

CREATING RESILIENT PLACES

Rethinking flood resilience for a changing UK

Creating resilient places is becoming one of the UK's defining infrastructure challenges. As climate pressures increase and demand for housing, transport, energy and water infrastructure grows, flood resilience can no longer be considered in isolation. It must be embedded within the wider systems that shape places, support communities and enable sustainable economic growth.

Resilience should be judged by the places and growth it helps create, not simply the flood risk it reduces.

The strongest resilience programmes do more than protect against flooding. They enable investment, strengthen critical infrastructure, support environmental enhancement and create places that are better prepared for the challenges of a changing climate. Resilience should be judged by the places and growth it helps create, not simply the flood risk it reduces.

This paper draws on discussions held during Balfour Beatty's UKREiF roundtable, bringing together representatives from government, water companies, combined authorities, local authorities and industry. It also reflects our experience delivering major infrastructure and resilience programmes across the UK, and considers how customers, government and delivery partners can work together to create more resilient places.

Working alongside our customers across the UK has shown us that the strongest outcomes are achieved when resilience is considered from the earliest stages of planning. Bringing together engineering, environmental expertise and delivery experience enables better decisions, stronger collaboration and infrastructure that delivers greater long-term value.

Flood risk is not experienced uniformly. The challenges facing coastal communities differ fundamentally from those associated with rivers or surface water flooding. Resilient places therefore cannot be created through a one-size-fits-all approach. They require solutions shaped around local circumstances, balancing engineering, environmental priorities and community needs.

Creating those places requires more than individual flood defence schemes. It demands a more integrated approach to planning, investment and delivery - one that brings together customers, government and industry around a shared vision of long-term resilience. This paper sets out five recommendations that can help make that transition and create places that are better prepared for the future.



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Summary of recommendations

01

Plan resilience around places, not projects

Flood resilience should be planned around catchments, coastlines and places rather than individual schemes or administrative boundaries. Taking a whole-system approach enables customers to deliver better long-term outcomes for communities, infrastructure and the environment.

02

Put resilience at the heart of growth

Housing, transport, energy and economic development all depend upon resilient infrastructure. Embedding resilience from the earliest stages of planning reduces risk, supports investment and creates stronger places.

03

Deliver integrated solutions

Future resilience will depend on combining engineering, nature-based solutions and place-based interventions. The strongest programmes bring these approaches together to create infrastructure that can adapt as climate risks evolve.

04

Make better decisions through data, innovation and long-term investment

Better data, stronger systems intelligence and investment frameworks that recognise long-term value will enable customers to make more informed decisions and deliver more resilient outcomes.

05

Build the capability to deliver

Long-term resilience depends upon skilled people, collaborative leadership, confident supply chains and a visible pipeline of investment that allows customers and delivery partners to invest for the future.

Planning resilience around places, not projects

Delivering resilient places requires a shift in thinking. Rather than viewing resilience as a series of individual flood schemes, it must increasingly be planned as part of the wider systems that support communities, infrastructure and economic growth.

Historically, flood management has developed through separate organisations with different responsibilities, funding arrangements and priorities. While this has delivered significant benefits, it can also make it more difficult to plan resilience across the interconnected systems on which places depend.

Water does not recognise administrative boundaries. Rivers, catchments and coastlines function as connected systems, with decisions made in one location often influencing outcomes elsewhere. As pressure on land, water and infrastructure continues to grow, understanding these relationships becomes increasingly important.

For customers, resilience is no longer simply about protecting individual assets. It is about ensuring transport networks, energy infrastructure, water systems, businesses and communities continue to perform reliably in the face of increasing climate risk. That requires resilience to be considered alongside wider infrastructure investment rather than as a standalone activity.

Coastal communities illustrate this challenge particularly clearly. Unlike many inland flood risks, coastal erosion can result in the permanent loss of land, homes, businesses and nationally significant infrastructure. The impacts extend well beyond local authority boundaries, reinforcing the need for long-term, place-based planning and closer collaboration between customers, government, regulators and delivery partners.

Our experience delivering infrastructure across the UK has shown that the strongest outcomes are achieved when resilience is considered early and planned collaboratively. When customers bring together engineering, environmental expertise and delivery capability from the outset, they are better able to balance performance, affordability, environmental enhancement and long-term value. Greater certainty over future investment also enables customers and delivery partners to invest confidently in the skills, innovation and capability needed to deliver resilient infrastructure over the long term.

What this means for delivery

- Plan resilience around catchments, coastlines and places rather than individual projects or administrative boundaries.
- Align national, regional and local priorities to enable faster, more integrated decision-making.
- Measure success through wider economic, environmental and community outcomes as well as physical flood protection.
- Provide greater certainty over future investment so customers and delivery partners can invest confidently in capability, innovation and skills.

Putting resilience at the heart of growth

Resilience and growth are often presented as competing priorities. In reality, they are increasingly interdependent.

The UK's ambitions for new homes, clean energy, transport infrastructure and industrial growth all rely on resilient places. Infrastructure that does not account for long-term flood and climate risk can create future costs, delay investment and constrain economic growth. Equally, resilience should not be viewed as a barrier to development, but as an essential enabler of sustainable prosperity.

This is becoming increasingly important as demand for land, water and infrastructure continues to grow. Housing, transport, energy and environmental priorities are becoming ever more interconnected, requiring decisions to consider how places function as a whole rather than through individual sectors or projects.

For customers, this means embedding resilience into strategic planning from the outset, rather than addressing it once key decisions have already been made. Bringing together infrastructure planning, environmental management and spatial development earlier enables risks to be managed proactively, opportunities to be identified sooner and investment to deliver greater long-term value.



Experience shows that resilience delivers the greatest benefits when it is integrated into the earliest stages of programme development. Working collaboratively from the outset enables customers to combine engineering, environmental expertise and delivery experience to create solutions that are more efficient to deliver, more adaptable to future challenges and better able to support communities over the long term.

As new strategic and combined authorities take on greater responsibility for infrastructure and economic development, there is an opportunity to embed resilience at the heart of regional growth strategies. Doing so will help ensure future investment not only supports economic growth, but also creates places that are better prepared for the challenges of a changing climate.

Ultimately, resilience should not be measured solely by the ability to protect against flooding. It should be judged by its contribution to creating places that are more attractive to invest in, better connected, environmentally sustainable and capable of supporting long-term economic success.

What this means for delivery

- Embed resilience into housing, transport, energy and economic development strategies from the earliest stages of planning.
- Bring together infrastructure, environmental and spatial planning to create more integrated investment decisions.
- Assess projects against their long-term contribution to resilience, economic growth and community outcomes.
- Foster early collaboration between customers, regulators and delivery partners to reduce risk and deliver better long-term value.

Delivering integrated resilience

Creating resilient places requires more than a single solution. Every location, community and infrastructure network has different challenges, meaning resilience must be designed around the needs of the place rather than a standard approach.

Engineering will remain at the heart of flood resilience. Flood walls, embankments, pumping stations and coastal defences continue to play a critical role in protecting communities and critical infrastructure. However, as climate risks evolve, the strongest outcomes are increasingly achieved by combining these proven engineering solutions with nature-based interventions, sustainable drainage and wider catchment management.

The question is no longer whether one approach is better than another. It is how they can be brought together to create infrastructure that is more resilient, more adaptable and delivers greater long-term value.

This requires customers to think differently about delivery. Rather than viewing engineering, environmental enhancement and natural solutions as separate workstreams, they should be considered together from the earliest stages of planning. Doing so creates opportunities to improve resilience, enhance biodiversity, reduce whole-life costs and deliver wider benefits for communities.

While the industry increasingly recognises the value of integrated approaches, existing funding and appraisal models do not always support them. Conventional engineering solutions often benefit from more established evidence, delivery processes and funding mechanisms, making it more difficult for innovative or hybrid approaches to be adopted at scale.

Creating resilient places therefore depends not only on what is delivered, but on how projects are developed. Bringing customers, environmental specialists, designers and delivery partners together early enables the full range of options to be considered, ensuring resilience solutions reflect local priorities, environmental conditions and long-term operational requirements.

Across our work with customers, we have seen that the strongest programmes are those that combine engineering excellence with environmental expertise and practical delivery experience. Successful resilience is rarely achieved through a single intervention. It is created through integrated solutions that respond to the unique characteristics of each place.

Islington Pumping Station Project



Modernising critical pumping infrastructure demonstrates how engineering expertise can be combined with long-term asset planning to strengthen network resilience. By working collaboratively with the customer throughout delivery, the project improves the reliability of essential infrastructure while creating benefits that extend well beyond the individual asset.

What this means for delivery

- Combine engineering, nature-based solutions and place-based interventions to create more resilient infrastructure.
- Consider the full range of resilience options from the earliest stages of planning rather than selecting solutions in isolation.
- Develop funding and delivery models that encourage integrated approaches alongside proven engineering solutions.
- Build evidence through monitoring and continuous learning to improve future resilience programmes.
- Focus on creating long-term value for customers, communities and the environment rather than optimising individual interventions.

Making better decisions through data, innovation and long-term investment

Creating resilient places depends on making better decisions long before construction begins. That requires a stronger understanding of how infrastructure, water systems, the natural environment and communities interact over time.

Today, much of the information needed to support those decisions sits across different organisations, systems and disciplines. Customers often have access to significant amounts of data, but bringing it together into a single view of risk, opportunity and long-term performance remains a challenge.

Improving how data is shared and used presents a significant opportunity. Better systems intelligence, digital technologies and predictive modelling can help customers understand the interdependencies between infrastructure, catchments and the environment, enabling investment to be targeted where it will deliver the greatest long-term value.

Innovation has an equally important role to play. Digital twins, advanced modelling, asset intelligence and predictive analytics are giving customers new ways to understand how infrastructure performs throughout its lifecycle. Used effectively, these tools support earlier intervention, more informed investment decisions and infrastructure that is better able to adapt as climate risks evolve.

However, technology alone will not transform resilience. Investment frameworks also need to recognise the wider value that resilient infrastructure creates. Flood resilience protects far more than physical assets. It supports economic growth, safeguards critical infrastructure, strengthens communities and enhances the natural environment. Investment decisions should increasingly reflect these broader, long-term outcomes.

This is particularly important in coastal communities, where conventional appraisal approaches can struggle to capture the full consequences of erosion. The long-term impacts on homes, businesses, transport links, utilities, local economies and nationally significant infrastructure extend far beyond the value of individual properties. Looking at resilience through a broader place-based lens enables customers to make more balanced and informed investment decisions.

Across our work with customers, we are seeing growing demand for partners who can combine engineering expertise with digital capability, data insight and practical delivery experience. Bringing these disciplines together enables better decisions throughout the lifecycle of infrastructure, from early planning and design through to delivery, operation and long-term asset management.

Ultimately, better information should lead to better decisions. When customers have access to stronger evidence, clearer system-wide insight and investment models that recognise long-term value, they are better placed to create resilient places that continue to perform for future generations.

What this means for delivery

- Create shared data environments that provide a whole-system understanding of risk and resilience.
- Use digital technologies and predictive modelling to improve planning, investment and long-term asset performance.
- Assess investment against wider economic, environmental and community outcomes, not simply asset protection.
- Modernise appraisal approaches so they better reflect the long-term value of resilient infrastructure.
- Bring together engineering, digital capability and delivery expertise to support better decision-making throughout the lifecycle of infrastructure.

Building the capability to deliver resilient places

Creating resilient places requires more than good policy, strong engineering or long-term investment. It depends on having the capability to turn ambition into delivery.

As responsibilities evolve across national, regional and local government, customers face an increasingly complex delivery landscape. Successfully planning and delivering resilience programmes requires technical expertise, collaborative leadership and the ability to bring together organisations with different responsibilities, priorities and objectives.

Long-term capability is shaped by confidence as much as capacity. Where investment programmes are delayed, repeatedly re-scoped or subject to short-term funding decisions, it becomes more difficult for customers and delivery partners to invest in people, innovation and supply chains. Greater certainty over future programmes enables organisations to develop the specialist skills, delivery capability and long-term partnerships needed to create resilient places.

This is particularly important as devolved institutions and strategic authorities take on a greater role in shaping infrastructure investment. Different regions will have different priorities, different starting points and different levels of capability. Sharing expertise, building strong partnerships and developing long-term delivery capacity will be essential to achieving consistently high-quality outcomes across the UK.

Coastal resilience provides a good example of why this matters. Delivering lasting solutions often requires local authorities, infrastructure owners, environmental bodies, water companies, regulators and delivery partners to work together over many years. The strongest outcomes are achieved when these organisations align behind shared objectives, coordinate investment and focus on the long-term resilience of places rather than the delivery of individual projects.

Across our experience of delivering complex infrastructure programmes, one lesson is consistent: successful resilience is built on partnership. Bringing together customers, designers, environmental specialists and delivery teams from the earliest stages enables better decisions, reduces risk and creates infrastructure that delivers greater value over its lifetime.

Resilience is therefore not simply about physical assets. It is about creating the confidence, capability and collaborative relationships needed to deliver infrastructure that continues to serve communities for generations.

What this means for delivery

- Build long-term capability across customers, regional institutions and delivery partners.
- Provide greater visibility of future programmes to support investment in people, innovation and supply chains.
- Strengthen collaboration across organisations to improve planning, delivery and long-term resilience.
- Develop integrated delivery models that bring together engineering, environmental and programme expertise from the outset.
- Focus on creating long-term partnerships that support better outcomes throughout the lifecycle of infrastructure.

Conclusion

Flood resilience is no longer just about protecting places from water. It is about creating places that can adapt, grow and thrive despite a changing climate.

That requires customers, government and delivery partners to plan differently, invest for the long term and work together from the earliest stages of delivery. By embedding resilience into the systems that shape places, we can protect communities, strengthen critical infrastructure and enable sustainable economic growth.

The opportunity is no longer simply to build better flood defences. It is to create more resilient places.