Drainage and Wastewater Management Plans

Technical Summary: Bill Impacts

April 2023
Version 1

from Southern Water

Introduction

Our Drainage and Wastewater Management Plan (DWMP) is a long-term risk-based, evidence led investment plan. It assesses the risks to customers and the environment from drainage and wastewater systems and the investments that are needed to reduce those risks. Our plan estimates that we need to invest some £13.4 billion between 2025 and 2050 to reduce the identified risks to Band 0 levels. This cost estimate is based on our current understanding and experience of managing drainage and wastewater systems and takes predictions of future climate change, population growth and urban creep into account. However, the future is uncertain. For example, we cannot:

- Predict the exact impacts of a changing climate, but we know it will bring more variability in our weather.
- Plan for technological advances that haven't yet been proven, such as treatment plants that strip nutrients from wastewater more effectively or recover elements from wastewater.
- Know the full extent of population growth and development across our region.

Because these future factors are unknown, and, in some cases, we think that the uncertainty around them is such that we should defer deciding about an investment need until we know more, we used an adaptive planning approach to determine the scale and timing of the investments required.

Our adaptive plan

Our adaptive plan breaks the above £13.4 billion down into five adaptive pathways, as shown in Table 1 below.

Table 1: DWMP Investment Needs by Adaptive Pathway Total

DWMP Adaptive Pathway	Total Investment need (£Bn)
The Core "Low regrets" Plan	£5.5 Bn
Adaptive Plan 1: Lower Climate Change	£7.5 Bn
Our "Preferred Plan"	£7.7 Bn
Adaptive Plan 2: High estimate of growth	£7.8 Bn
Adaptive Plan 3: All Planning Objectives to Band 0 by 2050	£13.4 Bn

The Core Plan is our "Low regrets" investments that we believe should happen regardless of future growth and climate change. This pathway assumes a lower rate of growth and lower rate of climate change than our preferred plan.

Our Preferred Plan is our most likely scenario for future risks. It represents how we are currently planning to invest. It assumes a medium estimated rate of future population growth and climate change. In this plan we have included the investment needs for all planning objectives with the exception of some investment relating to sewer flooding and pollution.

- For sewer flooding, we have not included investment to tackle the properties identified at risk through the modelled buffer zones due to the uncertainties in this data. It means that, for flooding, we will focus investment on those areas where properties are known to be impacted by flooding, now and in the future.

- Some pollution investment needs are excluded as we have already invested significantly in these during AMP7 to reduce the risks from that identified using the 2017-2019 data in BRAVA.

Adaptive Plan 1 is the same as our preferred plan but with a lower estimated rate of climate change impacts.

Adaptive Plan 2 is the same as our preferred plan but with a higher estimated rate of population growth.

Adaptive Plan 3 assumes we invest to reduce all Planning Objectives to Band 0 by 2050.

How we have approached adaptive planning and development of these scenarios are described further in our "Approaches to uncertainty" technical summary.

Impact on customer bills

We used the year-by-year investment needs from our DWMP adaptive plan data tables to estimate the annual cost impact on customers' wastewater bills for the average household. Table 2 below, sets these out in terms of delivering our core plan, our preferred plan and to fully achieve "Band 0" for all planning objectives across the region by 2050 (Adaptive Plan 3).

Table 2: Annual average Customer Bill Impact to deliver DWMP Adaptive Pathways

(£ per year)	2025-26	2026-27	2027-28	2028-29	2029-30	2035	2050
Our core plan	£10.30	£19.87	£29.32	£38.65	£47.86	£70.65	£166.92
Our Preferred Plan	£13.43	£25.82	£38.05	£50.12	£62.05	£98.27	£233.40
Our Full DWMP	£18.36	£35.47	£52.37	£69.06	£85.55	£159.19	£405.17

Note: the estimated bill impact in each column is the additional cost from the base 2020 – 2025 level, not an increase each year on top of the estimate from the previous year.

Bill Impact Calculation

We took the following information into account when calculating the average household bill impact per year:

CAPEX Cash flow

Capital expenditure (CAPEX) is money spent on assets, such as such as buildings, equipment, and technology. We took the CAPEX investment needs from the DWMP data table's Adaptive Plans. These provide the overall investment needs by five-yearly AMP (Asset Management Plan) cycle from 2025 to 2050. We assumed this investment is spread evenly across each of the five years within each AMP cycle.

Regulatory Capital Value

Regulatory Capital Value (RCV) is the company's market value plus the value of any accumulated capital investment. It is a key element in calculating bill impacts (see annual bill impact equation below). For the purpose of calculating the potential change in customer bills due to DWMP activities, we have assumed that the DWMP's annual CAPEX investment need is the accumulated capital investment for that year. The RCV is then calculated using the previous year's RCV plus the CAPEX of that given year.

OPEX Cash flow

Operational expenditure (OPEX) is money spent on an ongoing, day-to-day basis to operate and run the business. We estimated the annual OPEX investment needs as 8% of the annual CAPEX requirements.

Number of Households

The number of households is calculated using the DWMP's growth forecast figures of the population provided with our wastewater services, divided by an assumed average household occupancy rate for the region. We used a standard household occupancy rate of 2.4 people per household, which is the same as the figure used in our hydraulic modelling.

Weighted Average Cost of Capital

The Weighted Average Cost of Capital (WACC) is an economic term, commonly referred to as the company's cost of capital. It is what a company is expected to pay on average to finance its assets.

Annual Bill Impact Calculation

The Annual impact on household wastewater bills is calculated using the following formula:

$$Annual\ Impact\ on\ household\ bill = (A + (B \times C) + (B \times D))/N$$

Where:

A = Annual OPEX (taken from the OPEX cash flow, see above)
B = Increase in RCV (taken from the CAPEX cash flow, see above)
C = Wastewater weighted run-off rate, assumed to remain constant at 5.25% from 2025 to 2050
D = Weighted Average Cost of Capital (WACC), assumed to remain constant at 2.92% from 2025 to 2050
N = Number of Households

We have not included future inflation in our calculation.

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