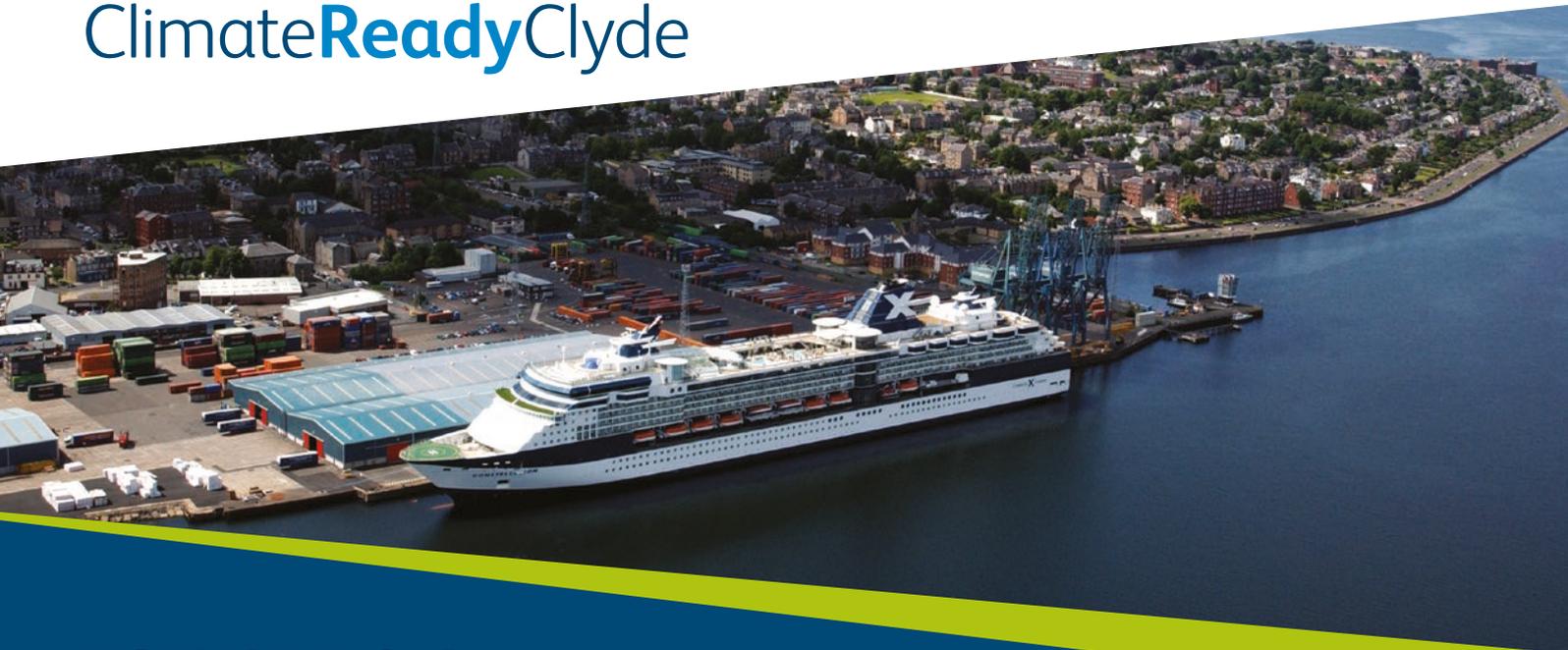


Climate**Ready**Clyde



**TOWARDS A
CLIMATE READY CLYDE:
CLIMATE RISKS AND
OPPORTUNITIES FOR
GLASGOW CITY REGION**

**KEY FINDINGS
AND NEXT STEPS**

NOVEMBER 2018

THE NEED TO ADAPT TO A CHANGING CLIMATE

Climate change is already happening and impacts are being felt within Glasgow City Region.

Adapting will ensure Glasgow City Region continues to be a great place to live and work, with a competitive, low-carbon economy which addresses inequalities and effectively manages public resources.

It also supports the wider economic, social and environmental priorities of Glasgow City Region, as well as the outcomes from the Scottish Government's National Performance Framework and the U.N. Sustainable Development Goals.

Climate Ready Clyde is making this happen by developing an Adaptation Strategy and Action Plan and supporting partners across the city region to act. We have identified the risks and opportunities climate change presents for the city region. This document summarises these, indicating where further resources could be directed between 2020 and 2025 to ensure a climate-resilient future.

The annual economic cost of climate change in Glasgow City Region is estimated to be £400 million each year by the 2050s; around 1% of current GVA. In many cases these impacts will fall on disadvantaged and vulnerable groups. Climate change may also lead to economic benefits for the city region from reduced demands for winter heating and winter-related mortality and morbidity. The size of these is likely to be similar to the economic impacts.

But climate change will also increase the likelihood of large economic shocks from major weather events. These will have very large one-off impacts in particular years. Conservative analysis of four typical events between 2012 and 2017 shows they cost the city region £44.5m. However the costs of both current and future impacts are underestimated – with significant data gaps on infrastructure, and the built and natural environment.



“Investors and shareholders are increasingly aware of the need to ensure climate risks are properly addressed as part of their business. Disclosing risks and building climate resilience across the Glasgow City Region and Scotland helps businesses understand their exposure and builds investor confidence.”

**Mari Tunby, Deputy Director,
CBI Scotland**

“Adapting to climate change will alleviate future costs to public services, and reduce overall pressures. Doing so ensures not only that the city region remains a great place to live and for businesses to invest – delivering sustainable and inclusive economic growth.”

**Gerry Cornes, Chief Executive,
East Dunbartonshire Council, and
Chair, Land Use and Sustainability
Portfolio, Glasgow City Region**

KEY ACTIONS TO ADDRESS OUR CLIMATE RISKS AND OPPORTUNITIES

Our assessment has identified the types of action we need to take to 2025 to ensure we continue to manage the long term impacts of climate change.

We have grouped these into four categories, based on urgency:

-  **More action needed**
-  **Build capacity and understanding**
-  **Sustain current action**
-  **Watching brief**

These classifications are based on the size of the risk or opportunity to the end of the century, along with the shortfall in action to manage or realise it. They also account for whether there are further benefits to action in the next five years.

Collectively, these will help us prioritise the kinds of action needed for the forthcoming Glasgow City Region Adaptation Strategy and Action Plan.



More action needed

We need new, stronger or different policies and tangible implementation activities – over and above those already planned – to reduce long-term vulnerability to climate change. Key priorities are to:

-  Assess how climate change will affect the delivery of all plans, strategies and investment across the city region.
-  Target action to address climate impacts on key infrastructure, including coastal erosion risks to railway infrastructure on the north bank of the Clyde and storm risk to the Erskine Bridge.
-  Clarify the extent to which Glasgow City Region's infrastructure is ready for future temperature rises and heatwaves.
-  Improve advice and support to businesses (particularly SMEs) to understand how climate change will affect their operations and how to adapt. This includes
 - understanding effects on premises, productivity and supply chains due to floods, heat, and wider hazards.
-  Provide economic development support to businesses which provide adaptation goods and services, ensuring the city region seizes the economic uplift and retains expertise in this strategically important sector.
-  Protect NHS estates and social care facilities against flooding and overheating by continuing to assess risks and implementing plans to reduce them where these are already understood.
-  Develop a more detailed assessment of the urban heat island effect across the city region, including the role of different building types, and the effects of low carbon retrofit in managing risk.
-  Diversify funding options for adaptation by pressing for adaptation in the remit of the National Development Bank and exploring the potential for a municipal bond.
-  Protecting our natural environment through a more joined up approach to managing risks to soils, reducing the impacts of extreme weather on agriculture, and reducing wider pressures on the natural environment such as land use and pollution.

Building understanding and capacity

We need greater understanding of future impacts so we can identify and implement appropriate adaptation actions. We also need to build our institutional capacity to respond. The key areas for this work include:

-  Risks to wider infrastructure – notably to passenger ferries, cargo and ports, and the interdependencies of our infrastructure, particularly for mobile and fixed telecommunications.
-  The effects of increasing summer temperatures and heatwaves on the city region’s population.
-  How processes and actions can deliver climate justice by supporting those who are disproportionately affected by climate change risks due to socio-economic status, race, gender, or disability.
-  The impacts on our buildings – including how they are currently affected by storms, wind, moisture and driving rain, and the scale of possible overheating risk impact on vulnerable groups, such as the elderly.
-  The role of greenspace and green infrastructure in delivering climate benefits in the built environment, and how a changing climate will affect its management.
-  The opportunities and challenges a changing climate may bring for viability of renewable energy projects.
-  Potential supply chain disruption due to climate impacts within and beyond the city region to insulate us against risks and to drive wider resilience-building.
-  The impacts of climate change on our natural environment including the future effects on agriculture, wildlife, terrestrial, coastal and marine habitats.
-  Understanding when and how extreme weather events such as storms, droughts and floods will occur, and the impacts these will have on industries that depend on the natural environment, such as forestry, agriculture and fisheries.



Sustaining current actions

We must keep up current or planned levels of activity and implement existing plans and actions ensuring that we:

-  Manage flood risk from rivers, the coast, surface water and future sea level rise to our homes and businesses based on the latest climate projections, and build a strong framework for new development and inward investment which avoids or minimises future risk.
-  Reduce the impacts of poor air quality on the population's health, with a focus to reduce the additional risk created by climate change.
-  Develop plans to reduce risks to buildings of significant cultural heritage, such as Newark Castle and Dumbarton Castle.
-  Help communities and organisations to work together to understand impacts of climate on health and wellbeing, and to become more resilient in the face of climate change, including through Community Planning Partnerships.
-  Develop the tourism offer of the city region to make the most of improvements projected under a future climate.
-  Protect our geoheritage by embedding adaptation actions into site management plans.



Watching brief

A number of climate change impacts need to be monitored on an ongoing basis to determine when to act and what action to take.

This includes risks to infrastructure from some hazards such as landslides and wildfires, future cooling demand in our buildings and changes to our natural environment and ecosystems.

We also need to have appropriate responses in place to maximise the few potential positive impacts, such as reduced infrastructure disruption from extreme cold, reduced heat demand, and the opportunities from green space such as improvements in health and wellbeing, and greater interest and participation in community food growing initiatives.



“The best cities to live, work and invest in in the future will be those that have not only transitioned to low carbon living, but which have also successfully adapted to changes in our climate. I am delighted that Glasgow City Region has taken a lead in integrating adaptation into its future development and ensuring the city region remains the successful and vibrant one we love today. I look forward to working with all our partners to help build resilience for all communities and businesses in the area.”

Terry A’Hearn, Chief Executive, Scottish Environment Protection Agency

COLLABORATING FOR A RESILIENT GLASGOW CITY REGION

As Glasgow City Region starts to feel the impacts of climate change many organisations, businesses and communities are already taking action to adapt.



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Adapting buildings across the city region, University of Glasgow

The University of Glasgow's historic and modern buildings are at risk as the city region's climate changes. The University has identified risks and opportunities, and developed a Climate Change Adaptation Plan to address them. Key actions include embedding adaptation into the Western Infirmary redevelopment and partnering with Historic Environment Scotland for advice and support on maintenance.



© SGN

Ensuring the resilience of the City Region's gas supplies, SGN

SGN operates a high pressure gas pipeline between Erskine in Renfrewshire and Old Kilpatrick. The original pipelines were installed within the deck structure of the Erskine Bridge and these are now due for replacement. These are being replaced with a new pipeline 450mm in diameter and 1.9km long under the River Clyde. The new pipeline will be more resilient to future climate pressures including severe weather and flooding.



The Regional Transport Strategy, Strathclyde Partnership for Transport

SPT and partners are developing a new Regional Transport Strategy (RTS) to guide how transport throughout the Strathclyde area will be provided, developed, improved and operated. The Strategy will identify the future transport needs of the region, along with the practical means to address them. Climate risks will be included in the evidence base, and both adaptation and mitigation will feature in the implementation plan. A new Strategic Environmental Assessment is being undertaken, and the objectives for climate change identified in this process will be integrated into the Regional Transport Strategy.



© SEVEN LOCHS WETLAND PARTNERSHIP

Seven Lochs Wetland Park, Seven Lochs Partnership

The Seven Lochs Partnership is leading a major green network project to establish Scotland's largest urban nature park – the Seven Lochs Wetland Park – on the boundaries of Glasgow and North Lanarkshire. The park will be a great place to discover and explore heritage and nature for local communities and visitors from across central Scotland and beyond. The £6.8m project is also improving the quality of new housing in the area, by facilitating higher standards for sustainable urban drainage systems and green space. A major component involves creating a multifunctional network of green spaces from Green Belt in Glasgow and North Lanarkshire through areas of planned development to the more urban areas in the park, which will help manage flooding and higher temperatures.



PART OF A GLOBAL COMMUNITY

Glasgow City Region is joining a wide range of other world-class cities around the world who are working together to adapt to climate change.

East Side Coastal Resiliency Project, New York, USA

Following \$19 billion of losses from Hurricane Sandy, New York's plans are part of a broader transformation. With \$300m of investment, the project not only proposes new infrastructure to safeguard the waterfront for the next hundred years, but also make the space more accessible and enjoyable.



© BIG

Copenhagen, Denmark

Copenhagen experienced four cloudbursts between 2010 and 2016, which flooded the city, with neighbourhoods underwater with the 2011 cloudburst causing over €1bn of damage. In response, the city developed a Cloudburst Management Plan, and is investing €1.5bn over 20 years in adaptation managing the water, whilst also improving local green spaces.



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NEXT STEPS

The communities, organisations and businesses most affected by climate change need to be at the heart of our response. We will be working with to them to understand how they want the Glasgow City Region to respond, and to agree what more they can contribute to addressing these challenges.

We will be scoping new actions in Glasgow City Region to accelerate action. These will form the basis of the **Glasgow City Region Adaptation Strategy and Action Plan**, to be developed by 2020.

Whilst we will be engaging widely, please email us on climatereadyclyde@sniffer.org.uk if you would like to be involved or have ideas you would like to discuss.





ABOUT CLIMATE READY CLYDE

Climate Ready Clyde is a cross-sector initiative funded by public and private member organisations and Scottish Government to create a shared Vision, Strategy and Action Plan for an adapting Glasgow City Region.



MORE INFORMATION

Our in-depth assessment of the risks and opportunities from climate change for Glasgow City Region includes:



interactive website



technical report



economic assessment



research and data

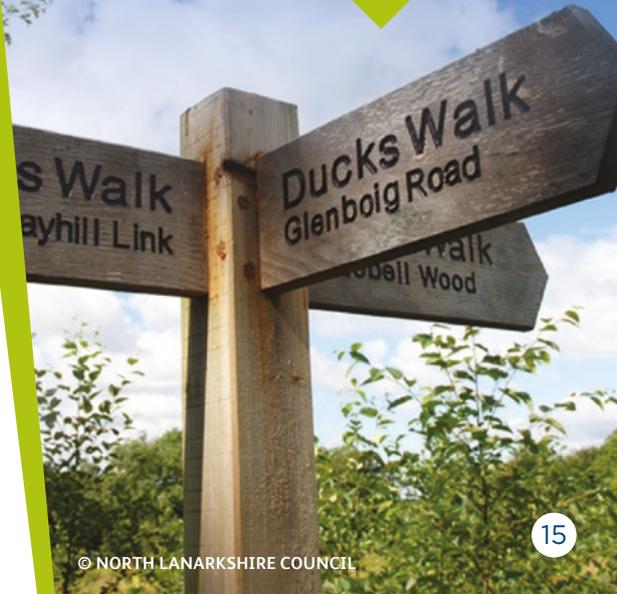


Explore our findings online and download reports...

www.climatereadyclide.org.uk/riskassessment

“Embedding climate adaptation into regional development provides a huge opportunity for cities to help tackle climate change. Glasgow City Region is leading the way on this, and setting a strong example for other UK cities to follow.”

Kathryn Brown, Head of Adaptation, Committee on Climate Change





The Climate Ready Clyde initiative is managed and delivered by Scottish sustainability charity Sniffer

Disclaimer:

This report summarises the work undertaken by Sniffer in their role as secretariat to Climate Ready Clyde, based on desk review of available information and broad consultation with stakeholders across Glasgow City Region and beyond. The views contained in this assessment are the collective view of Climate Ready Clyde partners. They do not necessarily represent the views of individual agencies, Glasgow City Region or Scottish Government. Sniffer take no responsibility for losses incurred as a result of information used in this report.

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