

# PEOPLE MAKE GLASGOW RESILIENT



**Our Resilient Glasgow**

**A City Conversation**



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# Executive Summary

This document outlines Glasgow's resilience challenges. It sets out our vision and aims for building an even more resilient Glasgow. It has been designed to prompt a **resilience conversation** amongst the people of our city.

## Vision for a Resilient Glasgow

*Glaswegians are a resilient people and we want Glasgow to be an even more resilient city. Our aim is for the city and its people to flourish in the years ahead as we face the challenges of the future with confidence.*

Resilient Glasgow is an initiative that has been shaped through engagement with the people of Glasgow, including residents, businesses, voluntary organisations and public sector partners.

The initiative looks to build on the city's many assets. It also aims to protect and enhance them. It acknowledges that Glasgow has an extensive network of physical and cultural assets. Above all Resilient Glasgow clearly states that our most important asset is our people.

Glaswegians are indeed a resourceful and resilient people. We have a remarkable story to tell in a city that has remained resilient through many years of successive shocks and stresses. People are therefore at the heart of this conversation.

We believe that the city has integrated and robust mechanisms for assessing and responding to immediate shocks. They have been tested through numerous incidents and tragedies. We naturally want to enhance our existing approaches to emergencies so that we can become an even more resilient city.

In addition to these sudden emergency events, however, there are also stresses and strains over time which are born by the city and its people. They include shifting economic trends, poverty, and health inequalities. Resilient Glasgow especially looks to address these chronic stresses.

Traditionally resilience has not been seen as the formal responsibility of any one organisation or any individual. We have become aware from our discussions that resilience emerges from a range of inputs. This conversation therefore has a key role itself in helping to connect those inputs and to get our colleagues thinking about resilience as an explicit and intended product of their work.

Resilient Glasgow sets out our immediate plans for embarking on a resilience journey as we look decades into the future. We can predict some things - such as the future impacts of climate change - which we must start preparing for now. Most of the future is, however, uncertain and so we need to have the flexibility to respond to whatever we come to face. In that light, we will develop a strategy that aims to continue and deepen a process of debate amongst people and institutions in Glasgow around resilience so that we can be ready for an uncharted future.

We also acknowledge, however, that a clear vision of where we want to get to in the future can, at least partially, allow us to be creators of our own future. Our destination as a fairer and more equal city. We think that is the most sustainable long-term basis for a more resilient city. It is a distinctly Glaswegian contribution to the global debate on resilience – one where social justice is the fundamental mark of a city's growth as a resilient place.

Our discussions have led to a number of key reflections on how we might plan for this more resilient future. They are described in the following pages and detailed in our 16 recommendations for further exploration.

This is an initial draft of our thinking on how to build a more resilient Glasgow. We want now to engage further with Glasgow's agencies and communities to inform the development of a city resilience strategy.

## A. Our resilient history

1. Glasgow is a resilient city. Glaswegians are a resilient people. We want to be more resilient and we think we can be.
2. Glasgow has an extraordinarily rich history and it has lessons to teach us about how to ensure we can have a better future. The city is rightly famed the world over as one of the great powerhouses of the Industrial Revolution. Indeed, 2015 commemorates the 250<sup>th</sup> anniversary of James Watt conceiving of the separate condenser to the steam engine as he walked on Glasgow Green. This was perhaps the single most significant act in the powering of the Industrial Revolution. The ripples from Glasgow's transformation lapped the shores of the whole world: Glasgow made history on a grand scale. Now, once again, the city is transforming itself - from the carbon-belching centre of a global economic revolution to the low carbon smart city of a new, greener future.
3. Glasgow, however, has a much longer history than that. For it is an incredibly old site of human settlement. The remains of canoes from Stone Age times have been found, for example, by the banks of the Clyde. In one of our main parks a Bronze Age camp has been excavated. And in the churchyard of Govan Old there is evidence of Christian burials dating back to the 5<sup>th</sup> Century, indicating that it is one of the very earliest places of Christian worship in Scotland. In all of these centuries people have made their home in the place that came to be called Glasgow. In all this time people have raised future generations. Throughout all of this history, people have been resilient and lived through all of the changes and challenges which have come their way. The city has made them and people have made Glasgow.
4. Yet it is in the last two centuries that Glasgow has seen more change than in all its long previous history put together. It was one of the first cities in the world to experience the profound shocks of modernity as the Industrial Revolution led to its rapid expansion and a swelling population. Life expectancy for Glaswegians involved in industry and domestic service is estimated in the 1850s at little more than 25 years.
5. Glasgow became an industrial powerhouse and, at its height, was known as the Second City of the British Empire. It built a quarter of all locomotives in use anywhere in the world and a similar proportion of global shipping. The city entered the twentieth century as one of the most densely populated in Europe, with a population peaking at 1.1 million. 200,000 of its citizens served in the First World War, with many thousands being killed or returning to Glasgow with the trauma of physical and mental loss.
6. The city played its part again as a major supplier of people and materials in the Second World War. However, Glasgow experienced the twin shocks of very rapid de-industrialisation and population loss in the years that followed. Traditional industries were lost and unemployment rose.
7. Many families moved out of the crowded city to live in nearby new towns. Those who were left were often housed in groups of high rise flats that quickly lost their initial attraction and became associated with urban blight and crime. The city's population dramatically reduced to half its previous level by the 1990s.
8. As a result, Glasgow's people have experienced chronic levels of stress which have produced profound disparities in income, health and opportunity. These are the issues to which our resilience strategy is very much directed.
9. For some cities, a narrative of managed decline would have ensued from such stress. Not for Glasgow. The city took a number of steps to diversify its economy and to build a more attractive place for families to stay in. The central aspect of this approach was a focus on the city's assets. These included a legacy of world class museums and galleries, together with one of the most vibrant artistic and cultural sectors anywhere in Europe. Glasgow has highlighted its architectural assets, promoted its sporting credentials, and drawn on its strong further and higher education sector. Above all, the city has always regarded its communities as its most important asset and in 2013 adopted a new brand to reflect this: **People Make Glasgow**.

10. As a result, the city's economy has developed and changed. Population loss has been halted and the city's population is now growing. This is in no small part due to it being an attractive place in which people choose to make their lives. As a result, Glasgow is the most ethnically diverse city in Scotland. The city was the proud host of the Commonwealth Games in 2014 and, along with other major events that year, Glasgow was seen on television by one third of the entire world population.
11. So Glasgow's history has been one of constant change and the adaptations needed to cope with the shocks which history has wrought. The city was tested in the recession brought about by the financial collapses of 2007/08, which it has experienced with significantly lower losses in production and economic activity than in previous downturns. Glaswegians like to talk of their 'bounceback-ability' factor – an ability to cope and even thrive through hard times – and that is why the city's key message is that People Make Glasgow Resilient.

## B. Our resilience journey

1. The Rockefeller Foundation marked its centenary in 2013 by inviting bids from cities around the world to be part of a network of 100 resilient cities. The Foundation itself was established by John D Rockefeller in 1913 to spearhead solutions to world problems in areas such as public health, education and science. Glasgow submitted an application for membership of the proposed network in October 2013.
2. Cities were asked to present a clear and compelling description of how they are approaching and planning for resilience, with the aim of decreasing vulnerability to future shocks. Glasgow chose to focus on its plans for climate change resilience. This especially relates to increased rainfall and flooding, which are predicted local outcomes of global warming for the city-region.
3. Glasgow was amongst 400 cities whose bids were assessed by a panel of internationally respected judges. They included former presidents Bill Clinton and Olosegun Obasanjo of Nigeria. The bid was successful and Glasgow's status in the first tranche of 32 cities was announced in December 2013.
4. This award has allowed Glasgow to appoint a Chief Resilience Officer. It has also provided access to further support services from the Rockefeller Foundation, as well as the benefits of engaging with peer cities from around the world. Whilst adaptation to climate change remains a principal focus of Glasgow's approach, this peer network will also share experience on the challenges of planning for a variety of both chronic and acute shocks to urban life.
5. 100 Resilient Cities also appointed Arup as a strategy partner to assist Glasgow in developing a Resilience Strategy.
6. The network itself defines "Resilience" as "*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.***"
7. In this light, the urban resilience agenda addresses both:
  - The acute shocks which any city will suddenly find itself facing, which are usually addressed through the emergency planning process.
  - Longer-term chronic stresses and strains, which are experienced over periods of years and decades.



## Definition of Acute Shocks and Chronic Stresses

### **Acute Shocks**

Sharp, sudden events that threaten a city; including earthquakes, floods, disease outbreaks or a terrorist attack.

### **Chronic Stresses**

Issues or threats that weaken the fabric of the city on a day to day or cyclical basis. Examples include high unemployment, inefficient public transportation systems, endemic crime, water shortages or climate change.

8. We recognise the following qualities as being an integral part of Glasgow's story. We will seek to integrate these qualities into our day to day business so that we not only maintain essential functions in the face of acute shocks and chronic stresses, but also grow and thrive through them.

<b>Reflective</b>	Glasgow learns from past experiences, recognising uncertainty and change.
<b>Robust</b>	Glasgow is well conceived and constructed. Our physical assets are well managed.
<b>Efficient</b>	The systems in Glasgow are efficient and can handle distribution.
<b>Flexible</b>	Glasgow can change and develop.
<b>Resourceful</b>	We achieve our goals by exploring new processes and methods.
<b>Inclusive</b>	Glasgow is a city that welcomes a range of people and places.
<b>Integrated</b>	We strive to meet common goals through coordinated efforts.

## C. What have we done?

1. A key aspect of Glasgow's work in this area has been engagement with a wide range of stakeholders. This has taken place in order both to determine what they regard as the city's resilience priorities and to build ownership and commitment towards a strategy that addresses them. Workshops have been held and provided with facilitation by Glasgow's strategy partner Arup, which has been appointed by the 100 Resilient Cities network to support local work. A steering group, chaired by the city's Chief Resilience Officer, has subsequently been established to consider in further detail the materials which have been generated by these workshops.
2. This work has looked at the city in a comprehensive way. Potential shocks and stresses have been considered and perceptions of their likelihood and impact were recorded. All of this process has fed into the development of this document. It also gives us a strong basis of collective thinking and planning to draw upon for our future work on resilience.
3. Partners are generally agreed that the city has a high reputation and good state of preparedness for dealing with sudden shocks. The city maintains a risk register for its key assets and regularly engages in emergency planning exercises. Attention has therefore tended to look at the chronic stresses over time to which the city and its people have been subject – in particular those relating to poverty and inequality - and how best to address these over the coming decades. Once we started this conversation and talked more with our partners about resilience it became clear that these are the issues which are regarded locally as really significant challenges. Our perspective has therefore broadened and our interests developed.
4. Discussion has also taken place around methods of evaluating Glasgow's levels of resilience. Partners especially want to see if there are ways of assessing how the city can get more resilient over the coming years. There are no easy answers to this issue. We have identified a variety of ways in which resilience can be measured, but at the heart of this is a value judgement on the things

that really matter to us. If we think that climate change is a fundamental challenge for Glasgow's future resilience then we can also think about measuring the risk of increased flooding and the actions we need to take to prevent flooding. These involve mainly engineering works. On the other hand, if we decide that inequality is the principal challenge facing the city's future resilience, then we are likely to place a high value on social policy interventions. These different approaches need not be incompatible. They do, however, require us to think carefully about the future we want to build, how much control we can exercise over our course to that future, and what we need to do to get there.

5. It will be clear from the paragraph above that there is unlikely to be a single, overarching indicator of progress towards a more resilient city. Yet there may be something which can come close to one. Local partners are clear that Glaswegians are the source of resilience and a focus on our people is the best means of building greater future resilience. With that in mind, we have come to the conclusion that more active and engaged citizens are more likely to be resilient. Our neighbours and our friends are the first responders (to adopt a helpful American term) to emergencies and to the day to day stresses and challenges which we all face. As a mark of this important recognition, we have settled upon a measure of increased engagement in volunteering activities as one of the key things we want to see happen. In keeping with the people focus of our Resilient Glasgow conversation, we also acknowledge that such a measure needs to take account of inequalities across our Glaswegian communities. We therefore must ensure that any work in this area seeks to broaden the base of existing volunteering activities and involves people from all sections of Glaswegian life.
6. People understandably wouldn't want to become too caught up in debates about monitoring and evaluation, which can seem a bit dull. Nevertheless, it is important that we can say one way or the other whether we're getting more resilient as a city and as a community of Glaswegians. What has become obvious to us is that the very process of engaging in a civic conversation about these matters is a key way of building our resilience. It is possible in a city the size of Glasgow for many of the key agencies to get to know each other and therefore to build the relationships that may be tested in future emergencies. Similarly, we are well aware that such a dialogue cannot only take place between institutions. It has to be a conversation with and amongst Glasgow's people too. This will help the city to determine where our collective priorities lie for a resilient future. Even more importantly, it will ensure that there is a focus on people in everything we do to build a more resilient city.
7. In this light, we have adopted a vision for a more Resilient Glasgow which draws together the main elements of these discussions. It is:

*Glaswegians are a resilient people and we want Glasgow to be an even more resilient city. Our aim is for the city and its people to flourish in the years ahead as we face the challenges of the future with confidence.*

## Focus Areas

1. The general consensus is that in Glasgow we have a comprehensive and effective system of dealing with immediate shocks. There are strong arrangements in place between the emergency services and local and national government, for instance, which allow them to respond quickly together to a sudden shock. Regular planning sessions and practice exercises are undertaken in Glasgow to ensure that there is a high degree of preparedness for such emergencies. We acknowledge that we can always do better and this area therefore figures as one of the areas on which we need to focus.
2. Where we think that we need to do more is in addressing the challenge of the chronic stresses which the city and its people experience over periods of years or even decades. These stresses especially relate to poverty and inequality. This conversation therefore has a double focus, taking in:
  - The continuing importance of being prepared for the sudden shocks and emergencies which are going to come our way.
  - The future importance of working together for greater resilience in the face of the chronic stresses over the coming years and decades which our people and the institutions which serve them will meet.
3. To this end, five key focus areas have been identified. They are:
  - **Resilient People**
  - **Resilient Institutions**
  - **Resilient Places**
  - **Resilient Emergency Response**
  - **Resilient Monitoring and Evaluation**

These five focus areas are interdependent.



We have only begun to embark on our resilience journey. Nevertheless, there are a number of recommendations that we will put in place in the short term – over the next 2 years – in order to better prepare us for a resilient future in the longer term over the coming decades.



## People Our Greatest Asset

Glasgow is a Resilient City and we want to be even more resilient. This means building on our successes and the strength of our people. Some examples demonstrating our resilience are provided in the following case studies.

A. Case Study	Acute Shocks	The Clutha Tragedy
<p>Glasgow prides itself on having strong partnerships and mechanisms for responding to emergency incidents - including fire, flooding, explosions, travel accidents, chemical spills and dangerous buildings.</p>		
<p>The events of one particular Friday night in November 2013 severely tested resilience in Glasgow. Ten people were killed when a Police Scotland helicopter crashed into a crowded city centre bar, a tragedy that created an overwhelming sense of shock and loss.</p>		
<p>A disaster of this scale had not been seen in Glasgow since the Stockline Plastics factory explosion of 2004 in which 9 people were killed and 33 injured. Yet the city was ready to respond, which it did with dignity and efficiency. At an event marking the launch of Glasgow's membership of the 100 Resilient Cities network, Council Leader Gordon Matheson spoke of the coordinated efforts required of local, regional and national agencies:</p>		
<p>"We needed our services to work together. Before the emergency services could start helping people in the bar, they needed engineers to ensure the site was safe for them to enter. They needed scientific teams to make sure that dangerous materials hadn't been released. Council staff set up a catering operation to feed people while the rescue operation went on, and when the time came to move casualties, council staff set up a tarpaulin to protect their dignity."</p>		
<p>The people of Glasgow also demonstrated remarkable levels of resilience. Glasgow's Lord Provost Sadie Docherty commented that "the ordinary people of Glasgow showed admirable courage and compassion. Their first instinct when tragedy struck was to run towards danger to help those in peril". In the months and years that have followed the event, Glaswegians have come together to pay their collective respects to those who have lost loved ones and to mark the city's sense of a shared tragedy. A public appeal fund has raised almost £500,000 in support of those affected by the tragedy.</p>		

B. Case Study	Resilient People	Roma Community
<p>The Roma community from Central, Southern and Eastern Europe have been immigrating to Glasgow since 2004. There are now around 3,500 predominantly Romanian and Slovakian Roma living in the city, with the largest concentration in the Govanhill area. Having little or no formal education, lack of employment opportunities and often no spoken English the lives of the Roma in Glasgow are often characterised by poverty and exclusion.</p>		
<p>With funding support from the EU, a Local Action Plan was developed that sets out over 50 recommendations in the fields of health, housing, education and employment to improve the lives of the Roma living in the city. These recommendations, driven by the deep poverty and social exclusion of this community, include: employing Roma mediators in the city; supporting community activities, a positive image campaign; improving links with cities of origin to improve protocols with social work and; ensuring that funding is in place to support and sustain crisis support and advocacy services for Roma.</p>		
<p>Dedicated efforts have steadily improved the lives of the Roma living in the city who are now moving towards work, attending school and viewing Glasgow as their home.</p>		
<p>Glasgow is now a leader in Roma inclusion policy at a Scottish and an EU level and we have attracted around £600,000 in funding support from the EU, Scottish Government and the Big Lottery to continue to improve the lives of one of the most deprived and discriminated against communities in Europe today.</p>		

### C. Case Study

#### Resilient Place

#### The 2014 Commonwealth Games and the Athletes Village

In 2006, confident in our ability to integrate diverse skills and capabilities, Glasgow submitted a bid to host the 2014 Commonwealth Games. Through decades of regeneration and revitalisation, we had accumulated significant resilience assets: strong leadership, the ability to bring together diverse groups, experience in hosting major events, and the capacity to develop and integrate new facilities and infrastructure. In 2007 Glasgow won the bid and began 7 years of planning for the 'Best Games Ever'. Underpinning the Glasgow 2014 Commonwealth Games was our ambition to create a more **flourishing, active, connected** and **sustainable** Scotland.

The Games were an opportunity to bring vitality into areas of the city that had suffered most during an extended period of deindustrialisation and population decline – in particular the East End of the city.

The multi-agency partner Clyde Gateway was established to manage the regeneration efforts in the East End. Partnering agencies consulted intensively with local communities to build on community strengths and maximise social benefits. These regeneration efforts included new roads infrastructure, refurbished existing venues and the new Emirates Arena and Sir Chris Hoy Velodrome. One of the biggest success stories is the Athletes Village.

Construction work on the Athletes' village began in June 2011. During the Games, the village provided accommodation and facilities for 6,500 competitors and officials. Following the Games, the properties were retrofitted to transform the village to offer 700 affordable new homes, including 400 homes for social rent and a new 120 bed care home for the elderly.

The development is one of the most significant new urban housing developments in the UK and was constructed to the highest (BREEAM Excellent) environmental standards. Now an exemplar 'eco-village', residents benefit from living in flood resilient properties, energy efficient properties, a Combined Heat and Power Energy Centre which provides hot water to all properties, sustainable and accessible green space and improved transportation links to the area.

### D. Case Study

#### Resilient People

#### Stalled Spaces

Glasgow's industrial history has given us a legacy of vacant and derelict land in the city. Approximately 60% of our residents live within 500m of derelict land, which is double the national average, and the city has more vacant sites than the rest of Scotland put together. Although these sites may have plans for future development, this can range from one to ten years. High levels of vacant space impact on health and wellbeing, public safety and the ability of the city to regenerate itself. Accessible, safe urban greenspace has a positive and significant influence on levels of physical activity as well as enhancing an individual's sense of wellbeing by providing opportunities for engagement with nature, and social interaction.

The Stalled Spaces project is an innovative approach to dealing with these vacant sites. The project focuses on the temporary use of vacant land, under-utilised open space and sites earmarked for development though stalled.

Since 2011 the project has brought over 22 hectares of land into temporary uses. They range from green gym/ active play, pop up sculptures, outdoor education through to growing spaces.

This project recognises the opportunities available to use vacant land to deliver a range of innovative projects that benefit local communities. There have also been many benefits for volunteers being involved in this project including physical health benefits of being engaged in the planting activities; gaining skills in planning and planting wildlife gardens; increased social engagement and ownership of this community space.

## E. Case Study

### Resilient Place

### White Cart Flood Prevention

Prior to the development of the White Cart Flood Prevention Scheme in 2011, the White Cart Water caused major difficulties to residents and businesses in the south side of Glasgow for over a century. Normally a shallow river, White Cart Water is prone to flash flooding. As little as twelve hours of rain can cause water levels to rise by six metres.

A series of memorable events commenced at Hogmanay 1984 when 500 homes in Battlefield and Langside were inundated with flood water causing millions of pounds of damage. Only 12 days later floods again inflicted further misery in the same area. In 1990 residents in the area were struck again. In 1994, the river burst its banks once more in various places including Paisley, and in 1999 families living in Cathcart and Langside suffered thousands of pounds of damage when the water reached waist height in their homes.

Public awareness of the 1980s and 1990s floods, coupled with increasing awareness of climate change predictions of more intense periods of rainfall, made finding the solution for a scheme a priority for Glasgow City Council. A major engineering project was established to identify and implement a solution.

The scheme was supported by the Metropolitan Glasgow Strategic Drainage Partnership (MGSDP), a unique partnership formed by organisations involved with the operation of the sewerage and drainage network in the area including Glasgow City Council, Scottish Water, Scottish Environment Protection Agency, the Scottish Government and British Waterways.

The project involved the formation of three flood storage areas upstream of the city to temporarily hold back the bulk of floodwater generated by extreme rainfall and control the release of water passing downstream through the city to an acceptable level.

During the storm, the temporary storage areas significantly reduce the flow downstream, however the large catchment area downstream of the flood storage still posed a threat capable of causing flooding in Glasgow. For this reason, flood defences, in the form of low walls and embankments, were also constructed in selected parts of the river corridor throughout the city.

Today people living near this river do not have a constant threat that heavy rains will flood their homes and businesses, they are protected. 1710 homes and 45 businesses that were under constant threat of flooding were provided a letter of comfort to this effect for their insurance companies.

The White Cart Flood Prevention Scheme is not just about great engineering. At its heart, it is a regeneration project - both in terms of the environmental improvements and the significant enhancements made to allow future economic development to take place. It has not only improved the quality of life of many residents living close to the White Cart Water but will also help support future growth in the local economy and secured the future viability of communities surrounding the White Cart.

## F. Case Study

### Resilient Economy

### Glasgow Economic Leadership

The Glasgow Economic Leadership was established in 2011 to provide independent leadership and direction to economic development activity in Glasgow and to champion the implementation of the recommendations made by the Glasgow Economic Commission. The Group, chaired by Professor Sir Jim McDonald, acts as a senior advisory body to the City Council but also to national bodies like Scottish Enterprise and Skills Development Scotland, which have investments to make in the growth of the city of Glasgow.

Glasgow is more resilient when we work in partnership and the Glasgow Economic Leadership is the triple helix of the private sector, academic institutions and the public sector working together to lead the city's economic development.

Key aims of the board are to promote: the growth of the Glasgow economy; investment in Glasgow and its infrastructure; and growth, investment and jobs in Glasgow's key sectors. In Glasgow, key sectors include Low Carbon Industries; Engineering; Life Science; Finance and Business Services; Tourism; and Higher and Further Education.

### G. Case Study

### Resilient Institutions

### Glasgow Operations Centre

The Glasgow Operations Centre is a hi-tech facility bringing together Glasgow City Council and Community Safety Glasgow. With the facilities now shared, partnering agencies have joint access to the city's entire network of live and recorded CCTV footage.

This state-of-the-art facility housing our city's entire network of traffic cameras and public space CCTV, allows us to keep the city running and keep people safe. Both teams working together allows access to more information, intelligence and quicker identification of incidents on our roads and streets. It is a key element of our Future Cities Glasgow programme, which is demonstrating to the world how a smart city can operate. It also played an important role in keeping our city running smoothly during the Commonwealth Games.

The operations centre will also reduce the need for police staff to manually search CCTV footage for evidence, freeing them to focus on other police priorities. Faster recognition of incidents will lead to a faster response by emergency services.

Based at Eastgate on London Road the operations centre is part of the £24m Future Cities Glasgow programme which is also overseeing the installation of advanced digital cameras across the city which can be programmed to detect unusual activity and trigger an alarm allowing further investigation. This innovative concept is being explored to demonstrate the potential for smart technology to drive social, environmental and economic improvement.

### H. Case Study

### Resilient Place

### Water Voles

A unique local population of non-aquatic water voles has been found living in urban grassland in the East End of Glasgow - the only urban population of its kind in the UK. Traditionally water voles live in and around water. However, in Glasgow a unique subset of water voles has developed who live away from water with a subterranean lifestyle. These are termed 'fossorial', which means mole-like. Glasgow's fossorial water vole population is considered to be exceptional and of national importance; and therefore one of the most important instances of biodiversity in the city.

Water voles are the most declining mammal species in the UK, with a national decline of 88% in recent years. Initial surveys of this unusual population indicated that the water voles have adapted well to their new grassland environment and they are present in the highest density recorded in the UK. Furthermore, although water voles are scarce or absent over most of lowland Scotland, the high populations in the East End indicates that Glasgow should be considered a critical stronghold for this rare species.

Research is ongoing to study this unique Glaswegian natural asset, in conjunction with Glasgow Natural History Society and University of Glasgow. New surveying methodology and best practice guidelines will be required to conserve this species. Existing water vole best practice guidelines are based only on an aquatic population, which does not adequately protect our distinct land-loving species.

Research findings will also feed into a new Water Vole Strategy to consider links with green infrastructure planning to ensure the long term viability of this important population. To ensure the species can adapt to new development and climate change pressures, we will need to focus on preventing habitat fragmentation, improving habitat management as well as continued creation and maintenance of quality green spaces.

Important information gained about our resilient natural asset will be shared across the city. Community engagement activities will be held to raise awareness of parks and green spaces and also deliver action on the ground, including habitat enhancement and signage. Our fossorial water voles information will be used for community engagement projects including the Countryside Ranger Service, Royal Society of Protection of the Birds (RSPB) Ambassador School project and Seven Lochs Wetland Park Project. We will also disseminate information about this important local asset to local High Schools which are carrying out environmental projects.



## I. Case Study

### Resilient Institutions

### The Technology and Innovation Centre

The new Technology and Innovation Centre is a pioneering development by Strathclyde University that will accelerate the way in which researchers in academia and industry collaborate and innovate together, within a new specifically designed state-of the art building in the heart of Glasgow. Teams will include researchers, engineers and project managers from academia and industry, who will work side-by-side on projects spanning future cities, manufacturing, health and energy.

Developed with industry, for industry, the Technology & Innovation Centre has already attracted Scottish and Southern Energy, the Weir Group, Scottish-Power and several other major cross-sectorial industrial companies. By working together both will benefit from participation by large corporations and a large group of innovative SMEs.

The Technology & Innovation Centre and the surrounding International Technology & Renewable Energy Zone (ITREZ), are expected to generate 700 new jobs and attract millions of pounds of inward investment to Glasgow.

At £90 million, the project is Strathclyde University's single-biggest investment in research and technology collaboration capacity. This innovative approach has attracted financial backing from Scottish Enterprise and the Scottish Funding Council, who recognise the Technology & Innovation Centre's potential to redefine the way Scottish Higher Education works with industry.

The Technology & Innovation Centre will support the city to continuously adapt and innovate in the face of the existing and emerging social, economic and environmental challenges.

*"Glasgow isn't the shipbuilding, steel, coal town that it used to be. This is a place for life, writing, poetry, rock and roll, classical music, opera. It's buzzing, jumping, always will be. Always slightly ahead of the game...I love it. It sings and dances"*

Billy Connolly

# Resilient People

## What this means:

Our Resilient Glasgow is based on a people-focus. We will therefore consider those influences which most impact upon the wellbeing and future resilience of Glaswegians. Foremost amongst them are health inequalities across Glasgow's communities, the high rate of unemployment in some communities, and a lack of access to opportunities. Relevant stresses include:

- Health inequalities between communities.
- Poverty and deprivation.
- Quality of work and access to viable livelihoods/long-term employment (including education and skills).
- The perceived absence of positive role models for young people in vulnerable communities, and lack of pride or belonging to a community.

We will look to better understand the interaction of these influences on resilience and to identify the underlying determinants that should be addressed through our long term resilience planning.

As *people* are our most important asset, our goal is to enable those living in vulnerable communities to fulfil their potential and access opportunities to live healthy and prosperous lives. This is already a key priority of the Single Outcome Agreement and Community Planning Partnerships, and is being addressed through a wide range of strategic initiatives and localised schemes. The Resilience Strategy should have a key role in bringing these initiatives together as an integrated programme for Resilient People.

## What do we need to know more about?

1. How robust volunteering networks leverage social capital and community cohesion.
2. Local people are experts on what is needed to make their neighbourhoods more resilient. We want to understand how to engage with people at a neighbourhood level to build on positive assets, address inequality and increase opportunity.
3. There are a number of high impact initiatives in Glasgow that focus on developing community resilience at a local level. We want to know understand how these pockets of excellent practice can be extended beyond the current reach for the benefit of all communities.
4. How to develop grassroots leaders who are empowered to make important decisions that benefit local communities.
5. What facilitates an individual's ability to bounce back or be supported in times of change

## We present the following recommendations for further exploration:

1. Enhance existing multi-agency forums to enrich and develop volunteering networks in the city.
2. Work with communities to enhance existing work and address the underlying determinants that contribute to vulnerable neighbourhoods.
3. Identify opportunities to connect existing models that support neighbourhood resilience and identify opportunities for this to be scaled up at a city wide level. This will commence with considering the Healthy Sustainable Me<sup>1</sup> model, the Early Years Strategy and the emerging Healthy Minds Framework<sup>2</sup>.
4. Investigate how we can develop local leadership capacity/ grass root leaders through supporting existing community empowerment interventions.

<sup>1</sup> [www.gcph.co.uk/assets/0000/3443/PLANNING\\_FOR\\_BETTER\\_HEALTH\\_final.pdf](http://www.gcph.co.uk/assets/0000/3443/PLANNING_FOR_BETTER_HEALTH_final.pdf)

<sup>2</sup> [www.healthscotland.com/mental-health](http://www.healthscotland.com/mental-health)



Photograph courtesy of Baltic Street Adventure Playground

# Resilient Institutions and Economy

## What this means:

Glasgow's success is reliant on the systems and institutions that deliver services. To ensure the city runs smoothly, it is essential that Glaswegians receive the support and services they need and that these services are targeted appropriately.

These critical services and systems are delivered by a broad range of public institutions – including Glasgow City Council, the NHS, Scottish and UK government departments and agencies, Further and Higher education institutions, as well as the third sector, and the commercial sector. The approach, objectives, responsibilities and scope of operation of these organisations do not always necessarily reflect the boundaries and priorities of Glasgow – but may be set by wider agendas. These organisations are challenged on a daily basis by the following stresses:

- Shifting macroeconomic trends.
- Other economic pressures.
- Pressures to reduce public spending

A more collaborative approach is likely to lead to improved targeting and quality of services – with an improved understanding of gaps and the critical linkages and dependencies between different organisations and services. A relevant example is the current review social and health care to deliver a more joined up and efficient service.

Many of these organisations also prepare their own independent resilience plans – without necessarily fully understanding how these may interact and impact on other organisations.

We will work with existing economic development structures to diversify the economy in the face of current and future macroeconomic pressures. We will also work to ensure that business resilience is a key element of a new Economic Strategy for Glasgow - one that supports innovation and flexibility amongst local enterprises to improve business survival rates and facilitate growth.

## What do we need to know more about?

1. Which public services are most important to Glasgow's people and businesses and how they are controlled and accountable at a city and regional level
2. The main critical factors and infrastructure that Glasgow's public services rely upon – and the failure of which would have the most impact on the city's people and businesses
3. The linkages and reliances that exist between critical services and organisations.
4. Whether public services are delivered at the right quality and targeted appropriately to reflect Glasgow's challenges and needs
5. How Glasgow's needs might change in the future and the key drivers of change.
6. The scope, priorities and objectives of existing resilience plans for critical organisations, including their fitness for purpose.
7. How Glasgow can be a more economically resilient city.

## We present the following recommendations for further exploration:

1. Review the scope and composition of powers required to deliver a successful resilient city. Identify which other public authorities the city needs to influence/work with, and whether and how the city's powers/scope should be changed.
2. Create demographic and economic models for Glasgow that allow different possible futures to be tested and compared to other cities (including the potential impact on demand for key services).





*“The city of Glasgow has come a long way from the sooty place it was before 1990 and is more like the stately urban gem that Nathaniel Hawthorne so admired in the mid-nineteenth century”*

Judith Rodin, President of the Rockefeller Foundation

## Resilient Place

### What this means:

It is essential that we develop an integrated approach to planning and land use that ensures Glasgow is resilient in the face of shifting environmental threats. We will consider the vulnerabilities of physical assets and infrastructure in the face of chronic stresses and acute shocks, such as:

- Climate change (especially flooding).
- Crime and vandalism.
- Ageing infrastructure.

We will work with our communities to help them to adapt to the potential impacts of changing environmental conditions, which threaten to undermine the physical integrity of the city.

Furthermore, we will address issues of public safety and security, by considering how the design of public realm can deter crime and anti-social behaviour, and how emergency services and the community sector can help to manage public safety risks in an integrated way.

### What do we need to know more about?

1. How climate change will impact on homes, the city centre, the rivers, city infrastructure and businesses
2. How current public sector spend on physical assets can be best directed to ensure a more resilient and sustainable city form
3. How strategic design and management of infrastructure networks can be developed to deliver high-quality places and a compact city form that supports sustainable development
4. How good design of the city, both above and below ground, contributes to healthy, high quality places and a compact city form that supports sustainable development.
5. What is required to move business as usual to work that will deliver healthy, high quality places and a compact city form that supports sustainable development

### We present the following recommendations for further exploration:

1. Undertake work with three specific local communities around climate change. This will allow for observation and reflection around impacts on homes, the city centre, the river Clyde, infrastructure and businesses.
2. Open a conversation around how current and projected public sector spend on physical assets can be best directed to ensure an emerging resilient city
3. Create a short life multi-sector forum to share and integrate strategic design and management of infrastructure networks in the medium to long term, considering any potential quick wins.
4. Create a short life multi-sector forum to identify what the barriers are to designing a resilient city.



GLASGOW

*"Glasgow has had umpteen social problems but keeps finding ways of getting over its difficulties and transforming itself. Maybe, belonging to the city I'm able to renew myself too."*

Edwin Morgan

# Resilient Emergency Response

## What this means:

Glasgow is a city recognised for having advanced systems and robust mechanisms in place for responding to emergencies. Our Local Resilience Partnership is a well-established and high performing forum that brings together emergency planning partners around the acute shocks agenda. Through membership of the 100 Resilient Cities network we will seek opportunities to enhance the work of the Local Resilience Partnership.

We want to develop our understanding of the role community resilience can play when responding to and recovering from emergencies. We will seek to develop an approach that uses the strength of communities to prepare for, respond to, and recover from emergencies.

In addition, we will seek to enhance our existing arrangements and share good practice with other comparable cities within the 100 Resilient Cities network and other national and international forums.

## What do we need to know more about?

1. How the work of the Local Resilience Partnership (emergency planning) be enhanced through membership of the 100RC Network
2. How Glasgow's existing approach of managing and responding to acute shocks be shared through regional 100RC European networks and international forums.
3. How community resilience can be developed to help Glasgow prepare for, respond to, and recover from emergencies

## We present the following recommendations for further exploration:

1. Ensure existing multi-agency partnership meetings support the resilient cities agenda.
2. Create case studies on specific Glaswegian acute shock challenges and ensure these are shared through regional EU networks and international forums, particularly the resilient city network.
3. Enhance existing work around community resilience - in particular, gathering feedback from community groups.





*"I take great pride in coming from Glasgow. It's a place where I grew up learning the value of hard graft, resolve and resilience."*

Sir Alex Ferguson

# Resilient Monitoring and Evaluation

## What this means:

We seek to better understand the risks that stresses bring to the city. In order to do this, we will establish a baseline for existing levels of performance and monitor progress using a set of resilience indicators.

Existing methodologies are appropriate for understanding shocks, but there is currently insufficient comparable understanding about stresses. We recognise that this is a fundamental starting point before any real action can be identified, prioritised and implemented.

The Council and the city's universities are developing work on big urban data, linking previously disconnected datasets and making them available through open platforms. We seek opportunities to connect these big data sets and explore their potential for developing a resilience measuring system.

We also recognise that Glasgow is a city of transformation and that its people have a unique story to tell. We want to understand the narratives that are important to Glasgow's identity as a resilient city.

## We do we need to know more about?

1. What indicators should be used to understand and measure resilience in Glasgow
2. How we can develop a system that measures and monitors both acute shocks and chronic stresses
3. What narratives reflect Glasgow's resilience journey and how these stories are important for a resilient city
4. How Glasgow can ensure partners take full advantage of big data sources, contextually and operationally for the benefit of citizens.

## We present the following **recommendations for further exploration**:

1. Create a core task group to consider and identify relevant indicators that should be used to measure resilience in Glasgow.
2. Use this core task group to prepare a series of narratives that reflect Glasgow's resilience journey.
3. Create strong relationships with organisations in the city which can enable Glasgow agencies and citizens to take full advantage of big data sources, contextually and operationally to extend our understanding of resilience and record baselines.

## Measuring the Impact of our approach to Resilience

Resilience is both an abstract concept and a very real thing. It incorporates health and wellbeing, society and the economy, leadership and strategy, and infrastructure and the environment. These complex interdependencies mean that developing greater resilience is one of a number of 'wicked problems' that Glasgow faces – so called because of their resistance to simple solutions and the often tentative nature of our attempts to address them. What our discussions so far have shown us is that we must try to agree on a range of tailored and balanced interventions for Glasgow that respect and respond to the highly individual context for our communities. Glasgow is similar to but not the same as other cities or indeed to what it used itself to be like years ago. Glaswegians are also not all the same, depending on their membership of different groups in society and also their access to opportunities and power.

Part of this wicked problem is that different perspectives on the same information can lead to radically different evaluations of our levels of resilience. This underlines our sense that we need to continue a city wide conversation with partners and people to challenge each other and see if we can improve. We fully expect to continue to disagree on such matters – which is entirely natural in Glasgow because this city is a robust democracy.

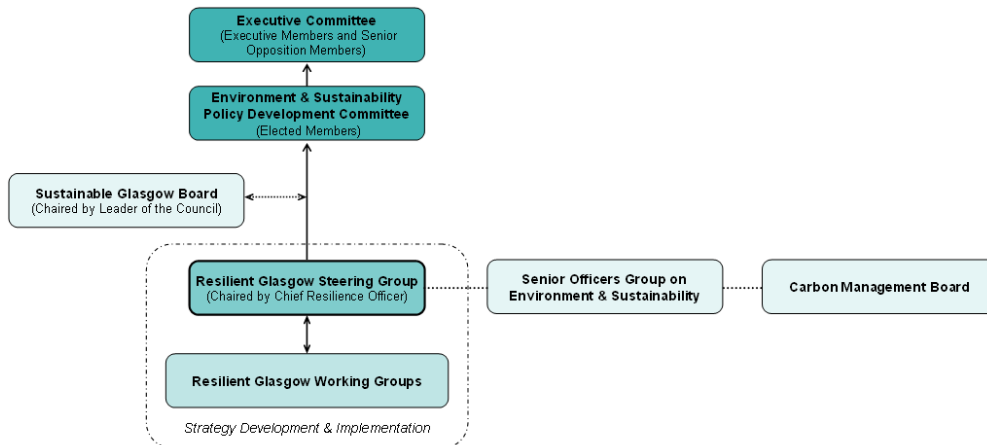
There is no international agreement on how to measure resilience. However, there is a good degree of consensus locally on the inputs that create resilience. We have therefore chosen to focus our efforts on a few key positive actions that we think will make a crucial difference.

A multi-agency Monitoring and Evaluation Working Group will be tasked with developing a process for monitoring and evaluating the effectiveness of the implementation of our strategic plans on Glasgow's resilience.

Glasgow will monitor progress through data sets available via multiple open data sources. Most importantly, we will continue to tell our story on our journey to greater resilience.

## Resilience Governance

In order to ensure that this initiative is implemented effectively the following governance structure is in place:



Formal programme reporting is to the Council’s Environment and Sustainability Policy Development Committee and ultimately the Executive Committee. These consist of members of the Council elected by the people of Glasgow. The existing Sustainable Glasgow Board, which is chaired by the Council Leader, will also provide directional support and guidance.

A set of recommendations for further exploration will be developed and refined in line with a public consultation period that will run from June 2015 to September 2015. We will engage with the people of Glasgow to understand how our recommendations can best be delivered and we will develop an action plan to support this conversation. Our recommendations and action plan will then be managed and implemented over an initial two year period from January 2016 to December 2017.



## Appendix 1 Recommendations for Further Exploration

1. Enhance existing multi-agency forums to enrich and develop volunteering networks in the city.
2. Work with communities to enhance existing work and address the underlying determinants that contribute to vulnerable neighbourhoods.
3. Identify opportunities to connect existing models that support neighbourhood resilience and identify opportunities for this to be scaled up at a city wide level. This will commence with considering the Healthy Sustainable Me model and the emerging Healthy Minds Framework.
4. Investigate how we can develop local leadership capacity through supporting existing community empowerment interventions.
5. Review the scope and composition of powers required to deliver a successful resilient city. Identify which other public authorities the city needs to influence/work with, and whether and how the city's powers/scope should be changed.
6. Create demographic and economic models for Glasgow that allow different possible futures to be tested and compared to other cities. (including the potential impact on demand for key services)
7. Undertake work with three specific local communities around climate change. This will allow observation and reflection around impacts on homes, the city centre, the river Clyde, infrastructure and businesses.
8. Open a conversation around how current and projected public sector spend on physical assets can be best directed to ensure an emerging resilient city
9. Create a short life multi-sector forum to share and integrate strategic design and management of infrastructure networks in the medium to long term, considering any potential quick wins.
10. Create a short life multi-sector forum to identify what the barriers are to designing a resilient city.
11. Create a core task group to consider and identify relevant indicators that should be used to measure resilience in Glasgow.
12. Use this core task group to prepare a series of narratives that reflect Glasgow's resilience journey
13. Create strong relationships with organisations in the city which can enable Glasgow agencies and citizens to take full advantage of big data sources, contextually and operationally to extend our understanding of resilience and record baselines.
14. Ensure existing multi-agency partnership meetings support the resilient cities agenda.
15. Create case studies on specific Glaswegian acute shock challenges and ensure these are shared through regional EU networks and international forums, particularly the resilient city network.
16. Enhance existing work around community resilience - in particular, gathering feedback from community groups.

## Appendix 2 Glasgow City Context

### Leadership and Strategy

- Glasgow is the largest city in Scotland with a population of 595,550 within the Glasgow City Council area. The broader metropolitan area has an estimated population of 1.6 million people.
- Since 2007, the population has been increasing at a steady rate. A rapid increase of 15% to approximately 686,550 is expected by 2037.
- Glasgow is the most ethnically diverse city in Scotland, with over 1 in 7 Glaswegians coming from an ethnic minority background.
- Glasgow City Council is the unitary local authority for the city. Its 79 members are elected by proportional representation on a multi-member ward basis. The next local election will be held in 2017. The city is also represented by Members of both the UK and Scottish Parliaments.
- Single adult households will continue to rise and will soon form the majority of households
- Glasgow is a major seat of learning for both Scotland and the UK as a whole. The city has three universities, two other degree-awarding institutions and three further education colleges, which together educate 130,000 people.
- Nevertheless, 26% of adult Glaswegians have no formal qualifications.

### Health and Wellbeing

- Rising fuel prices are a challenge for Glasgow with 24% of households experiencing fuel poverty.
- The employment rate is 65% which is 8% lower than the national average.
- 4.2% of households have no employment. This is higher than the 2.9% average for the rest of Scotland.
- The annual growth of employment is currently at 2.03%
- Obesity rates have risen over the last 10 years in Glasgow and today just under a quarter of adults living in the city are obese.
- Glasgow has one of the poorest health profiles of any other Scottish or UK city.
- The mortality rate in Glasgow is 15% higher than other UK cities
- The private sector is the largest employer, providing 166,400 jobs.
- The main employment is within the service sector, which equates for 71% of jobs.

### Society and the Economy

- SMEs make up 97% of all businesses in Glasgow.
- The death rate of SMEs is 47%.
- “New” businesses make up 12.6% of all businesses in the city.
- The city has nearly 17,000 private registered enterprises which generate a turnover of £31,101 million per year.
- Glasgow generates £17 billion GVA to the Scottish economy each year.
- Public administration, education and health contribute 23.4% GVA.
- Visitors spend £1.4bn per year in Glasgow.
- 1.2 million working age people live within a 45 minute commute of the city.

### Infrastructure and Environment

- 74% of dwellings in Glasgow are flats.
- There are over 1,800 listed buildings or structures in Glasgow and 23 conservation areas.
- Approximately 60% of residents live within 500m of derelict land, double the national average.
- Glasgow has over 3,500 hectares of green space and 91 public parks.
- 34% of workers choose public transport to access the city centre and 29% of Glaswegians use public transport on a daily basis.
- 41% of Glaswegians commute to work by car, despite an average number of 0.64 cars per household, significantly lower than the Scottish cities average of 1.04.
- Improving air quality continues to be a challenge with PM10 and NO2 levels meeting EU air quality standards but exceeding targets set by the Scottish Executive.
- Per capita, carbon emissions are 6 tonnes per annum.

## Appendix 3 City Resilience Framework

	Drivers
Health & Wellbeing	<p><b>1. Meets basic needs</b> A resilient city enables everyone to meet their basic needs, particularly in times of crisis. This includes people's ability to access the resources which allow them to ensure their survival and wellbeing - food, water and sanitation, energy and shelter.</p>
	<p><b>2. Supports livelihoods and employment</b> A resilient city supports the ability of individuals to access diverse livelihood and employment opportunities, including access to business investment and social welfare. This includes skills and training, fair labor policy, and development and innovation.</p>
	<p><b>3. Ensures public health services</b> A resilient city ensures 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.</p>
Economy & Society	<p><b>4. Promotes cohesive and engaged communities</b> A resilient city promotes an environment that builds cohesive communities with engaged citizens to 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.</p>
	<p><b>5. Ensures social stability, security and justice</b> A resilient city provides 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.</p>
	<p><b>6. Fosters economic prosperity</b> A resilient city fosters economic prosperity and ensures availability of funding 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, as well as actions the private sector can take to support themselves.</p>
Infrastructure & Environment	<p><b>7. Enhances and provides protective natural &amp; man-made assets</b> A resilient city provides, maintains and enhances 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.</p>
	<p><b>8. Ensures continuity of critical services</b> A resilient city undertakes active management and maintenance of natural and man-made resources to ensure critical services continue to function. This 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. It also includes designing physical infrastructure such as roads and bridges to withstand floods so that people can evacuate, as well as ecosystem management for flood risk management.</p>
	<p><b>9. Provides reliable communication and mobility</b> A resilient city provides 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.</p>
Leadership & Strategy	<p><b>10. Promotes leadership and effective management</b> A resilient city promotes 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.</p>
	<p><b>11. Empowers a broad range of stakeholders</b> A resilient city empowers a broad range of stakeholders by ensuring 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</p>
	<p><b>12. Fosters long-term and integrated planning</b> A resilient city fosters integrated long-term development planning that ensures sectoral plans and individual projects are aligned with the city's vision, coordinated and appropriate to address the city's needs. This includes city strategies and plans.</p>

## Appendix 4 Acknowledgements

### Project Team

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