

Blueprint for Water briefing on long-term wastewater plans

- In 2015/16, 37,434 areas were externally flooded by sewage; and 4,344 properties were internally flooded by sewage.
- In 2016, there were 1,879 incidents caused by unexpected release of contaminants¹.
- Wastewater from the water industry has been identified as contributing to 3,140 issues preventing waters from reaching good ecological status².
- The 2017 Climate Change Adaptation Sub-Committee report to Parliament concluded that areas where concern has increased include the management of surface water flood risk - for both existing buildings and as a result of new development - and the resilience of terrestrial and freshwater habitats to climate change.

There are significant benefits to the water industry gaining a better understanding of the long-term risks and challenges facing the wastewater industry. Plans should enable the wastewater industry to mitigate and adapt, to ensure services are met and the environment is protected. Wastewater plans could be a valuable tool to help deliver healthy functioning ecosystems, together with resilient and sustainable wastewater management.

Long-term wastewater planning should help water companies to better understand the risks and long-term pressures to service delivery that their networks face, encouraging investment in both operational and environmental resilience. Strategic planning will enable identification of the most efficient and necessary areas to increase network capacity. This in turn will help prevent pollution and flooding risk for customers and the environment, whilst also offering best value for current and future customers. In particular, by adopting a long-term planning approach, as is seen for Water Resources, the impacts upon customer bills of delivering a sustainable, resilient and fit-for-purpose network can be tempered; a move that should benefit customers.

In developing a framework for long-term wastewater plans, we encourage the industry to learn from current good practice within water companies - from what works well in water resource planning - and to integrate good approaches made in the Drainage Strategy Framework (2013), Ofwat & Environment Agency.

In order to achieve healthy ecosystems and sustainable wastewater management, wastewater plans should deliver:

- Environmental health, for example by eliminating chronic impacts of pollution caused by inadequate treatment at sewage treatment plants, and reducing the risk of acute pollution from combined sewer overflow discharges and unplanned failure
- A better understanding of the state and risk of aging infrastructure and how to make it fit for purpose/increase resilience
- A system to enhance natural capital as part of water company business planning, through improving water quality and identifying potential opportunities for using natural measures to enhance resilience and increase capacity.
- Water cycle management, linking clean water and wastewater planning to ensure risks (e.g. low flow water quality impact on drinking sources/environment) and opportunities (e.g. wastewater recycling for public or other supplies) are integrated.

¹ Discover Water (accessed 13th July 2017) <http://www.discoverwater.co.uk/sewer-flooding>

² Environment Agency (2015) Update to the river basin management plans in England: National Evidence and Data Report

In order to achieve this, wastewater plans should incorporate the following principles:

- **Focus on outcomes not assets**, to encourage innovation in how services are maintained and improved now and into the future. For example, outcomes could be improved water quality, and reduced impact of sewage on protected areas.
- **Embrace customer, citizen and third sector participation in:**
 - Characterising / verifying existing performance of the current system and future pressures
 - Ensure honesty and transparency in all communication
 - Co-creating an unconstrained list of potential solutions
 - Capturing the widest range of monetary and non-monetary benefits and costs in option appraisal
 - Being part of the solution, e.g. behavioural and community approaches to reducing sewer abuse and managing surface water.

Case Study – Colne Valley Fisheries Consultative (CVFC) & Thames Water

CVFC and Thames Water have created an app to engage customers in reporting pollution incidents. The app enables customers to take a photo of suspected pollution, complete a short report and tag the location, all of which is sent to volunteers at Colne. This is then passed on to the Environment Agency and Thames Water, who send a team out to investigate. This powerful tool has the ability to be expanded to operational catchments across the country.

- **Enable partnerships** to deliver multiple benefits and share costs between beneficiaries, for example landscape scale projects, which can improve water quality, reduce flood risk, increase water storage and enhance biodiversity.
- **Integrate with other plans** - notably local FRMPs, WRMPs, RBMPs - identifying synergies and potential opportunities for projects which can deliver across plans.
- **Use water efficiency measures to improve wastewater capacity**, understanding that whilst increased water conservation may reduce future wastewater infrastructure needs, or delay their timing, it may also result in higher strength wastewater influent, which could create additional challenges for sewerage conveyance systems and wastewater treatment at facilities.
- **Be risk based**; assess the drivers of risk, such as growth, climate change and aging infrastructure, and quantify risks in terms of likelihood and uncertainties.
- **Consider resilience in the round, including environmental resilience** and assess all forms of risk to the serviceability of the sewerage network and the outcomes it delivers.
- To **establish and maintain a sewerage network fit for the future**, wastewater plans should aim to:
 - Undertake a network serviceability assessment (combining asset condition and criticality of asset to outcomes)
 - Undertake a network capacity assessment under different loading events (projecting network capacity forward 25 years looking at population growth, climate change & environmental constraints)
 - Reduce sewer leakage / groundwater pollution (and groundwater infiltration)
 - Reduce the number of sewer collapses / blockages

- **In addressing options, take account of whole life environmental and social benefits**, as well as economic costs and benefits of wastewater infrastructure. This will help identify the most long-term, multi beneficial options to take forward.
- **Catchment management** should be considered to enhance water quality and flood risk management. Managing catchments effectively should be used as part of a toolbox to reduce flood risk generally, but also with respect to asset resilience and the effect of any changes to infrastructure upstream and downstream.
- **Include sufficient monitoring**, to fill gaps in understanding around asset health, impacts and risks to be assessed, including potential emerging issues such as microfibers. Results should inform appropriate management, upgraded treatment and natural solutions. This is essential if companies see large-scale wastewater developments as part of their long-term plans, as without sufficient evidence that the option will benefit people, the company and the environment, this option cannot be chosen.
- **Enable benchmarking**, so that customers, Defra, Ofwat, EA and others can better compare company performance in wastewater management, and their ambition going forward. For example, company wastewater plans should aim to eliminate sewage as a limiting factor on the ecological health of our rivers, estuaries and coasts. To measure success water companies could aim to:
 - Reduce the length of water body not achieving “good” due to sewage,
 - Reduce the number of SSSI units adversely impacted by sewage,
 - Reduce the number of pollution incidents caused by sewage,
 - Actively identify pollution from private sewerage in order to plan for the provision of first time sewerage in affected areas.
- **Extend investment in maintaining a healthy environment**, via a more inclusive understanding of the impact of wastewater management on the environment and of the role a healthy environment plays in delivering a resilient wastewater system. Options within wastewater plans should consider reducing the environmental impact of sewage; creating, protecting and enhancing habitats and increasing connectivity; delivering natural solutions such as sustainable drainage, natural flood management, use of wetlands for sewage treatment and opportunities for nutrient stewardship programmes and trading, providing multiple benefits including biodiversity, recreation and water quality. Plans should also aim to protect the legitimate interests of water user groups through improving bathing water compliance and shellfisheries.
- **Maximise the use of sewage as a resource for energy, nutrients and water.**

We would welcome further engagement in developing the framework for long-term wastewater planning and discussing these ideas further.

The following organisations support this document:

- Amphibian & Reptile Conservation
- Angling Trust
- Friends of the Earth England
- Marine Conservation Society
- National Trust
- RSPB
- Salmon & Trout Conservation
- The Rivers Trusts
- Wildfowl & Wetlands Trust
- WWF-UK