



# National Infrastructure Commission's Call for Evidence – Second Infrastructure Assessment

## Southern Water response

### Introduction

Southern Water provides water and wastewater services to 4.7 million people across an area stretching from Margate in Kent to Andover in Hampshire, taking in two national parks, four areas of outstanding natural beauty, 14 rivers (including world-renowned chalk streams) and 83 bathing waters.

We are seeing the effects of climate change and significant population growth adding more pressure to the water supply and wastewater infrastructure. We know that these issues will likely only intensify so we must find new and innovative solutions to deliver infrastructure that is more resilient and adaptable.


We welcome the opportunity to contribute to the National Infrastructure Commission's call for evidence.

### **Question 1: Do the nine challenges identified by the Commission cover the most pressing issues that economic infrastructure will face over the next 30 years? If not, what other challenges should the Commission consider?**

The challenges should incorporate the need for systems of systems thinking to help resolve multi-sector problems – across policy and delivery solutions. The recognition of interdependencies between sectors is critical in meeting infrastructure challenges.

Climate change will lead to increased frequency of droughts and other extreme weather events. We want to continue to improve our services, reduce carbon emissions and improve biodiversity to meet the expectations of our customers, government and regulators. We also have an increasing population and significant housing growth. The impact of these challenges on vital infrastructure cannot be addressed in isolation.

The goal should be achieving decarbonisation at best value, not low cost. Best value using other capital value (such as the Six Capitals) should be the long-term goal.



**Question 2: What changes to funding policy help address the Commission's nine challenges and what evidence is there to support this? Your response can cover any number of the Commission's challenges.**

Responding to climate change and future proofing our systems requires significant investment, however this needs to be balanced with the ability to provide our services to customers at a reasonable price. We, and the wider sector, are committed to investing to support the Government's net zero and environmental targets.

We need to invest now to secure resilient infrastructure for future generations. We welcome Defra's Strategic Policy Statement to Ofwat which states 'Ofwat should promote efficient investment' and emphasises that a system that works 'does not simply mean lower prices in the short-term at the expense of future generations'. Within this, there needs to be support for those who struggle to pay their bills. The water sector has committed to reach net zero by 2030. Investment as part of Ofwat's PR24 price review will be critical to achieving this.

Our business plans are rightly built around customer priorities. However, it can be difficult for customers to make judgements about inter-generational issues and behavioural biases may lead customer to under value the future. To help address this, we would support common standards for resilience across the water sector, incorporated into Ofwat's price review process.

We need to ensure we target resources where they will deliver the most benefit and ensure that every £1 of investment delivers maximum value. For the water sector, this means a move from output-focused environmental regulation to outcome-based environmental regulation. This will enable us to maximise environmental improvements and ensure customers' money is well spent.

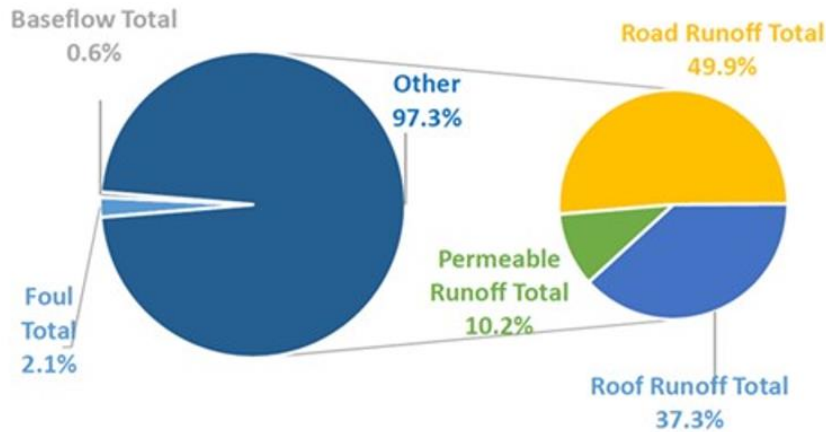
**Question 3: How can better design, in line with the design principles for national infrastructure, help solve any of the Commission's nine challenges for the next Assessment and what evidence is there to support this? Your response can cover any number of the Commission's challenges.**

Urban areas need to be designed for the future challenges of climate change. Drainage systems have typically been designed for a 1 in 30 year storm, based on historic records that are no longer valid. Our extremes of weather are becoming more variable and more extreme. We need to be clear about what design storms our national infrastructure needs to cope with and invest in the infrastructure to make sure it operates as designed.

Urban creep also exacerbates surface water flooding problems. More green spaces are being replaced with impermeable surfaces, for example, front gardens paved over to create additional parking space or the creation of new patios. This reduces the amount of land available to soak up rainfall, increases the risk of flash floods and puts additional pressure on the drainage network. As an example, analysis for our DWMP shows that every additional 4m x 5m patio could add another 400 litres of water into sewers during rainfall events (20 mm of rainfall in one hour).

We understand our customers concerns about the consequences of rainfall getting into combined sewers and causing storm discharges into the environment. We're investing to reduce storm discharges by 80% by 2030. Our DWMP has shown that in some of our wastewater systems, rainfall contributes up to 97% of the flow arriving at the works in a 1 in 20 year storm, see typical chart below (this one is for Swalecliffe in Kent).

## Source of Inflow of a 1 in 20 year Storm Event (2020)




These charts show the huge inflow of rainwater into combined sewers, and the sources of that rainfall. In this wastewater system, of the 97% of rainfall in the sewer, 50% comes from roads and 37% from roofs. It's clear that we need to re-think where rainwater goes during a storm, and even how we design homes and buildings – especially roofs which are often tiled and steep sloped that means rainfall runs off very quickly into gutters and downpipes and into drains, into combined sewers and out of storm overflows into the environment. As for roads, do we want so much rainfall to drain from roads into combined sewers and out of storm overflows untreated?

More fundamentally, we need to start to adapt communities and infrastructure for future flooding and climate change. We need local councils to take a leadership role locally and work with infrastructure providers to ensure communities are fit for the future.

On the water supply side, the emerging regional water resources plan for the South East notes there is a potential 1 billion litre per day shortfall in water supplies within the next 15 years – this is around a fifth of the total amount of water provided each day by the six water companies operating across the region. This could rise to 2.6 billion litres by 2060. Reducing water usage is an essential part of tackling this challenge. We strongly welcome government's commitment to mandatory water labelling of all water-using products to help consumers make more informed choices. However, this needs to be supported by minimum standards and tighter building regulations for new homes to prevent more water inefficient homes being connected to the network.

### **Question 5: What are the main opportunities in terms of governance, policy, regulation and market mechanisms that may help solve any of the Commission's nine challenges for the Next Assessment? What are the main barriers? Your response can cover any number of the Commission's challenges**

There is scope for water and wastewater infrastructure funding mechanisms beyond s106 measures which are not triggered by all types of housing development. It often transpires that multiple small developments emerge in clusters which would amount to a large development if built by one developer. This means that there is no contribution to infrastructure funding to meet the demand in these circumstances. Many local plans include a focus on brownfield and urban regeneration as a sustainable opportunity, which will often be smaller projects, conversion of commercial to residential etc which can mean dense development by multiple individual developers, many of which may be SMEs so expanding s106 type arrangements would not be affordable. Combining responses to net zero, neutrality and circular approaches could be a solution led by councils, potentially linking heat networks with sewer infrastructure, or blue green infrastructure, with contributions by developers scaled to suit the type of development and the business size. This would need to



bring multiple stakeholders together to design a suitable finance model which currently is led by ambitions of forward-thinking councils so only happens in a few areas.

### 3. Climate resilience and the environment

**Challenge 5: Asset management and resilience – the Commission will consider how asset management can support resilience, barriers to investment, and the use of data and technology to improve the way assets are maintained.**

**Question 13: In what ways will current asset management practice need to improve to support better infrastructure resilience? Your response can cover any number of the Commission’s sectors.**

There is a strong consensus among asset management practitioners within the sector that the level of asset risk has increased over time due to historic under-funding of asset maintenance. The level of service to customers has not yet been impacted because water companies have adopted operational solutions to meet performance commitments, in the absence of investment in the asset base. This has meant that the regulatory definition of serviceability/asset health has been met, in line with the prevailing regulatory requirements, but company deterioration models point to an increasing backlog of asset replacement and the need for a step up in investment levels. That said, we recognise that the evidence to date is not strong in terms of headline service measures, highlighting the criticality of developing better leading indicators of service and measures of underlying asset risk and resilience. While work is ongoing in this area, such measures are unlikely to be available and well established for PR24. Nonetheless, it is important that this issue, which was highlighted by the CMA, is not ignored for another AMP.

The current system for economic regulation of the water sector has served us well in the past and delivered huge improvements for the environment. However, different types of investment in capital assets are now needed to support better infrastructure resilience.


Investment decisions today will affect future generations, so we need to make sure the right decisions are made at the right time. Water sector investment plans are developed in the context of an uncertain future. Backward looking assessments of what has worked in the past may not deliver the right outcomes in future. We need a better understanding of best value and risk, supported by long-term resilience standards, a common risk framework and adaptive planning approaches which span multiple investment cycles.

Catchment management and nature-based solutions are key to delivering infrastructure resilience and environmental resilience in tandem. Improving how processes select nature-based solution options is critical. Using natural capital, social capital and carbon values alongside financial costs is a key change that should happen. The regulatory framework for the water sector should ensure nature-based solutions are the preferred solutions wherever this is feasible and economic.

Southern Water has commissioned a project that aims to:

- Develop a framework that we can use to assess natural and social capital
- Develop baseline natural and social capital accounts for priority catchments including the Test and Itchen, the Arun and Western Streams, and the Medway
- Develop a plan for full natural and social capital accounts for all catchments and for our service area
- Develop a roadmap for integrating natural and social capital into our decisions and operations.

We would be delighted to provide more information to the NIC as this work develops.



Cross-sectoral collaboration is also essential to deliver long-term resilience for infrastructure and the environment. Developing common frameworks, planning processes and shared regulatory targets will help facilitate quicker action.

**Challenge 6: Surface water management – the Commission will consider actions to maximise short-term opportunities and improve long term planning, funding and governance arrangements for surface water management, while protecting water from pollution from drainage.**

**The Commission will carry out a separate call for evidence on this challenge, as the Commission will deliver this as a separate study and report to government by November 2022, in advance of its other recommendations.**

### **National Infrastructure Commission | The Second National Infrastructure Assessment: Baseline Report**

We responded to the Commission's call for evidence at the end of 2022.

Surface water flooding is a multi-sector issue and partnership solutions are critical to meeting future challenges. We also believe a review of legislation and guidance is needed to fully address the scale of the challenge:

- Amend automatic right of connection from new houses or highways, regardless of the system's ability to take that volume. There should be the presumption that surface water is kept separate from foul water
- Review highway drainage charging to incentivise more sustainable drainage systems
- Embed a 'natural by default' approach
- Empower sewerage undertakers to discharge disconnected rainwater downpipes into local soakaways as opposed to current legislation that requires a new public sewer to be provided to take flows away
- Further action to address the cumulative impact of a small-scale land use changes resulting in large scale loss of permeable surfaces