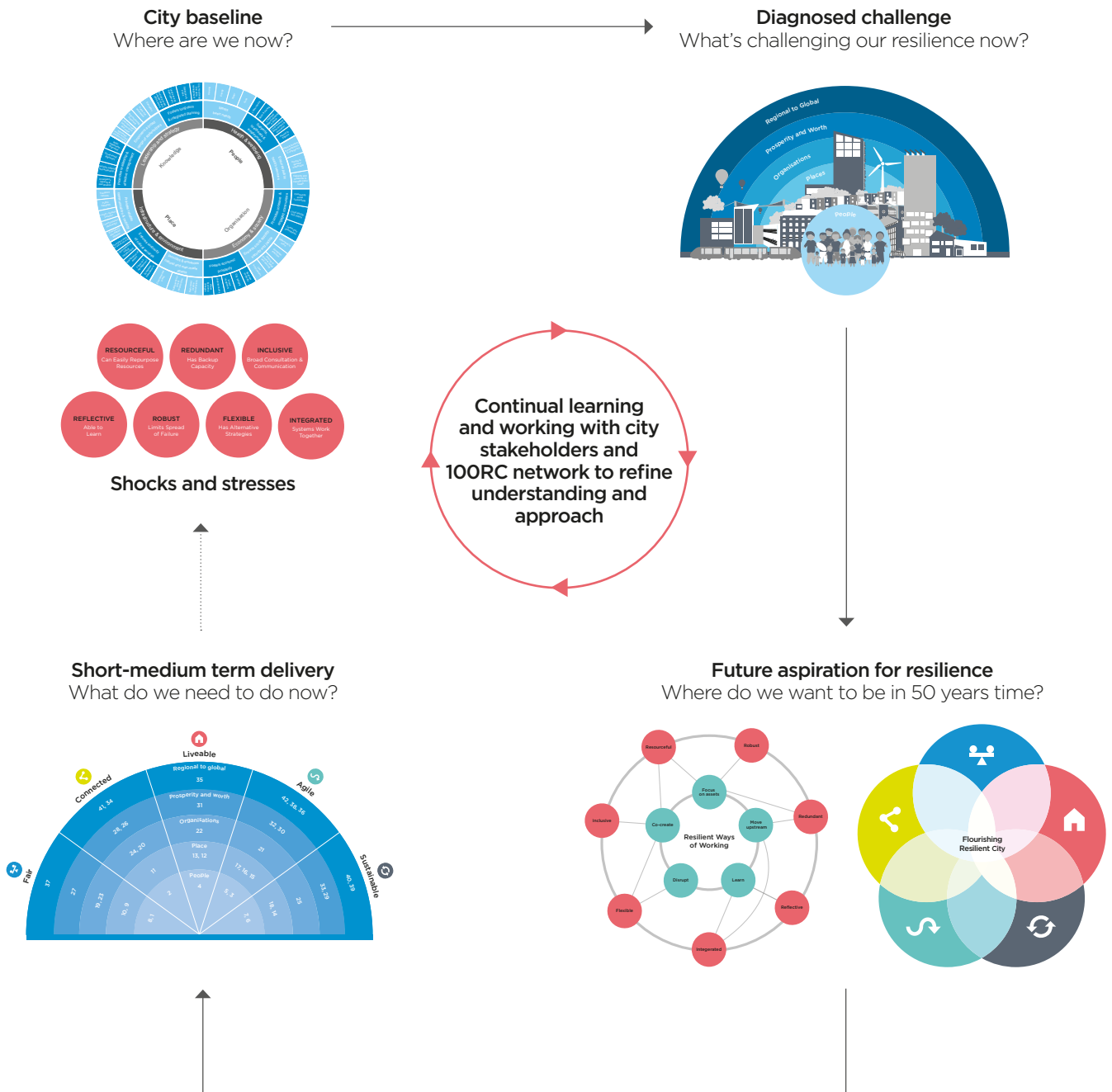


21

workshops and  
focus groups



## RESILIENCE STRATEGY DEVELOPMENT APPROACH



**Bristol already has a highly engaged stakeholder community, which has gone from strength to strength during 2015 due to the city's European Green Capital status.**

#### Stresses Relevant to Bristol

Transport congestion  
Ageing infrastructure  
Climate change  
Environmental degradation  
Food supply  
Fuel supply  
Water shortages  
Change in political leadership  
Ageing population  
Health inequality  
Growing unemployment  
Economic downturn  
Population growth  
Civil and political unrest  
Anti-microbial resistance  
Devolution

#### Shocks Relevant to Bristol

Disease outbreak  
Public protest/disorder  
Terrorist & malicious attacks  
Industrial action  
Major infrastructure failure  
Industrial accidents, environmental pollution & ordnance  
International event  
Transport accidents  
Severe weather (esp. flooding)  
Structural hazard

## APPROACH

As a Bristol citizen, the CRO felt strongly that everyone should have a stake in the city's future resilience. The approach taken was to build an open, inclusive process, tapping into existing networks and groups wherever possible.

Bristol already has a highly engaged stakeholder community, which has gone from strength to strength during 2015 due to the city's European Green Capital status. It was therefore important to build on this sense of shared priorities and encourage city dialogue throughout the resilience assessment process. Over 1,600 people were engaged in meetings, focus groups, workshops and events.

The aim was to create as many opportunities as possible for strategic partners and stakeholders across the city and region and across the 100RC global network to work together to explore innovative ways in which co-benefits can be delivered through collective inquiry and collaboration.

The stakeholder engagement was complemented by a robust analysis of available data to review our shocks, stresses, strengths and weaknesses, and to understand how the city operates in order to focus efforts to strengthen our resilience and help Bristol to flourish over the coming 50 years.

A range of more detailed research and analysis of our selected themes and discovery areas was undertaken, in order to improve our understanding of

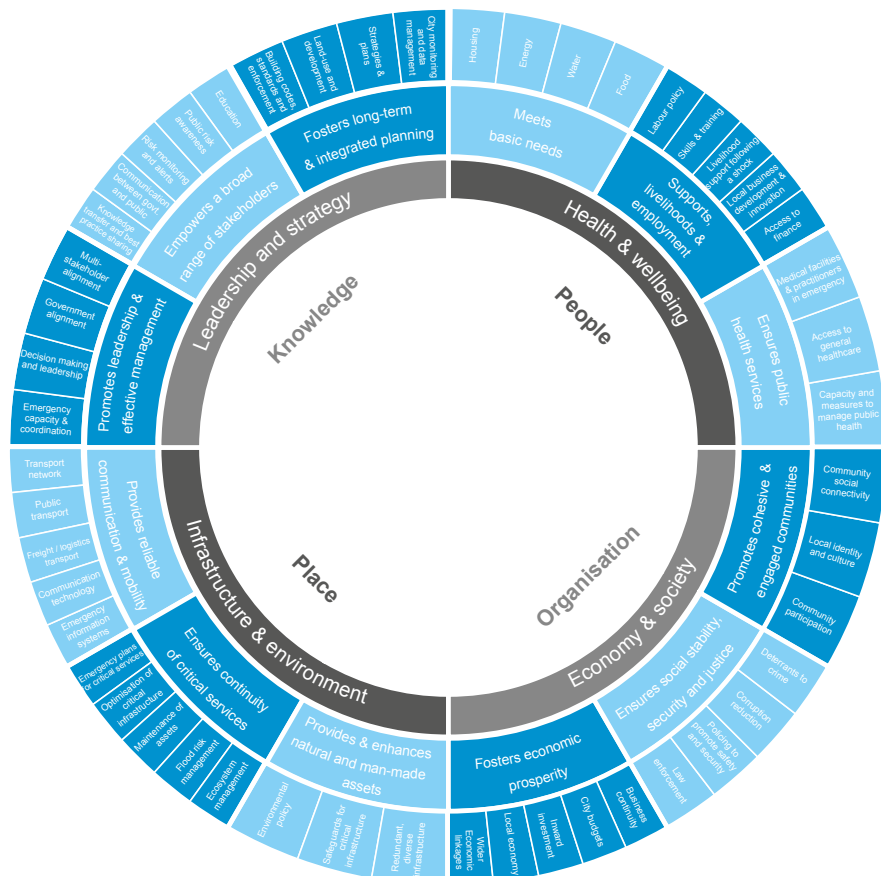


Figure 4 Source: Arup and The Rockefeller Foundation, City Resilience Framework, 2014

the issues and to uncover potential opportunities and actions that could be addressed through the Resilience Strategy. This work was co-ordinated by the CRO, and undertaken by a range of stakeholders in working teams, supported by Arup where appropriate for certain tasks.

Much of this research surfaced opportunities for interventions that could be included in this Resilience Strategy. In addition, we also sought input from a range of stakeholders. We applied a multi-criteria analysis to these opportunities, to identify those that would most effectively address Bristol's specific resilience challenges. This evaluation included a high-level assessment against the drivers of resilience as set out in the City Resilience Framework (CRF), that have been considered most significant for Bristol; the critical shocks and stresses that were identified; and the qualities of a resilient city. This was then complemented by our knowledge of Bristol and the activity that was most likely to lead to transformation as a result of being scaled up.

<b>Meets basic needs</b>	Particularly in times of crisis, ensure that people have access to the basic resources necessary to survive – food, water and sanitation, energy, and shelter.
<b>Supports livelihoods &amp; employment</b>	Assist individuals to access diverse livelihood and employment opportunities, including access to business investment and social welfare. This includes skills and training, fair labour policy, and development and innovation.
<b>Ensures public health services</b>	Provide access to effective public healthcare and emergency services to safeguard physical and mental health. This includes medical practitioners and plans, as well as clinics and ambulances.
<b>Promotes cohesive and engaged communities</b>	Create a sense of collective identity and mutual support. This includes building a sense of unified local identity, social relationships and networks through safeguarding spaces in which city residents are able to interact together to build and maintain relationships; promoting features of an inclusive local cultural heritage; and encouraging cultural diversity while promoting tolerance and a willingness to accept other cultures.
<b>Ensures social stability, security and justice</b>	Ensure a comprehensive approach to law enforcement and justice to ensure a stable, secure and just society. This includes fair and transparent policing and deterrents to crime – specifically in times of crisis, as well as enforcement of laws such as building codes and regulations.
<b>Fosters economic prosperity</b>	Ensures availability of funding and a vibrant economy as a result of diverse revenue streams, the ability to attract business investment, and contingency plans. This includes good governance, integration with the regional and global economy and measures to attract investment.
<b>Provides and enhances natural and man-made assets</b>	Maintain protective natural and man-made assets that reduce the physical vulnerability of city systems. Importantly, this includes natural systems like wetlands, mangroves and sand dunes or built infrastructure like sea walls or levees.
<b>Ensures continuity of critical services</b>	Actively manage and enhance natural and man-made resources. This includes designing physical infrastructure such as roads and bridges to withstand floods so that people can evacuate, as well as ecosystem management to for flood risk management. It also includes emergency response plans and contingency plans that may coordinate airports to function so that relief can be lifted in and out during a crisis.
<b>Provides reliable communication and mobility</b>	Provide a free flow of people, information, and goods. This includes information and communication networks as well as physical movement through a multi-modal transport system.
<b>Promotes leadership and effective management</b>	Encourage capable leadership and effective urban management within government and civil society, particularly during an emergency. This includes strong leadership, cross-sector communication and evidenced-based decision-making.
<b>Empowers a broad range of stakeholders</b>	Ensure everybody is well informed, capable and involved in their city. This includes access to information and education, communication between the government and public, knowledge transfer, and timely and appropriate monitoring.
<b>Fosters long-term and integrated planning</b>	Align sectoral plans and individual projects with the city's vision, to be coordinated and appropriate to address the city's needs. This includes city strategies and plans.



### 3. RESILIENCE PARADOXES

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**Our work has identified five key paradoxes that articulate Bristol's challenges at different city scales – from the individual to the community to the regional and global context.**

Bristol, as an economically developed city with limited exposure to natural shocks, is a city that, in many ways, is thriving. Our resilience challenge is largely felt in underlying stresses and growing global uncertainty, such as our changing climate or health inequalities in the city. Its successes lie in its pioneering and independent spirit and personality. It is a city with vibrant cultures and a high quality of life. We want to use the concept of resilience to help Bristol to flourish today as well as in the future.

Our work has identified five key paradoxes that articulate Bristol's challenges at different city scales – from the individual/community to the regional and global context. These five paradoxes are derived from our analysis of the shocks and stresses that threaten Bristol's resilience.

#### PEOPLE

##### **Communities are diverse, but inequality threatens cohesion**

Bristol's population is diverse, with 45 religions, 91 languages and 187 places of birth. This diversity, which is set to increase over the coming decades, is part of what makes the city a vibrant place to live. At present, we largely co-exist respectfully and peacefully but inequality between different communities and neighbourhoods compromises social cohesion. The root causes of inequality, coupled with the challenge of a rapidly ageing population (there will be 120% more people aged over 90 in Bristol by 2039), need to be tackled to ensure that in the future the city is made up of socially cohesive communities with all individuals having the assets and capacity to thrive.

#### PLACES

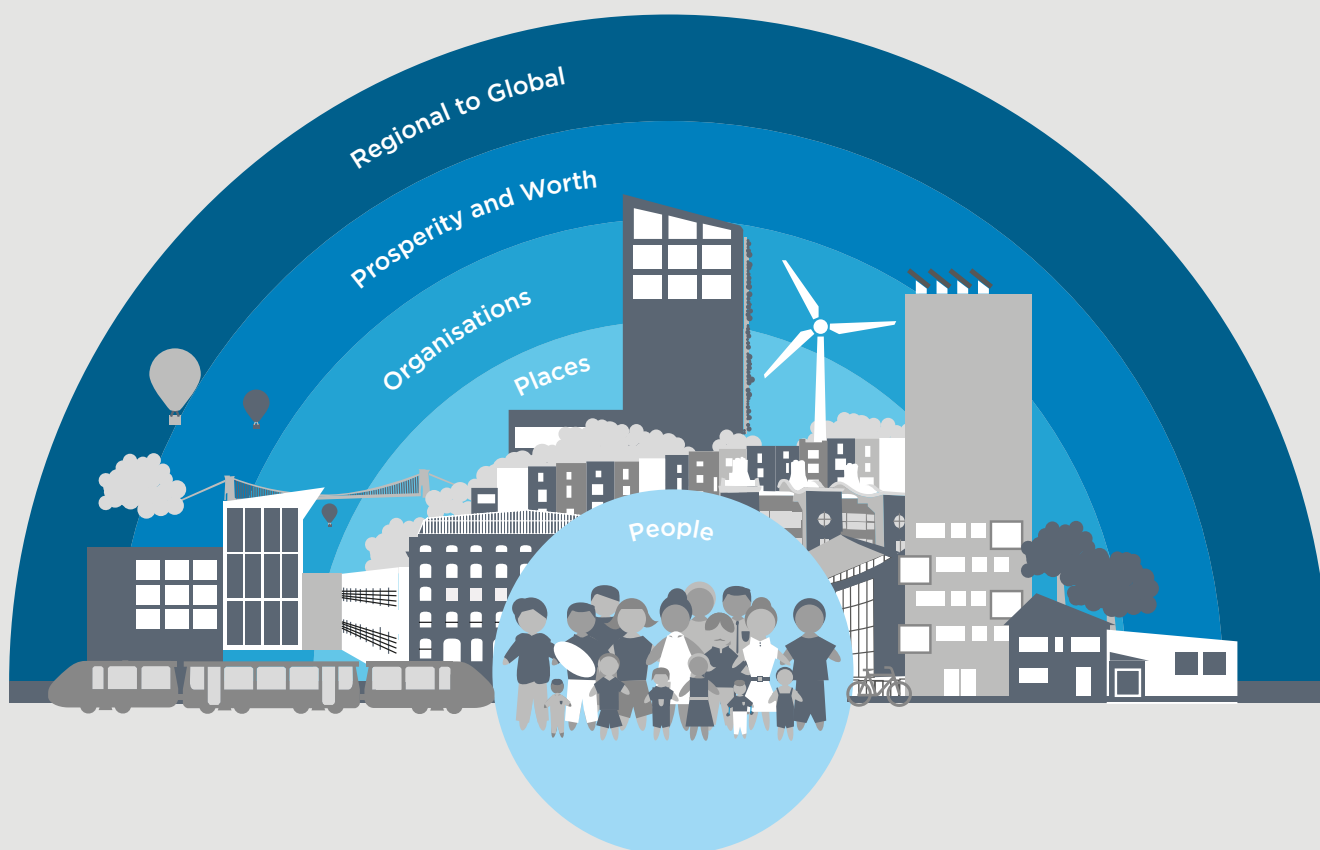
##### **Built environment is 'greened' but not yet transformed**

Bristol is seen as a 'green' city, having been the first UK city to hold the title of European Green Capital in 2015. Ambitious public commitments have been made to be zero carbon by 2050. However, we know that more audacious, bolder steps are needed to transform the built environment and people's behaviours. We also know that increasing uncertainty, particularly in relation to a changing climate, means that we need to adapt to future uncertainty and risk. Managing stresses such as transport congestion and ageing infrastructure is an important part of this challenge. Radical solutions, coupled with new forms of financing, must be secured to transform Bristol into an attractive and prosperous post-carbon city.

#### ORGANISATIONS

##### **Civil society is engaged, but not connected**

Many parts of the city are already highly engaged in working collaboratively to plan the future of the city, from grassroots activists to academia, from third sector bodies to City Council teams, from youth councils to partnership bodies, but this enthusiasm to cooperate is not always harnessed. Power is still perceived to lie, in top-down, siloed systems that operate in short-term political cycles. There are also many citizens who feel disconnected or unable to influence the future of the city or the wider city region. The interests, aspirations and actions of citizens and civic society must be better connected to the city's formal planning, decision-making processes and delivery mechanisms to create a truly participatory future city.



## PROSPERITY AND WORTH

### The city is economically successful, but not equally flourishing

Bristol's success is measured in economic terms by Gross Domestic Product (GDP)/Gross Value Added (GVA) and is regarded as a highly productive net contributor to the national economy. It is also home to a higher number of creative industry start-ups than any other UK core city, as well as having the highest number of patent registrations. This is despite significant differences in health, income and access to opportunities between different communities and neighbourhoods. The gap between communities needs must be closed so that decent opportunities are accessible to everyone. Housing affordability is an increasingly important issue for the city.

Bristol is also increasingly recognised as a leader in next economy 'pattern disruptions' such as the Bristol Pound and Happy City<sup>11</sup> and there is a strong movement to place more importance on the wider concept of flourishing but there are currently no city-scale metrics to truly value – and therefore aim towards – non-economic outcomes.

## REGIONAL TO GLOBAL

### The city is focused on strengthening local self-sufficiency but continues to be dependent on national and global systems

Many of Bristol's innovative projects and pattern disrupters are focused on promoting self-sufficiency and circularity of systems – for example encouraging local consumption and production with the Bristol Pound or reducing our carbon footprint and waste streams. However, this needs to be finely balanced with the need to continue to benefit from national and international systems and infrastructure that provide some of the basic services we need to function well in times of prosperity, as well as in times of stress. These range from our energy infrastructure, to the global food market and location of global corporations in Bristol. This national and global interdependency can also make us vulnerable to a range of external shocks that we have little control over locally.



## 4. FRAMING OUR FUTURE

### OUR VISION

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**By 2066 Bristol is a flourishing, welcoming city which inspires confidence in local and global investors, and our success is shared by all.**

This sets out our long-term direction of travel. It reflects the need for change at all scales: starting with individual citizens, through local communities and neighbourhoods, to the city as a whole and its place in the wider world.

*By 2066 Bristol is a flourishing, welcoming city which inspires confidence in local and global investors, and our success is shared by all. Our neighbourhoods are affordable, attractive, healthy and well-connected places where people of all ages and backgrounds trust and help each other. Our infrastructure and services are flexibly designed and managed to cope with uncertainty.*

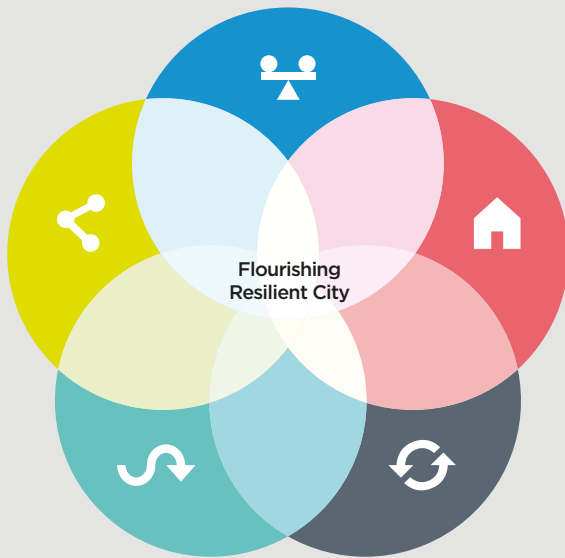
Five pillars have been developed to describe the outcomes that we can hope to achieve over the course of the coming decades, in support of this vision.

These five pillars are supported by goals over the next 50 years, demonstrating the direction of travel for the city.

Responding to each of the five paradoxes set out in section 3 will help us to move towards achieving these ambitious outcomes for Bristol.

A range of innovative and disruptive actions have been developed to support this vision, pillars and goals as detailed in the next section.





#### Fair

Every person living in Bristol has the assets and opportunities to enjoy a good quality of life.



#### Liveable

The city centre and neighbourhoods are great places for people of all ages to live, work, learn and play.



#### Sustainable

The city and region prosper within environmental limits through adopting new behaviours and technology.



#### Agile

Bristol citizens and leaders make effective decisions based on shared priorities and real-time information.



#### Connected

A strong network of local communities and organisations promotes trust, cooperation and shared action across the city.



## Fair

*Every person living in Bristol has the assets and opportunities to enjoy a good quality of life.*

**Goals**, by 2066 Bristolians will:

- Be free from discriminatory practices
- Be providing opportunities for all to close the education gap
- Provide affordable housing for all
- Be free from child poverty
- Be free from health inequality
- Deliver a fair income ratio in the city between highest and lowest incomes

**Addressing the resilience paradoxes:** Achieving greater equality and social cohesion are crucial to increasing Bristol's resilience: this means providing affordable energy, water, food, shelter and access to employment for all as well as ensuring everyone can take part in the life of the city.



## Liveable

*The city centre and neighbourhoods are great places for people of all ages to live, work, learn and play.*

**Goals**, by 2066 Bristolians will:

- Benefit, across the whole city, from the multi-functional value of green infrastructure and the natural environment
- Live in an all age-friendly city, with all ages able to access all necessary services within a 20 minute journey by active travel or a sustainable mode of transport
- Achieve clean air for Bristol

**Addressing the resilience paradoxes:** Green infrastructure and the natural environment can provide multiple benefits such as active travel, improved air quality, improved health and wellbeing, and reduced impacts of flooding, climate change, and environmental degradation, and reduced transport costs.



## Sustainable

*The city and region prosper within environmental limits through adopting new behaviours and technology.*

**Goals**, by 2066 Bristolians will:

- Develop a zero waste city
- Live in a carbon neutral city
- Operate environmentally responsible and fairtrade supply chains

**Addressing the resilience paradoxes:** To live within our environmental limits we will aim to use resources (products, components and materials) to their highest utility in the economy. This builds resilience by reducing the impact of resource scarcity (e.g. energy, food, water, materials), future-proofing our infrastructure and our economy, and protecting our natural environment.





## Agile

*Bristol citizens and leaders make effective decisions based on shared priorities and real time information.*

**Goals**, by 2066 Bristolians will:

- Be using city data to reduce inequality
- Develop new partnerships to co-create and scale up city solutions
- Deliver local bonds and place-based investment to transform the city

**Addressing the resilience paradoxes:** Being more agile will help to future-proof Bristol's infrastructure and wider assets, whilst also promoting long-term resilience planning rather than just short-term financial returns. It will also help to deliver jobs and skills for local people, whilst empowering citizens to support projects they are passionate about, and providing key infrastructure assets for Bristol.



## Connected

*A strong network of local communities promotes trust, co-operation and shared action across the city.*

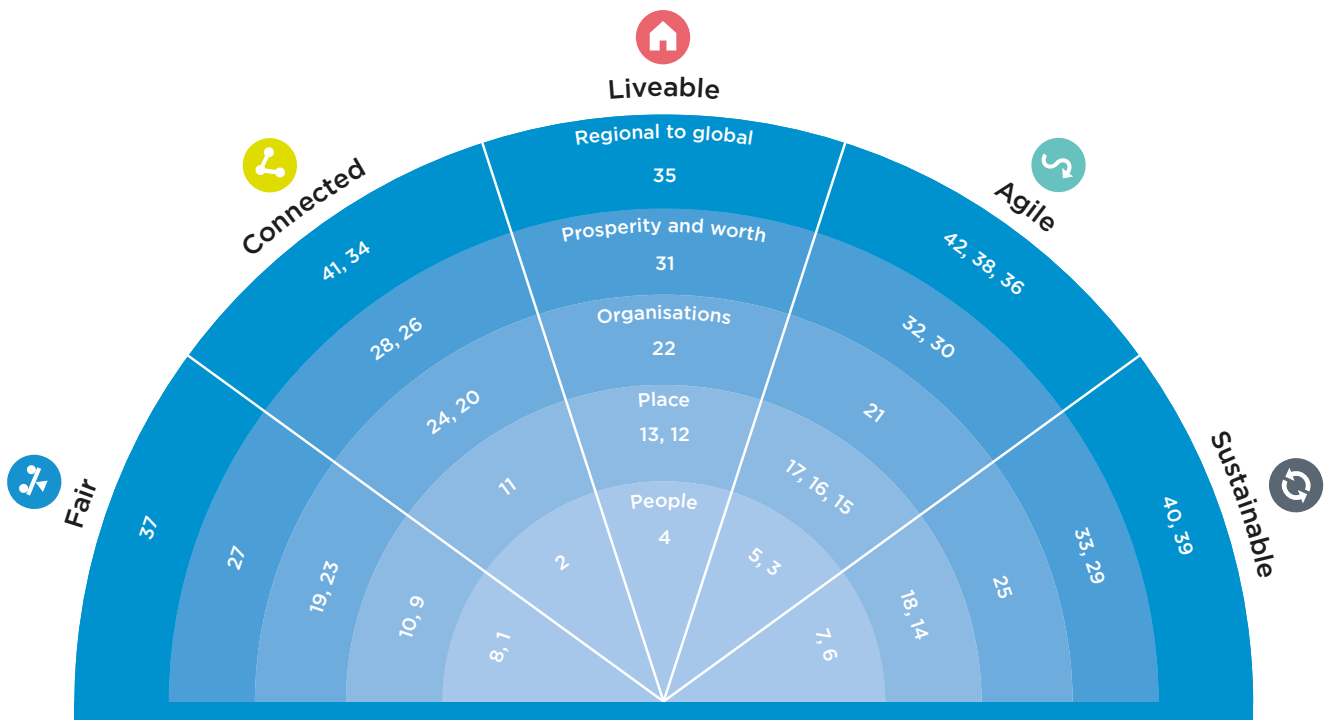
**Goals**, by 2066 Bristolians will:

- Be living by a city charter for shared values
- Benefit from city-wide community cohesion
- Design and deliver services by self-organised communities

**Addressing the resilience paradoxes:** By implementing actions related to this pillar, we aim to develop a participatory culture, by undertaking projects that appeal to those across a community with tangible outcomes, where participants contribute and benefit equally.



## 5. REIMAGINING THE CITY



We know that in order to be resilient over the next 50 years, we will need be reflective, and able to learn and adapt over time. We also know that Bristol is defined by its pioneering attitude, willingness to experiment and lead with engagement from a wide range of partners.

This section sets out a collection of some – but by no means all – of the pattern disrupters that will challenge business as usual in the city to put us on a more resilient trajectory for the future. We are committed to delivering, catalysing or scaling these in the short to medium term. The diagram above serves to signpost the actions contained within the remainder of the document.

**Short-term = 1-2 years**

**Medium-term = 2-5 years**

**Long-term = 5 years+**





PEOPLE



# PEOPLE

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## 1

### Tackling street homelessness



Bristol is experiencing a rise in homelessness with the city having a significant gap between demand and supply of suitable accommodation for homeless people and families. The aim is to eliminate or significantly reduce involuntary rough sleeping in Bristol within 12 months, whilst ensuring that the quality of accommodation provided. Bristol's new City Office will develop a strategic plan in the coming months, aimed at increasing the supply of accommodation at all levels, which is appropriate to immediate needs, and also considers longer term housing.

#### Delivery

- Potential partners: Bristol City Council, University of the West of England, University of Bristol, Registered Social Landlords, Developers, Bristol Housing Board, West of England authorities, Crisis Centre Ministries, Bristol & Bath Regional Capital CIC, Voluntary and Community Sector (VCS)
- Timescale: Short – medium-term
- Potential 100RC Platform Partners: IEG7

**Resilience value:** Providing shelter to meet people's basic needs is a fundamental building block of a resilient city.

## 2

### Cultural engagement to build social cohesion



Whilst Bristol is seen as a place where the arts are thriving the experience of arts and culture is not equitable or accessible for many of Bristol's citizens and often does not reflect the cultural ecology and diversity of the city. "Migrant Dialogues", created by Mescaldis, takes an art-led approach to build social cohesion, strengthen community networks, create space for dialogue about diversity and migration and promote intergenerational conversations. Bristol stakeholders will work with Mescaldis to identify an appropriate neighbourhood and local partners and funders to deliver an initiative in Bristol to build a dialogue about immigration, diversity and neighbourliness.

#### Delivery

- Potential partners: Mescaldis, Bristol City Council, Community Theatre Company, Watershed, Pervasive Media Studio, Playable city, Bristol Cultural Development Partnership, Ujima, Voluntary and Community Sector (VCS)
- Timescale: Short-term
- 100 RC Platform Partner: Citymart

**Resilience value:** Improved social cohesion and stability by engaging communities on diversity and immigration through art.

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**Through the 100RC network Bristol was selected to participate in the citymart social cohesion challenge, which source innovative ideas from around the world.**



### 3

#### Votes for 16 year olds



While Bristol has an active youth council and 16 and 17 year olds across the city hold many responsibilities in society, they do not have a chance to influence key decisions which will define their future. Extending votes for 16 year olds will provide 16 and 17 year olds with the chance to be involved in democracy, resulting in even younger engagement, and ensure youth issues are represented.

This will follow the precedent set by the Scottish Elections (Reduction of Voting Age) Act, May 2016, which allows 16 and 17 year olds to vote in Scottish Parliament elections and local government elections.

In Bristol, this would mean asking for the devolved responsibility to allow 16 and 17 year olds to vote in local elections.

#### Delivery

- Potential partners: Bristol City Council, Votes at 16 Coalition, Youth Council and Youth Mayors
- Timescales: Medium-term

**Resilience value:** Increased cohesion through empowering young people to be engaged and heard by policy makers.

### 4

#### Social action volunteering



Following an initial two-year set up period, funded by Cabinet Office and supported by Nesta and Bloomberg Philanthropies, Bristol and partner cities will develop the role of the active citizen in the 'life' of the city.

Over the next two years the team will aim to work with the private, voluntary and community sectors as well as other parts of the public sector to create a whole city approach to addressing key city challenges through social action. Some of the projects that will be scaled up include:

- Volunteer platform – Creates easy access to information from many sites of volunteering opportunities.
- Employer Supported Volunteering (ESV) – BCC is updating its staff volunteering policy and working with other employers to implement this.
- National Citizens Service (NCS) – Bristol to become a pilot for the new NCS scheme, with a focus on cultural and media sectors for young people.

#### Delivery

- Potential partners: Bristol City Council, NCS Trust, Office for Civil Society (OCS), Voluntary & Community Sector, Voscur
- Timescale: Short – medium-term

**Resilience value:** Promoting social action and volunteering across the city will aim to empower a broader range of stakeholders to become involved and active citizens.

## PEOPLE

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### 5 Citizen data engagement



We will leverage data to find solutions to city issues, using existing and near-term initiatives such as REPLICATE. We will build the capacity of organisations and citizens to use data to shape projects and achieve 'smart' city outcomes.

REPLICATE (REnaissance of Places with Innovative Citizenship And Technologies) is a €25 million Smart city 'Lighthouse' project. In Bristol, it is employing digital technology to explore the impact of integrating smart energy and smart transport interventions in the neighbourhood of Easton. Bristol is a city within the URBACT Resilient Europe network which aims to share experiences on resilience and sustainability across the network. Bringing these two projects together will enable Bristol to develop a real neighbourhood focus to data engagement.

#### Delivery

- Potential partners: University of Bristol, Bristol City Council, Knowle West Media Centre, Learning city, Easton Community Sector
- Timescale: Medium-term

**Resilience value:** We aim to use data to develop better decision-making, both in real-time and in terms of longer-term planning. The City has the potential to engage a wide range of stakeholders in new ways, from inspiring citizens to promoting more integrated management of assets.

### 6 Participatory City



Participatory City is a global initiative empowering local people to invent unique and innovative projects, which see them working together on ideas which make their neighbourhoods more exciting and enjoyable places to live.

A large demonstration neighbourhood in London is starting in early 2017. It is intended that this neighbourhood will become a model for wellbeing, sustainability and equality. Bristol will learn from this.

Key to the success of the project will be the ability of the neighbourhood to collaborate widely to bring many fresh ideas together in an open source environment.

#### Delivery

- Potential partners: Bristol City Council, Demonstration Neighbourhood
- Timescale: Medium-term

**Resilience value:** Through this action we aim to develop a participatory culture, though undertaking projects that appeal to those across a community with tangible outcomes, where participants contribute and benefit equally.

## 7 Green and Black



Inclusiveness and environmental awareness are key concerns for Bristol now and in the future. The Green and Black initiative aims to kickstart a long term series of activities and relationships with Black and Minority Ethnic (BAME) communities around the legacy of the European Green Capital year.

This action will focus on developing young BAME ambassadors to raise environmental awareness in their communities and more broadly around the city. It is intended that the programme will engage the 'future city' academics at the universities and act as a catalyst for one or more corollary projects in both the Impact and Research agendas. One larger scale project is hoped to emerge that the partners can take to an external funder (e.g. Esmée Fairbairn) for support.

### Delivery

- Potential partners: Bristol Green Capital Partnership, Ujima, University of Bristol, Bristol City Council, Social Intelligence Institute
- Timescale: Medium-term

**Resilience value:** The empowerment of young BAME citizens to share environmental awareness with communities and the city improves inclusiveness and understanding of environmental issues.

## 8 Community-based adaptation



Communities that are self-organised in day to day life are inherently better prepared to respond to, and recover from, unexpected events in their neighbourhoods. Community based adaptation (CBA) has been pioneered in developing countries to build capacity in vulnerable and marginalised communities to become more resilient to climate change impacts. An important lesson from CBA practices is that a multi-level, cross-sectoral approach involving a range of different stakeholders - including the residents themselves - is necessary to develop adaptive capacity and build long term resilience.

This action builds on the principles of CBA and experience from a number of existing projects and initiatives in Bristol, the south west and other cities around the world. It aims to develop a more integrated and inclusive approach to working with communities to empower them with the knowledge, confidence and resources to take action when affected by local shocks.

### Delivery

- Potential partners: Bristol City Council, Cities of Service team, Local Resilience Forum, Groundwork (funded by Big Lottery Fund), Bristol Resilience Network, Community Development teams, UL Cabinet Office, Voscur
- Timescale: Short-term

**Resilience value:** Providing communities with the resources and capacity take action to deal with shocks means neighbourhoods will be better able to respond and recover from events.





PLACE



## 9

## New models of housing delivery



Bristol is facing a housing crisis. Yet decent affordable homes are the foundation of a successful city. The Mayor has pledged to deliver 2,000 new homes (800 affordable) per year by 2020. This will be achieved by setting up a Local Housing Company. This Company will have a remit to promote use of brownfield sites across the city for housing, work with local communities and support the development of alternative housing initiatives such as co-housing and communal living that aim to tackle wider social challenges such as social isolation and community cohesion. Affordability will be addressed through reduced running costs of sustainable homes.

**Delivery**

- Potential partners: Bristol City Council, University of West of England, University of Bristol, Registered Social Landlords, Bristol Housing Board, West of England authorities, local builders, Community Land Trusts, Bristol and Bath Regional Capital CiC, developers and investors (e.g. Meridiam)
- Timescale: Short – medium-term

**Resilience value:** Helps to reduce inequality in the city, ensure housing provision for a growing population, future-proof our infrastructure and build social cohesion.

**Learning from elsewhere – Housing for a Resilient New Orleans**

To combat new city trends, such as a 50% increase in cost of rental since 2000, Housing for a Resilient New Orleans has created an integrated housing framework. This uses the strength of a growing local economy and creates a new approach to providing affordable housing choice for residents.

It creates new policies and tools to address new and long-standing challenges so everyone can participate in the city's growing prosperity. This guided by three core principles: equity, collaboration and openness.

This will support development of new affordable rental and homeownership opportunities, preserve affordability, expand access to opportunity using the fair housing principle, and increase accessibility for vulnerable populations.

(<http://www.nola.gov/home/buttons/resilient-housing/>)

## 10

## Free bus travel for under 16s



Currently there is free bus travel in Bristol only for children under 5, with half price tickets for those ages 5-15. Those aged 16 and under can receive a free bus pass, for free school travel from the Council if they go to their nearest school and meet certain distance or safety eligibility criteria. Extending this free service to all under 16s on all journeys within the city will promote lifelong bus use; reducing congestion and enabling children to independently access the facilities and resources of their city. Lessons can be learnt from Transport for London who provide this on all on their bus and tram services.

**Delivery**

- Potential partners: First Group, Bristol City Council
- Timescale: Short – medium-term

**Resilience value:** Providing under 16s with free bus travel encourages public transport use and eases congestion allowing better city connectivity.

## 11

### Repurpose Neighbourhood Partnerships

Fair Liveable Sustainable Agile Connected



Local scale funding can help local communities to increase social cohesion and build local capacity. Through the Avonmouth Community Resilience Fund, Bristol is trialling a new approach, with a focus on local priorities of jobs and employment, a flourishing high street and social impact.

Bristol is also involved in an EU project, URBACT, which will inform new possible models for improving neighbourhood-level resilience.

Neighbourhood Partnerships are designed to allow decision-making to have an impact at a local level. Through a new approach, they can become truly representative and help to channel funding to new local research-backed initiatives, systems, and policy changes that help provide an inclusive approach to improving resilience.

#### Delivery

- Potential partners: Bristol City Council, Neighbourhood Partnerships, Voluntary and Community Sector (VCS)
- Timescale: Medium-term

**Resilience value:** Local scale funding to local groups promotes inclusive and cohesive communities improving resilience.

#### Learning from elsewhere – Portland, Oregon

In 2005, the City of Portland engaged community members in a comprehensive review and assessment of Portland's 35-year-old neighbourhood and community involvement system. The result was a unique, comprehensive and strategic "Five-year Plan to Increase Community Involvement in Portland." The ongoing implementation of this plan by the City of Portland and its community partners is dramatically increasing the scope and quality of public involvement and participatory democracy in Portland.

As part of this, a new Neighbourhood Small Grants program was created. Additional community organizing and technical assistance staff were added to the Office of Neighbourhood Involvement to work with community groups and city agencies.

[source: <http://participedia.net/en/cases/five-year-plan-increase-community-involvement-portland-oregon>]



**Bristol's CRO is working with CROs from Vejle, Rotterdam and Glasgow, as well as other European cities to share learning on participatory processes.**



## 12 Legible City



Bristol Legible City (BLC) is an innovative project started 20 years ago as a unique concept to improve people's understanding and experience of the city through the use of identity, information and transportation projects.

The project has recently agreed funding for the next initiative which is to develop innovative city mapping and information resources to support change to more sustainable forms of transport and encourage active travel choices. The initiative will deliver a suite of digital, printed and street-based information products to encourage residents and visitors to explore the city on foot, bike and using the public transport system. BLC's user-centred approach to wayfinding and transport information has been developed to support better public health and reduce greenhouse gas production.

The initiative will deliver an enhanced pedestrian wayfinding system across the city and develop new user-friendly information for the cycle network, the MetroBus project and the wider public transport system.

### Delivery

- Potential partners: BCC, Legible City, MetroBus
- Timescale: Short – medium-term

**Resilience value:** Improving communication of sustainable and active travel options will increase citizen take up and help improve wellbeing and reduce congestion.

## 13 Bristol Transport Plan



This action will promote the development of a 20 year plan to create better places and help people move around by enabling a large scale shift to sustainable transport in Bristol. We currently have plans to deliver new transport infrastructure within the current funding and planning cycles, this strategy will enable us to look further ahead and to test more radical interventions to reduce congestion, carbon emissions and ensure infrastructure is resilient to climate change.

To support the development of this strategy, we will explore working with MIT (Massachusetts Institute of Technology) Smart to quantify the impact of different transport options. We will use 50 year scenarios to support strategy development, and will ensure other transport strategy refresh projects are integrated with this longer-term view.

### Delivery

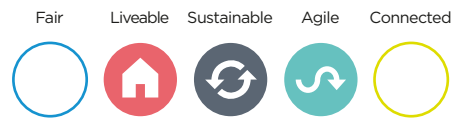
- Potential city partners: Bristol City Council (Transport); Network Rail, West of England Authorities, Sustrans; First Group; Bristol Ageing Better; Child Friendly City; University of the West of England
- Potential 100RC platform partners: MIT Smart
- Timescale: Medium-term

**Resilience value:** Lowering the number of car journeys and increasing active travel will help to protect the natural environment, through improved air quality and reduced carbon emissions, improve health and wellbeing, and reduce transport congestion costs.

## PLACE

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### 14 Clean air city



Bristol is part of an EU funded consortium of universities and research institutions to actively engage European citizens in measuring their personal impact on air quality and CO<sub>2</sub> emissions in their cities. The project will use innovative tools like specially made apps and games for smart phones to generate citizen-led policies to improve air-related health in our cities.

Thousands of people across Europe will be invited to share their views on how to reduce air pollution and improve related public health in six pilot cities. Residents will use a game on their smartphones, tablets and laptops to suggest how their home cities should develop in the future. The result will be directly translated in improved city policies.

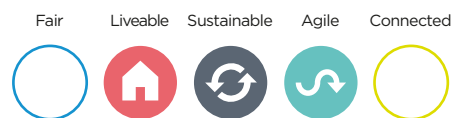
In Bristol we will focus on raising awareness about poor air quality and work with citizens to identify simple actions that can improve air quality in their local streets.

#### Delivery

- Potential partners: University of West of England, Bristol City Council
- Timescale: Medium-term

**Resilience value:** Engagement with citizens over air quality issues and actions that can improve their city increases both social connectivity and air quality benefits.

### 15 Climate change adaptation plan



As a signatory of the Compact of Mayors, Bristol has a long-established approach to climate change mitigation. This action will build on this success and develop an approach to adaptation to climate change.

A plan will be developed to future-proof the city by identifying the major climate hazards and their potential impact, a framework for adaptation, and identification of strategies to build climate resilience. Consideration of the issues will be required at a city scale with actions targeted at a local scale with their benefits well communicated.

#### Delivery

- Potential partners: Bristol City Council
- Timescales: Short-term

**Resilience value:** A climate change adaptation plan will identify risks and strategies to mitigate these challenges, building resilience across the city.

## 16

**Establishing a resilient city financing structure**

Fair

Liveable

Sustainable

Agile

Connected



Bristol will explore options for establishing a Resilient city financing structure by aggregating a suite of small and large scale place-based projects focusing on improving local resilience (e.g. flood defences, green infrastructure, community facilities and new housing). The structure would seek to blend public and private money and take a long term view (at least 25 years) to achieve a social as well as a financial return on investment.

**Delivery**

- Potential partners: Bristol City Council, Bristol Energy and Waste Companies, Bristol & Bath Regional Capital Community interest Company, University of Bristol, University of West of England
- Timescale: Medium-term

**Resilience value:** We know that we need investment that is able to recognise long-term resilience value, rather than just short-term financial returns. We aim to deliver jobs and skills for local people, whilst empowering citizens to support projects they are passionate about, and providing key infrastructure assets for Bristol.





## PLACE

### 17

#### Manage our future flood risk



Tidal flooding from the River Avon has the potential to cause severe damage to the city centre. Bristol's Central Area Flood Risk Assessment (CAFRA) predicts that the current trend of rising sea levels will accelerate due to the impact of climate change, causing the likelihood of tidal flooding in central Bristol.

A strategy is being developed to recommend an adaptive programme, identify when flood risk management interventions are needed and examine how they will be funded.

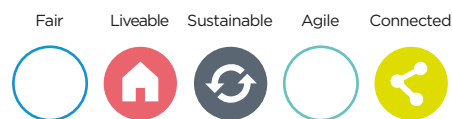
##### Delivery

- Potential partners: Bristol City Council, Environment Agency, Local Enterprise Partnership
- Timescale: Medium-term

**Resilience value:** Bristol needs to be bolder in how it responds to the changing climate. This action aims to future-proof Bristol's infrastructure and wider assets, whilst also promoting long-term planning.

### 18

#### Wild rainwater streets



Greening local neighbourhoods helps to make our city more liveable, whilst also improving local biodiversity, enhancing sustainable drainage, and reducing the urban heat island effect and improve the city's resilience to climate change. Bristol will build on existing initiatives, including Avon Wildlife's Trust's My Wild Street, Wessex Water's Rainwater City, and Embleton Road SuDs, to develop an approach that communities across the city can engage in.

##### Delivery

- Potential partners: Bristol Green Capital Partnership, Bristol City Council, Avon Wildlife Trust, Wessex Water, Sustrans
- Timescale: Medium-term

**Resilience value:** Greening neighbourhoods improves citizen wellbeing while improving the city's resilience to climatic change.

##### Learning from elsewhere – Metropolitan Urban Forest Strategy, Melbourne

During the Millennium Drought (1998-2007) many of Melbourne's trees were in a critical state, so work had to be undertaken to replant and protect them. Since 2012, 12,000 new trees have been planted. The Urban Forest Visual project developed a map of 70,000 of the city's trees. It provides data on the life expectancy, species of tree and the option to 'email the tree'.

The aim was that residents could know more about the city's trees, their importance and email reports to the Council on the state of the trees. Instead, people used this as a chance to write love letters to trees. To date, 3000 emails to trees have been received from all over the world.

[<http://melbourneurbanforestvisual.com.au/#abo>]



# ORGANISATIONS

## ORGANISATIONS

### 19 Equality charter



Inequality, lack of social mobility and exclusion from the economic, social, cultural and political spheres are among the key challenges facing Bristol's communities. A range of people and representatives from Black and Minority Ethnic communities and groups came together to develop a Bristol Manifesto to Race equality that was launched in 2015<sup>12</sup>. This manifesto sets out a clear declaration of values, vision, and intentions for the city's communities, a call for action, and a timeline. The Manifesto highlights key areas where racial inequalities persist and where the gaps are widening.

The City Council now plans to build on this work by developing an Equality Charter which will apply to the Council and any organisation that the council commissions, grants aid to or procures services from, to include governance, administration and delivery. The council is also committed to addressing the underlying issues facing Bristol in attracting BME candidates for senior positions within the Council.

#### Delivery

- Potential partners: Bristol City Council, Voscur, Avon and Somerset Black Police Association, SARI, Black South West Network, Building the Bridge, Nilaari, Ujima Radio and Somali Media Group
- Timescale: Short-term

**Resilience Value:** The persistent inequalities in the city, particularly associated with race, are a negative force in our social connectivity and our economy which threaten our long term resilience. By addressing these issues with focused action we can build a fairer, more cohesive, and therefore resilient future for all Bristol's residents.





### 20 City knowledge exchange platform



We will explore a range of options for developing an open knowledge platform for connecting people, organisations, ideas and knowledge across the city. It would enable ideas to be connected across themes such as climate preparedness and could connect project ideas with possible funders.

#### Delivery

- Potential partners: 2Degrees, Bristol City Council, Bristol Green Capital Partnership, private sector sponsors
- Timescale: Long-term

**Resilience value:** An open knowledge platform will enable collaboration and the sharing ideas across the city enabling connectivity.

### 21 City Office partnership working



The Mayor is committed to setting up a new City Office to tackle cross-cutting, complex issues through a shared approach to strategic leadership with the ability to deliver tangible outcomes through targeted projects. It will aim to help collective actions, help to remove barriers to change and connect with new people in new ways.

The City Office will provide a strong focus and coordination role for the excellent partnership working that is already well-developed in the city. For example, it will work closely with existing groups such as the Bristol Green Capital Partnership (BGCP) which is an independent leadership organisation founded in 2007. It has more than 850 member organisations, ranging from businesses and the public sector to charities & community organisations. It is currently working on a range of projects towards its vision of 'a sustainable city with a high quality of life for all'.

#### Delivery

- Potential partners: city leaders (from politics, business, community and voluntary sector, public/managerial professional, unions), existing city partnerships
- Timescale: Short to long term

**Resilience Value:** In order to address the complex challenges of building long term resilience and to make sure we leverage the social and environmental as well as the economic benefits of focusing on resilience we need to connect across city organisations and sectors. We also need to reach out and connect to the city's diverse communities. The City Office will provide leadership, direction and coordination at a city-scale to harness the potential and deliver on the right priorities to ensure the city is resilient and can prosper in the face of change.

## ORGANISATIONS

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### 22 Child Friendly City



Despite 25% of the city being made up of those aged 18 or under their views are often neglected. A Family Friendly City conference will investigate what constitutes a family friendly city and will highlight the rights and needs of children and young people as active Bristol citizens and vital city assets. This will include people from a wide range of backgrounds, including international networks, small local organisations, as well as the opinions of the youth council and younger children.

#### Delivery

- Potential partners: Room 13, Architecture Centre, Playing Out, University of Bristol, European Child-Friendly Cities Network, Youth Council and Youth Mayors and Voluntary and Community Sector (VCS)
- Timescale: Short-term

**Resilience value:** A better understanding of needs of young people in the city will improve long term planning and engagement with these citizens.

### 23 Voluntary Sector Strategy



It is vital that the city retains an independent voluntary sector that campaigns for social justice and challenges inequalities, whilst at the same time harnessing social action and providing services to the city's most vulnerable people. We recognise the value that Bristol's not for profit sector brings to the city through its capacity for innovation and its ability to bring additional resources into the city through charitable giving, fundraising, and social enterprise. We will produce a Voluntary Sector Strategy to set out how the sector will work with the city to provide services and support focused on reducing inequality.

#### Delivery

- Potential partners: Voscur, City Office, University of Bristol, University of the West of England, Voluntary, Community and Social Enterprise Sector
- Timescale: Short-term

**Resilience value:** Strong partnerships contribute to Bristol resilience, and a focus on inequality will help to address this chronic stress.

## 24

### Transformative Leadership



Transformative Leadership is a practical leadership framework that helps individuals and organisations adapt and thrive in challenging environments. It describes the ability to take on the gradual but meaningful process of change, both individually and collectively. The food system, with elements including growing, processing, logistics, distribution, selling, buying, cooking and eating, is complex. In order to drive change to address the long-term stress of food security and develop more resilient approaches, new leadership and skills will be required. The food sector therefore provides an excellent sector in which to pilot this approach. This project will develop and test approaches to delivering this including U-Theory which has already attracted much attention and hundreds of participants in Bristol.

#### Delivery

- Potential partners: Bristol City Council, Food Policy Council, Bristol Green Capital Partnership, MIT U-Theory (Massive Open On-line Course), Transition Bristol
- Timescale: Short-term

**Resilience value:** This aims to train and build skills in adaptive leadership to drive collaboration and co-creation. This action will empower citizens, and promote long-termism, as well as protecting the natural environment and promoting health and wellbeing through a transformed food system.

## 25

### SevernNet circular economy plan



SevernNet is a not-for-profit enterprise bringing together businesses and community enterprises in the industrial areas of Portbury, Avonmouth and Severnside to the north-west of Bristol city centre. SevernNet has developed, with bottom up and top down input from stakeholders across the area, an Economic Plan for the area with five key themes. These are Place and Connection, Transport, Skills, Enterprise and Circular Economy.

SevernNet already has the cooperation of 10 key businesses in the areas to start developing initiatives to:

- Identify and support opportunities for linkages (e.g. into existing or new businesses and enterprises) and minimising / eliminating waste (complementary to supply chain enterprise initiatives), new models of enterprise; business redesign and renewable energy sources; and
- Promoting and supporting opportunities to develop the local sharing economy e.g. tool shares, repair clubs, clothes swaps.

#### Delivery

- Potential Partners: SevernNet
- Timescale: Medium – long-term

**Resilience value:** This pilot will help to move Bristol closer to understanding the dependencies of a high consumption economy and exploring actions to move towards a circular economy.



A young boy with short dark hair, wearing a blue school uniform, is sitting at a wooden desk. He is leaning forward, focused on writing in a white notebook with a yellow pencil. His hands are visible, holding the pencil and the notebook. The background is blurred, showing other students in a classroom setting. Overlaid on the image in large, white, bold, sans-serif capital letters is the text "PROSPERITY AND WORTH".

# PROSPERITY AND WORTH

### 26

#### Varied and frequent experience of work



The Learning City Partnership Board, supported by the Mayor's City Office, is leading the delivery of more varied and frequent experience of work for all young people in the city. The newly created WORKS is the development of a physical and virtual 'Engagement Hub' to bring businesses, education providers and young people together. The aim is to provide career related activities and work placements that will raise aspirations and secure successful career pathways for all, with an accompanying e-portfolio to record young peoples' experience.

Many young people do not have the personal networks to gain varied and regular experience of the world of work, particularly those who are more vulnerable, such as in the care system, and those living in more deprived parts of the city. This lack of experience has a direct impact on young peoples' employability and in turn the development of the local workforce.

A focus on experience of work will galvanize the collective endeavour, building on best practice, of the city's education providers and local employers. Successful local programmes, such as HYPE West, will help to ensure those young people furthest from the labour market are supported into employment. Digital technology solutions to communicate with and engage young people, like Skills Bridge which connects university students with the community projects, will be developed in partnership with the sector.

#### Delivery

- Potential partners: Learning City Partnership, City Office, city employers and education providers, Bristol City Youth Council
- Timescale: Short to medium term

**Resilience Value:** By improving employability prospects for young people in Bristol we are building the workforce of the future to ensure that the city can respond agilely to the changing job market. The focus on increasing access for poorer or vulnerable young people will build resilience into our social system and ensure the city becomes a fairer and more prosperous place for everyone.

## PROSPERITY AND WORTH

### 27

#### City metrics and Sustainable Development Goals



We will develop a new set of high level city metrics for all stakeholders to aim towards a fairer, happier and more sustainable city. This will help us move away from relying solely on Gross Domestic Product (GDP) - a high level economic growth indicator - as the headline measure of our success.

The work already done by Bristol-based Happy City Initiative, along with the Sustainable Development Goals (SDGs), provide useful frameworks and tools for developing a new, inclusive set of Bristol metrics. These need to be developed and agreed with a wide range of city partners so that they can then be used as the basis for designing and evaluating future city policies and programmes across different organisations and policy areas. They can also be used to raise public awareness and as a mechanism to anchor the city's international engagement.

#### Delivery

- Potential partners: Happy City, Bristol SDG Alliance, Bristol City Council, Bristol Green Capital Partnership; Common Good; Health and Wellbeing Board; Local Enterprise Partnership; Local Nature Partnership, Black Network South West
- Timescale: short term (awareness- raising) and medium term (implementation)

**Resilience Value:** A set of metrics that measures city progress against parameters such as wellbeing, and inclusion alongside traditional economic indicators will help us move towards fairer and more sustainable future growth across the city and region.



## PROSPERITY AND WORTH

28

### Engine Shed 2



The Engine Shed is a venue designed to host a hub of activity where entrepreneurs, business leaders, academics, students and corporates can collaborate. It is recognised as a prominent, active, innovative and provocative environment dedicated to promoting sustainable economic growth in collaboration with a number of significant partners.

The intention is to build upon the success of the first phase of the Engine Shed to implement the Engine Shed Phase 2 (ES2). This will be embedded in the existing facility and aims to build something more powerful and sustainable. It will provide more floor space for business incubation, business growth and space for meetings, collaboration, teaching, exhibition, display and discussion<sup>13</sup>.

#### Delivery

- Potential partners: University of Bristol, Bristol City Council
- Timescale: Short-term

**Resilience value:** Providing space and support for collaboration and sustainable business growth will encourage resilient economic growth.

29

### Protecting and valuing green space



We will develop a high level assessment of the financial value of green spaces across the city to assist with future investment decisions. A valuation analysis of the natural capital in Bristol's parks will be conducted, which includes certified values of each ecosystem service. There is a lack of sustainable funding for green infrastructure. This assessment will provide an evidence base to support increased uptake and delivery of green infrastructure projects, both improvements to existing green space and delivery of new projects.

#### Delivery

- Potential partners: Bristol City Council, Avon Wildlife Trust, Local Nature Partnership, Natural Capital Trust, Bristol & Bath Regional Capital CiC, Arcadis
- Timescale: Medium-term

**Resilience value:** Multiple benefits of green infrastructure uptake may be experienced including improved air quality, improved human wellbeing, and reduced impacts of flooding, climate change, and environmental degradation.



## PROSPERITY AND WORTH

### 30 Young Future Bristol



The young people of Bristol need to be equipped with digital skills today to make sure they are not excluded from accessing the growing future jobs market in the region's digital and high tech sector. The school curriculum is not equipping pupils with these skills and most children from less privileged families do not have opportunities to gain these skills outside of the school setting. Young Future Bristol has been set up to target this future skills gap and build a new generation of coders and technologists and internationally to support the delivery of a technology engagement programme for young people. They provide the "kit" (laptops and Raspberry Pis) and technical expertise and guidance to help young people develop digital skills for the future workplace.

#### Delivery

- Potential partners: Digilocal - led by High Tech Bristol and Bath with sponsorship from local businesses, CodeClub and DigiLocal clubs, Knowle West Media Centre, Bristol City Council, Youth Council
- Timescale: Short – medium-term

**Resilience Value:** The aim of this action is to enhance educational outcomes and reduce inequality by empowering students to realise their full potential. This will help improve access to jobs and skills and enhance social cohesion at a neighbourhood level.

### 31 Active and healthy ageing



The ageing population is a challenge for the future of the city. We need to support older people to remain independent and active as citizens and within the economy as long as possible so allowing them to live more fulfilling lives as well as reducing the impact on public spending and public services. We make sure Bristol is a good place for people to grow old. We also need to explore and develop new ways of providing the support that older people will need.

One such innovation in development is the plan to create a supportive mechanism for older people (over 55) to continue in, or re-enter, the job market. This may take the form of a bespoke older people's employment agency offering opportunities to have internships working with partner organisations and companies.

#### Delivery

- Anchor Society, Business in the Community, University of West of England, Bristol City Council, Bristol Ageing Better, Age UK, Older People's Forum, Business West, West of England Local Enterprise Partnership
- Timescale: Short to long term.

**Resilience Value:** Supporting older people to remain working and active citizens improves wellbeing and fulfilment while reducing the impact of an ageing population on public services.

## PROSPERITY AND WORTH

### 32

#### Open data platform



Bristol City Council's open data goal is to unlock value for the Council, citizens and businesses by sharing Bristol's data to address city challenges, promote innovation and make the city more open and accountable. The council already shared over 130 data sets on its open data platform but in order to extend reach and impact the council is currently developing its open data ecosystem to make it easy a possible for employees, external organisations and citizens to interact with data.

The Council also understands that publishing and encouraging access, use and re-use of data is only a part of the process, and is therefore committed to an ongoing community engagement programme. Current engagement activity includes, but is not limited to, an open data challenge series and support in the delivery of 'The Bristol Approach to Citizen Sensing' with Knowle West Media Centre.

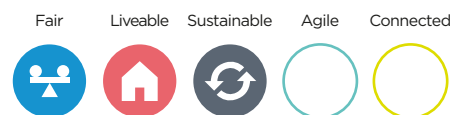
##### Delivery

- Potential partners: Knowle West Media Centre, Bristol City Council
- Timescales: Short-term

**Resilience Value:** Improving accessibility and citizen engagement with city open data platform provides citizens with the capability to create innovative and resilient solutions to city challenges.

### 33

#### Natural Capital Trust



We will support the development of the Natural Capital Trust (NCT) as an innovative mechanism to deliver enhancement in the quality of the natural environment across the West of England region. The NCT will act as a conduit of funds from developers, and from potential beneficiaries of Payments for Ecosystem Services schemes, to support a range of projects which ensure provision of services by ecosystems, enhancing (amongst other things) resilience to the effects of climate change and of the region's infrastructure.

##### Delivery

- Potential partners: Bristol City Council (and other local authorities in the region); West of England Nature Partnership; Health and Wellbeing Board; Local Enterprise Partnership; utility providers; developers; English Nature; Environment Agency; Highways Agency
- Timescale: Medium-term

**Resilience Value:** Supporting and funding projects which enhance ecosystem services can provide a range of resilience benefits from improved well-being to reduced impact from extreme climate events.



An aerial photograph of Glasgow, Scotland, showing the River Clyde winding through the city. The Clifton Suspension Bridge is visible in the foreground, spanning the river. The city is densely packed with buildings, and the surrounding landscape is green and hilly. The sky is blue with some clouds.

# REGIONAL TO GLOBAL



## REGIONAL TO GLOBAL

### 34

#### 100RC Post Industrial Group – Next Economy



Whilst Bristol has a great story to share, we have a lot to learn from other cities. We want to explore how other cities are addressing the legacy of post-industrialisation to transform into thriving and vibrant places

We will work with the post-industrial cities of Glasgow, Boulder, Durban, Huangshi, Melbourne, Pittsburgh, Rotterdam and Vejle to share best practice and develop new innovative approaches to local challenges.

##### Delivery

- Potential partners: Glasgow, Boulder, Durban, Huangshi, Melbourne, Pittsburgh, Rotterdam and Vejle
- Timescale: Medium-term

**Resilience Value:** Knowledge sharing with other cities with similar challenges provides the opportunity to share lessons from successful projects and develop new approaches to address city issues.

### 35

#### Urban Integrated Diagnostics



The Urban Integrated Diagnostics project promotes research and innovation initiatives that help to improve the city's health, well-being and prosperity as they face up to challenges of modern urban living.

The Bristol 'pilot' project will bring citizens together with researchers, local authorities and partners from business and the voluntary and community sector aimed at investigating the very real challenges facing the city across four areas: mobility and accessibility, health and happiness, equality and inclusion, and tackling dependency on fossil fuels. Bristol will learn from other pilot cities of York, Leeds, Newcastle & Gateshead, and Birmingham.

##### Delivery

- Potential partners: Bristol City Council, South Gloucestershire Council, University of Bristol, University of the West of England
- Timescale: Short-term

**Resilience Value:** This project will help Bristol to learn and adapt, improving our knowledge, helping to tackle stresses such as inequality and transport congestion.



## REGIONAL TO GLOBAL

36

### Resilience Impact Assessment



Bristol City Council currently requires major initiatives and investments to be subject to an Environmental Impact Assessment (EIA) and an Equalities Impact Assessment (EQIA). The use of a resilience lens to assess the impact of initiatives and projects would provide an integrated and systemic view of risks and impacts associated with city interventions. Some 100RC cities such as have introduced the use of the resilience lens to assess projects. New Orleans, for example, has established a Resilience Design Review Committee for regular project review.

The release of this strategy provides a timely opportunity to consider how resilience is embedded into design and implementation of city and regional projects. A group of officers will be convened in the City Council to develop proposals for integrating resilience thinking into internal assessment processes.

#### Delivery

- Potential partners: Bristol City Council, 100RC Cities
- Timeline: Short-term

**Resilience Value:** Providing a means of assessing project resilience will enable that resilience to be a key consideration which influences design for projects.

#### Learning from elsewhere: Resilience Design Review Committee, New Orleans

The City of New Orleans has established a Resilience Design Review Committee to undertake regular project reviews. This meets monthly to review and advise the CRO on all construction projects either funded as a resilience programme or that have storm water and green infrastructure components.

<http://nola.gov/resilience/designreview/>

37

### Resilience and West of England devolution deal



Bath, Bristol and South Gloucestershire councils have proposed £1bn West of England devolution deal which is now up for public consultation. The deal would devolve, from the government, agreed funding and powers to the region, including decisions regarding transport, investment, funding, skills training, business support, housing and strategic planning.

A workshop will be held to explore how devolution of funding and powers could improve city resilience through integrated into the new governance structures.

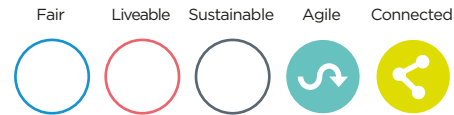
#### Delivery

- Potential city partners: Bristol City Council, Bath and North East Somerset Council, South Gloucestershire Council, West of England Civil Society Partnership
- Timescale: Medium-term

**Resilience Value:** Devolution will provide city regions in the UK with funding and powers across skills, infrastructure, and strategic planning. This action will help to embed resilience into those areas.

### 38

#### British Standard on city resilience



The British Standards Institute is working to develop a good practice guidance standard in relation to city resilience.

Bristol, amongst other 100RC cities, will host a workshop to inform the development of the standard, peer reviewing the intended approach. This is to reflect the status and work that is continuing in Bristol to make it more resilient.

The standard will act as guidance for the city leaders and as a management framework for executives with responsibility for different resilience themes within cities.

##### Delivery

- Potential partners: Cabinet Office, Glasgow, Manchester, London, 100RC
- Timescale: Short-term

**Resilience Value:** Supporting the development of a city resilience standard will promote the concept of resilience to city leaders and organisations and provide guidance to others, as well as assisting Bristol with its process of continual learning.

### 39

#### Climate Strategy and Energy Framework



Bristol City Council has created the 'Framework for Climate and Energy Security' as part of being European Green Capital in 2015. This is the start of an ambitious process which seeks to create an integrated, adaptable and inclusive, sustainable city. This low carbon plan will be vital to reach the new target for Bristol to be Carbon Neutral by 2050. This is to be reviewed and refreshed every three years to provide a continuous process of improvement.

##### Delivery

- Potential partners: Bristol City Council
- Timescale: Medium-long term

**Resilience Value:** Providing continuity of energy supply in an uncertain future is an important part of a resilient Bristol.

## REGIONAL TO GLOBAL

### Building on Success: Bristol Energy Company and Bristol Waste Company

In 2015, Bristol launched the third municipal energy company in the UK. Bristol Energy is a fully licensed energy supply company, wholly owned by Bristol City Council.

The Energy Company aims to offer competitive, fair and simple energy tariffs with any profits reinvested back into local communities. Over time it will become the delivery vehicle for major energy efficiency and low carbon energy projects. Its initiatives focus on supporting customers to use less energy, make homes cheaper to heat and helping communities become more self-sufficient.

This provides a new model of ownership, allowing a focus on the delivery of public good. It is an approach that has been replicated with Bristol Waste Company. Bristol will learn from this way of working, which may be replicable in other areas.

## 40

### Adaptation & resilience framework for the Bristol Avon catchment



This is a multi-agency collaborative initiative to identify opportunities and risks for organisations by climate change disruption and economic austerity through greater integration of actions across sectors and political boundaries working at a catchment scale. This innovative initiative is in the process of engaging with other key strategic planning organisations and infrastructure providers to understand the interdependent risks and opportunities and deliver cross-sectoral adaptation actions in spatial planning at a catchment scale. It will address relevant Global Sustainable Development Goals at a local scale and highlight where the enhancement of our regional natural capital could be made in multiple distributed locations, to deliver multi-beneficial outcomes from collaborative investments.

By integrating the framework into existing work streams, operational and investment plans, development decisions can be made based on wider identified risks, with wider costed solutions and routes to delivery that enhance the value of existing and future investments in the region.

The ultimate aim is to create an attractive sustainable place for future generations, with a strong regional economy and enduring infrastructure supported by sustainable agriculture and resilient natural capital.

#### Delivery

- Potential partners: Wessex Water, Environment Agency, Natural England, Highways England, Bristol City Council, South Gloucestershire Council, Bath and North East Somerset Council, Wiltshire County Council, West of England Nature Partnership, Wiltshire Wildlife Trust, West of England Local Enterprise Partnership, Wiltshire and Swindon Local Enterprise Partnership, Bristol Water, Bristol Avon Catchment Partnership.
- Timescales: Medium-term to Long term

**Resilience Value:** This approach is bringing together a wide range of stakeholders with diverse interests to plan in an integrated way for the long-term resilience of our region's natural resources. This offers a resilience dividend in terms of increasing resilience to climate change risks as well as improving biodiversity, recreation, food production and reducing costs associated with treating polluted water course.



### 41 Horizon scanning



In order to keep preparing for change we will need to carry on anticipating future trends and risks. Whilst the Civil Contingencies Act currently limits forward planning to 5 year time horizon the government recognises the merits of longer-term planning and the Ministry of Defence's (MoD) Development, Concepts and Doctrine Centre is constantly engaged in anticipating future global trends with a 30 year out time horizon. In Bristol we would like to use and build on this work as well as the future scenarios developed by Arup for this strategy (see Appendix) to evolve our planning for emerging challenges such as security of infrastructure and other city services to cyber threats.

#### Delivery

- Potential partners: Bristol City Council Civil Protection Unit, Schumacher Institute (Prepare for Change programme), Arup, MoD Development, Concepts and Doctrine Centre, 100RC network
- Timescales: Short to medium-term

**Resilience Value:** Horizon scanning and keep abreast of weak signals and emerging global trends will help us to be an agile city that can respond to change and develop integrated, cross-sector and multi-agency response to complex challenges such as cyber security.

### 42 Bristol is Open



Bristol Is Open (BIO: <http://www.bristolisopen.com>) is a Joint Venture between the Bristol City Council and the University of Bristol. BIO is deploying a city scale open and programmable test-bed for experimentation and digital innovation in smart cities. Embedded new technologies cut across all aspects of the city development including ultra high-speed connectivity, Internet of Things (IoT), cyber-security, data analytics, transport and utilities. BIO works with local partners, SMEs and large corporations to develop and demonstrate technology solutions and services for smart cities.

Bristol Is Open advocates that smart technologies are a critical enabler for resilience in cities.

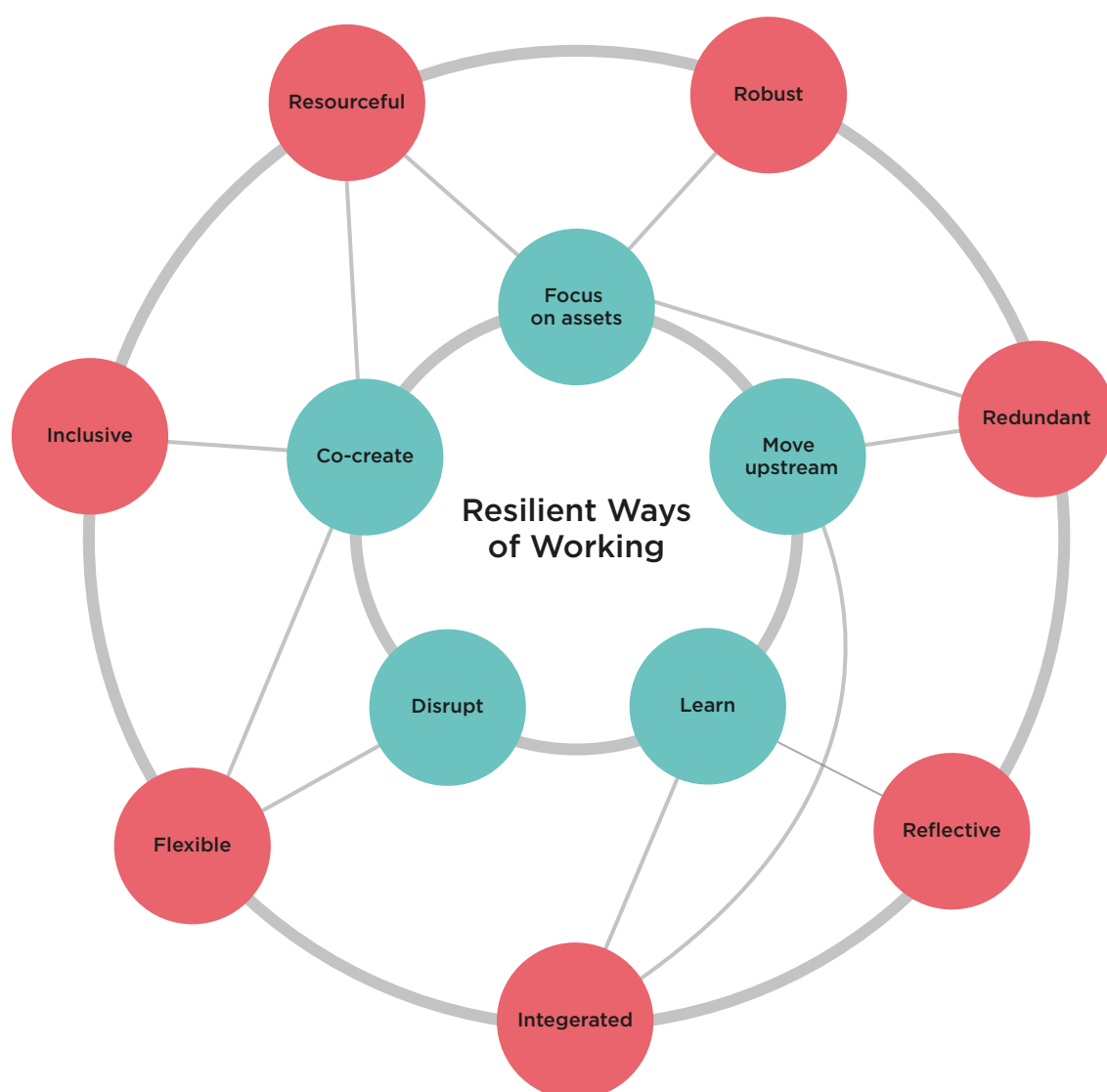
#### Delivery

- Potential partners: Bristol City Council, University of Bristol, Enginashed, WaterShed, @Bristol, Knowle West Media Centre, NEC, Interdigital, Nokia

**Resilience Value:** The "smart" offering in Bristol Is Open, is guided by the principle that every resident should have access to technologies that are essential for their productivity, wellbeing and enjoyment. The unique proposition on programmability empowers local residents, communities and businesses to innovate and develop new smart capabilities to better serve their social and economic needs and ultimately enables new approaches that will help the city to prosper.

## 6. OPERATIONALISING RESILIENCE

The Strategy sets out a clear framework and set of resilience lenses through which to prioritise actions which will ensure the city is on course towards a flourishing future. It will also be important for individuals and organisations to change and adapt the way they work to meet the fiscal, social and environmental challenges ahead. Through the process of developing the Strategy, five ways of working have been identified that are strongly aligned with the qualities of resilience.





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**It is a positive way to work with people by identifying what they value most and then shaping public services that meet real needs.**

These ways of working are not new to the city; as described below there are many examples of organisations already piloting or embedding these approaches.

The five ways of working are;

## **1. FOCUSING ON ASSETS**

An asset-based approach recognises and builds on the human, social and physical capital that exists within local communities. It is a positive way to work with people by identifying what they value most and then shaping public services that meet real needs. This is in contrast to a deficit model which tends to focus on the negative aspects in communities and try to “fix” them.

### **Asset Based Community Development Approach (ABCD) in Bristol**

The Bristol City Council Community Development team has been piloting the ABCD approach with some communities in the city and there are many stories emerging about how communities are taking action to make things happen in their neighbourhoods. One such story is Bristol ‘Soup’ in St Pauls. Four Bristol women came together to organise the first Bristol ‘Soup’, an idea which came from Detroit in the US and there are a few across the UK. As the name suggests it’s a big eating (or drinking) of soup! People pay for a bowl of soup (which has been donated), local groups pitch to win the money taken on the night and the audience votes for the idea they like the most. The first event saw 80 people attend at St Pauls Learning Centre and raised £320. Of the four pitches the favourite was Bristol West Indian Cricket Club who went away with the winnings. They were featured in a programme on Made in Bristol TV.





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**Bristol has been piloting and developing an approach to early intervention in troubled families which have yielded impressive results.**

## **2. MOVING UPSTREAM**

There is strong evidence that tackling “upstream” factors in people’s lives such as housing, neighbourhood conditions and access to jobs can reduce “downstream” disparities in health – particularly among racial and ethnic minorities. The principle of moving upstream can be applied more broadly to thinking about preventing or averting difficulties in people’s lives before they become a problem to solve. Bristol has been piloting and developing an approach to early intervention in troubled families which have yielded impressive results. The principles can be extended to most areas of service delivery to ensure that risk factors are identified, and treated holistically by a range of professionals working together, before they become entrenched and costly problems to solve.

### **Think Family**

Bristol’s Think Family programme is achieving life-changing results for the city’s troubled families. The council, working in partnership with Avon and Somerset Police, has developed an approach to identify vulnerable children at risk of sexual exploitation and delivering necessary support at an early stage. Underpinning the approach is the marriage of a data warehouse containing the records of 170,000 individuals across 54,000 families and advanced predictive analytics most commonly used to predict risk in the finance sector. The outcomes are impressive. Adopting this approach, that requires professionals to see the problems facing a family as a whole and to treat these issues holistically, the team has increased the number of families that can be supported from 150 to 1000 per year. There has been a 50% reduction in unauthorised school absences, the number of police call-outs has halved and there has been a three-quarters drop in adults requiring Anti-Social Behaviour intervention. The result is an adaptable model that is identifying families at risk of breakdown and enabling intervention before issues become entrenched. The programme is a beacon of best practice, attracting substantial government interest with nearly 50 local authorities already learning from it.



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**In Bristol there is a real appetite for co-creation and many city partnerships have been established to help drive this new way of working.**

### 3. CO-CREATING

In the business world, co-creation means involving your customers in produce design because it makes good business sense. There is a growing recognition that this approach also pays dividends when designing and delivering services in the public sector. Creating new solutions with people, not for them, can help drive radical innovation. However, this requires a culture-shift away from top-down, bureaucratic processes. In Bristol there is a real appetite for co-creation and many city partnerships have been established to help drive this new way of working. One example is the way the new Bristol Impact Fund was developed. The proposed city Office will be an important vehicle for encouraging and modelling ways of co-creating solutions.

#### **Bristol Impact Fund**

Bristol City Council currently invests around £7.7m per year in grants to Voluntary and Community Sector (VCS) organisations. Historically these grants have been delivered through many separate funding streams with no single view of how well that funding is working for the city as a whole for example in reducing inequalities or improving health and wellbeing. The decision was taken to align the grant streams through one “Prospectus” in order to focus on priorities and challenges and be clear about outcomes. This Prospectus, which was developed in partnership with VCS partners led by Voscur, represents an exciting and bold step forward in how the Council works with VCS colleagues to co-design and co-create a shared view of how to address the needs in our city. It also represents a clear commitment to work with the expertise and local knowledge of the VCS to shape and deliver the right support and services to those most in need of support.



## 4. DISRUPTING

As discussed previously the idea of “disruption” is central to challenging business as usual and unlocking parts of the system that are not currently steering us towards a resilient future. The idea may not sit comfortably with many people – it’s always easier to work within the status quo – but the challenges ahead such as climate change and population growth are too big to sleepwalk into the future cling onto the status quo. And anyway, disruption will happen whether we like it or not; you only need to look at the phenomenal success of Uber or AirBnB to see that change will happen in spite of the system. In Bristol we already have a strong culture of disruption for social innovation and we can build on this and grow our confidence to proactively shape the future city that we want for our children and grandchildren.

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**In Bristol we already have a strong culture of disruption for social innovation and we can build on this and grow our confidence to proactively shape the future city that we want for our children and grandchildren.**

### The Bristol Pound

Bristol’s currency – the Bristol Pound (£B) – was launched in 2012 as a collaboration between the Bristol Pound Community Interest Company, Bristol Credit Union, Bristol City Council, the Transition Network, New Economics Foundation and QOIN. The currency, like the Brixton Pound and other UK schemes, aims to create local economic resilience and greater self-determination by disrupting patterns of globalisation and chain-store dominance. Four years on there are more than £B1million in circulation in the city and the BPound team are now working with some of the 900 businesses enrolled in developing an interest-free credit scheme across their supply chains. Some of the benefit some of the benefits to the city of using the BPound are:

- Shortening the supply chain and hence carbon footprint (outlets using the BPound have to demonstrate they source products/ingredients locally);
- Building a culture of shopping locally which contributes to neighbourhood social cohesion;
- Reducing shopper’s car trips/car emissions as most BPound shops are walking distance in neighbourhoods





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**In 2016 Bristol became the first city in England to become part of the UNESCO Global Network of Learning Cities.**

## 5. LEARNING

Individuals and institutions that are reflective use past experience to inform future decisions, and will modify standards and behaviours accordingly. Bristol is already committed to promoting individual learning and in 2015 set up the Learning City partnership to: champion learning for all ages and all communities; commission activity to increase participation and achievement; communicate messages about learning; and celebrate the benefits of learning as a way to transform lives. In 2016 Bristol became the first city in England to become part of the UNESCO Global Network of Learning Cities.

### Learning from the CRO network

The network of Chief Resilience Officers that 100RC has created a unique safe space where cities can share successes and frustrations and offer practical advice and examples of best practice to encourage and inspire each other. In Bristol we asked the CRO network for examples of their climate change adaptation plans. We received responses (within less than 48 hours!) from seven major cities around the world sharing their plans and experiences of working on adapting to climate change. This helped us to benchmark what was possible and achievable and be more aspirational and bold in our own approach to preparing for climate change.



## 7. NEXT STEPS

Developing this Strategy has been the first step on the journey towards a more resilient and flourishing future. All the stakeholders involved – including the Resilience Sounding board – are fully committed to taking this forward to implementation. The next steps now are to:

- Establish ownership – the proposed Mayor's City Office offers a strong place to hold the Strategy and oversee its future implementation;
- Secure additional resources – the funding from 100RC for Chief Resilience Officer ends at the beginning of February 2017;
- Develop and investment programme to work with 100RCplatform partners – there is up to \$5million of pro bono city tools and services on offer to Bristol and the region which will need to be matched with city priorities;
- Carry on the city conversation and work out how to use this Strategy as a living document...it doesn't end here, this is just the start!





## FOOTNOTES

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# APPENDIX



# Bristol 2066

## Resilience scenarios

May 2016

ARUP

## Bristol 2066

### Resilience scenarios

#### Context and usages

The purpose of scenario thinking is not to identify the most likely future, but to create a map of uncertainty — to acknowledge and examine the visible and hidden forces that are driving us toward the unknown future. Scenarios are created and used in sets of multiple stories that capture a range of possibilities, good and bad, expected and surprising. They are designed to stretch our thinking about emerging changes and the opportunities and threats that the future might hold. They allow us to weigh our choices more carefully when making short-term and long-term strategic decisions, and they can help us identify gaps in knowledge and priorities for further research. In order to build a “scenario set”, two orthogonal axes are selected that best exploit two key future uncertainties. These axes define a matrix of four quadrants, each of which represent four contrasting but credible futures.

Scenarios are a potentially powerful tool for developing and testing policies. They can help policy makers develop a more nuanced, flexible response to future possibilities, and to better anticipate and manage risk in the context of future uncertainty. In addition to helping organisations (including nation states) make better informed, more robust decisions, scenarios can be used to challenge preconceived views of the future and associated policies.

Scenarios can provide a good framework and tool for facilitating a strategic discussion on policy options, in meetings or in a workshop setting. Where possible, a cross section of stakeholders should be engaged in the policy development process so that they can contribute to the analysis and have shared ownership of the outcomes. Metrics can also be used to provide early warning signs of future developments and directional change.

#### Wind-tunneling policy:

The future is likely to contain elements of multiple scenarios in a combination that cannot be anticipated. It is therefore useful to test current or future policies against a range of scenarios to see how effective they are. The objective of policy analysis is explore which policies are going to maximise the opportunities and mitigate the challenges, and which are resilient to the future shocks in each scenario.

When analysing different options under each scenario, it is important that users indicate how a policy or range of policies will be implemented in a specific scenario. While similar policies may be developed across a range of scenarios, the methods of delivery may be quite different. Potential interactions with the policy objectives should also be explored.

This process is often called wind-tunnelling and it can be undertaken in a workshop environment by a policy team or a broader mix of stakeholders. The latter generally provides better insights and more robust analysis.

In all cases, care is needed to safeguard against preconceived views on both future context and in relation to specific policies.

When testing policies against scenarios it is crucial to consider:

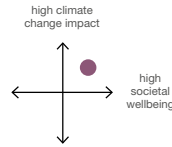
- The relevance of a policy, as it may not be a significant issue in a particular scenario
- Their practicality, as the policy may not be effective given the conditions in the scenario, or it may not be politically or financially deliverable; and
- Their implementation, as it may be that a policy is potentially successful across a range of scenarios but the way it is presented or implemented in each could vary.

Decisions taken should not simply be based on a scoring of policies against the scenarios. There may be sound reasons why a policy that is contingent on a particular scenario should be implemented. In these circumstances the analysis can be used to consider how the policy could be adapted to make it more robust in other scenarios and to consider the associated risks.

Scenarios should not be seen as a mechanical approach to achieving the ‘right’ policy. They do not remove future uncertainty and there are other complimentary policy tools that can be applied.

Sources: Sami Consulting and Global Business Network (GBN)

# Thrive & Survive



## Timeline:

### 2019

The first mayor is elected for the Bristol city region, covering the four Unitary Authority areas (Bath and North East Somerset, Bristol, North Somerset and South Gloucestershire)

### 2021

Water scarcity and record numbers of natural disasters intensify worldwide migration patterns

### 2036

Record insurance claims follow severe flooding in the Bristol city region

### 2045

The remains of the West Antarctic ice sheet collapses due to a number of tipping points having been triggered, including massive methane release

### 2046

The Warsaw Educational Reform Protocol puts sustainability at the core of secondary school curricula globally

### 2050

Bristol fails to reach its carbon neutral target set in 2015

© Arup

## Shocks & Stresses:

- advanced climate change
- extreme weather
- major infrastructure failure
- economic downturn
- environmental degradation
- anti-microbial resistance
- water shortages
- food supply

## 2066 Narrative:

Strong political leadership, community cohesion, civic responsibility and a sharing economy are credited with having maintained relatively high levels of social wellbeing in challenging times. Looking forward, it is feared that this could be eroded as further climate change unfolds. Despite significant investment in technology and low-carbon energy solutions, evidence suggests that key tipping points have triggered a highly unstable phase of advanced climate change. The Bristol city region regularly suffers from excessive rainfall and flooding, in addition to occasional and protracted heat waves during the summer months as temperatures reach 40°C (104°F). Intense periods of drought

occur every 2-3 years. To date, these events have periodically impacted the local economy, on account of disruption to business activities and services. Far-sighted mitigation and adaptation strategies have helped to limit climate change impacts on essential services such as transport, healthcare and education. Systems are adaptive and able to learn, thereby flexing according to context and circumstances. The private sector has part-funded measures to protect the local watershed, river basin and catchment areas with the Avon Barrier providing energy generation and additional road access across the River Avon.

### People

The population has grown significantly, as a result of inward migration and indigenous growth. New pressures are expected due to further population growth – on housing, transport, health and education in particular. Bristol is piloting a range of educational and vocational programmes aimed at nurturing a new generation of work-ready youths. Multi-culturalism is thriving and a wide cross-section of Bristol society actively participates in political and cultural life.

### Places

Green and blue infrastructure helps to protect Bristolians from severe flooding and drought. Adaptation measures are providing important socio-economic returns. Bristol has learnt to cope with excessive rainfall. A new wetland area, the West of England Estuary, has proved successful in mitigating flood impacts while acting as a year-round wildfowl and wetlands centre. Sea level rise has been negligible to date. However there are concerns that this may scale dramatically.

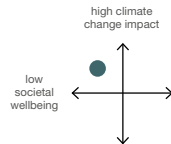
### Organisation

With the election of the first city region mayor in 2019, significant decision making powers have devolved to the local level. However, climate change and energy remain under central Government control. The Local Resilience Forum (LRF) brings together the police and other emergency responders.

### Prosperity & Worth

Bristol society places great value on green space, nature and ecosystem services. There is a closer relationship between rural hinterlands and cities in relation to food, energy and water. The extensive water park along the Gorge breathes new life into the area and makes the most of this impressive asset at the heart of the city region. A diverse mix of housing types and tenures ensures that homes are affordable.

# Survival of the Fittest



## Timeline:

### 2020

Evidence suggests that 80% of under 35s in Bristol are unable to purchase their own home, marking growing inequality

### 2033

High dependency ratios lead to a pension crisis in Japan and parts of Europe, sparking a prolonged global recession

### 2038

A distressing year of riots amongst the informal settlements in St Pauls

### 2045

The NHS collapses due to a massive rise in demand for health services following a national pandemic

### 2049

Global shortages of food and water have triggered mass movements of people, leading to conflict and famine

### 2050

Bristol fails to reach its carbon neutral target set in 2015

### 2052

The insurance market collapses rendering many asset classes uninsurable. The unprotected Bristol's Harbourside 2052 flood causes the ss Great Britain to capsize

### 2059

Arctic summer ice melts completely for the first time

© Arup

## Shocks & Stresses:

- resource scarcity, food & fuel supply
- international event
- pandemic
- critical infrastructure
- advanced climate change & extreme weather
- economic downturn
- civil & political unrest
- cyber security

## 2066 Narrative:

Global efforts have failed to curtail carbon emissions and the world is now experiencing run away climate change. A third of all species are at high risk of extinction and marine food chains have collapsed. GM food is accepted as a much needed technology response. Successive changes in UK government policy have resulted in mismanagement of the associated risks. Extreme weather events cause persistent disruption, knocking out critical infrastructure with increasing regularity in Bristol. Communications are occasionally interrupted by blackouts and brownouts, and periodic floods and heat waves wreak havoc in terms of transport, energy, housing and access to services. Sea levels are beginning to impinge on waterfront property, forcing adaptation or demolition. The NHS has collapsed as climate change has

brought new, more virulent strains of virus to the UK. Multi-cultural society has become fragmented, and a dominant underclass has emerged. Communities cluster together, some trapped in dense high-rises while others take to living in makeshift flotillas and squatting in Colston Tower and other abandoned properties. Farming collectives patrol and protect crops. Deforestation is rampant as fuel is becoming increasingly scarce. The affluent minority has moved overseas, or to fortress communities in the countryside. A wealthy enclave remains in Clifton on high ground. Areas of Clifton Downs are being used for food production so the wealthier have access to local produce. Private security is a lucrative business and cyber-crime is rampant.

### People

The population has swelled and social tensions run high. Communities are fragmented and xenophobia is on the rise. Informal Settlements have formed in St Pauls and many historians have commented on the similarities with the riots back in 1980. The young and elderly are most vulnerable to climate change impacts. Public disorder and crime is rife. Clifton community have turned their back on the city and face outwards, towards the rural, food growing hinterland.

### Places

Bristol city becomes increasingly dense with the population reaching half a million residents by mid-2025. Heat waves are felt even more keenly in the city and green and blue infrastructure fails to contain the effects of extreme weather. The Cumberland basin is completely submerged and The Portway is no longer accessible. Widespread deforestation has gradually denuded Leigh Woods and Blaise Castle Estate.

### Organisation

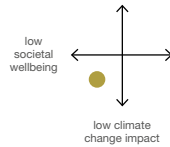
Decision making in the UK is even more centralised with even less ability for local areas to make decisions in their locality. Thousands of grassroots organisations have formed in the city, many of which have adopted an anarchy philosophy. Municipal services are reduced due to lack of funds, causing progressive urban decay.

### Prosperity & Worth

GDP is still used as a metric to measure economic activity and success in the UK, but it is one which shows Bristol to be failing dramatically, along with many other cities worldwide. Unemployment is at its highest rate for decades.



# Regulated Carbon



## Timeline:

**2025**

The first organisations in Bristol take on the 4-day week proposals. Bristol Post headline suggests we are becoming "lazy" and "unproductive".

**2026**

The European Union collapses

**2033**

The UK's first driverless cars take to the roads in Bristol

**2038**

Massive flooding in Bangladesh forces climate change back up the political agenda

**2039**

The UK government appoints a Carbon Commissar to enforce personal carbon rationing

**2040**

Bristol Port and Bristol Airport close due to carbon controls. The M32 becomes a PRT Highway

**2043**

A chemical weapons attack is launched on a major European city

**2058**

Cyber-criminal activity paralyses one of the busiest shipping hubs, impacting global supply chains, logistics and food distribution

© Arup

## Shocks & Stresses:

- moderate climate change
- severe weather
- economic recession,
- civil and political unrest
- cybersecurity
- terrorism and malicious attacks
- social inequality

## 2066 Narrative:

An international coalition, of which the UK is a part, is losing a protracted war on terror. There is a much-feared CBRN threat (chemical, biological, radiological, nuclear), although this has only manifested overseas to date. While occasional extreme weather continues to impact the UK, it is thought that climate change has been largely contained to within 2 degrees. Across the UK, lifestyles are determined by a strict and enforced scheme of carbon consumption control, imposed by UK central government and overseen by a Carbon Commissar. As with many other woodlands across the UK, access to Leigh Woods has been prohibited in order to safeguard its carbon sequestration function. Rail and bus services have been re-nationalised. External costs are

internalized and "priced in" to goods and services. This has contributed to a relatively high cost of living. Horizons and mobility have shrunk to the extent that people live a more local and community-focused lifestyle. The government continues to promote the development of green and innovative technology. However, it is often accused of having favoured the wrong solutions. Smart grids and intelligent transport systems are shown to be vulnerable to hacking. Wider cyber-criminal activity has resulted in increased theft, extortion and blackmail. Fear and insecurity has become rife, linked to the digital lifestyles that have been taken for granted for so long, particularly as Bristol was a pioneer in integrating digital technologies into the City's operations.



### People

Inflation has led to an increased cost of living. Imported goods are also expensive. Many basic consumer needs are met by local Bristol businesses and producers, all of which are burdened by enforced carbon accounting requirements and labelling. Some people have good relationships with neighbours, but others are increasingly socially isolated.



### Places

Public transport systems, comprising light rail and trams, have been established in Bristol. Car use is severely limited due to carbon consumption controls and measures. The M32 becomes the first Personal Rapid Transit (PRT) Highway route in the city. The city is more self-contained, but with digital technologies creating connections elsewhere.



### Organisation

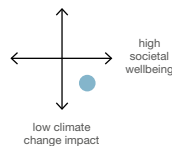
Local authorities have very little power or funding. Historians have remarked that they now perform a similar role to that of parish councils in the early 21st Century. Power largely remains in the hands of central government. Bristol city region is the first to approve a 4-day working week as normal practice.



### Prosperity & Worth

The aerospace industry in Bristol has collapsed, bringing about a significant loss of local jobs. As a result, there is a huge shift towards local service and "maker" jobs, such as crafts and artisan food production. National strengths in green technology which can also be seen in Bristol.

# Green & Smart



## Timeline:

**2018**

Government targets are made legally binding at COP24

**2020**

Transport for Greater Bristol was established in 2020 as a result of the Cities and Local Government Devolution Act of 2016. Bristol city imposes rent controls on private sector rented properties

**2029**

The C400 Cities Climate Leadership Group ratchet up city GHG emissions targets

**2030**

The M32 is demolished and the River Frome is opened up and made accessible

**2037**

Producers are required by law to design goods for disassembly and reuse in Europe

**2040**

Bristol announces its decision to become a car-free city centre

**2045**

Following the carbon neutral target being achieved 5 years in advance, Bristol is the first city to be awarded the title of European Green Capital twice

© Arup

## Shocks & Stresses:

- advanced climate change
- resource scarcity
- food security
- population growth

## 2066 Narrative:

Most global governments are successfully delivering against their carbon emissions reduction targets. It is widely thought that climate change has been successfully contained to within 1.5 degrees. A Well-Being Index is used in political decision making in Bristol and many other devolved areas of the UK. The Circular City initiative, adopted by several UK cities, has led to a step-change increase in resource efficiency. Bath has been recognised for its excellence in resource hyper-efficiency and has become a leading example globally. Urban hubs such as Southmead, Hengrove and Thornbury have become increasingly restructured around localized services that support and promote zero waste. Producers are required by international law to design goods for disassembly and reuse globally. There has been an accelerated effort to construct net-zero homes in Bristol's

rural areas and on brownfield sites, and a marked increase in regional food production in recent years. North Somerset has pioneered quality green housing in the UK. Smart metering is used across all domestic and commercial asset types, helping manage demand for energy and water. A wide range of local businesses offer high quality jobs. Over 500,000 new jobs have been generated as a result of the Vision for Sustainable Growth. Social equality has become an important political objective, and Bristol has benefitted from a more equitable distribution of wealth. The elected mayor of the Bristol city region has greater fiscal control and has increased taxes to pay for carbon reduction measures. Crime is at a record low. Bristol's society is ethically diverse, close-knit and supportive.



### People

Bristol society has seen considerable behavioural change regarding consumer lifestyles and resource use, and has largely embraced zero waste and the circular economy concept. Domestic tourism undergoes a resurgence and public transport is well resourced. Bristol's population is growing significantly, largely on account of the number of people.



### Places

Allotments and urban agriculture are enjoying a record level of public support. In order to meet this increasing demand, allotments, are now a compulsory component of large new developments. Green and blue infrastructure helps to limit the impacts of only occasional extreme weather events.



### Organisation

The directly elected mayor of Bristol city region has reorganised policing to align with the Greater Bristol Authority. Citizens are given a genuine voice in decision making across all key areas.



### Prosperity & Worth

London and other regional cities are driving economic activity and we have seen more balanced growth trends between the regions. Green retrofit, green roofs and green walls are on the rise as a result of a fully-funded "Retrofit Ramp-Up" programme. External costs are internalized. Bristol is a world leader in green technology, aerospace and advanced technology and manufacturing.

## 100 Resilient Cities



"I have been constantly impressed by the power of the network of Chief Resilience Officers. Whether I have a complex technical question about climate change adaptation, a query about how Uber is being handled or want to share our learning around stakeholder engagement there is always a group of like-minded, open-hearted city resilience leaders just an email away. It's amazing!"

Sarah Toy, Chief Resilience Officer, Bristol