Drainage and Wastewater Management Plan

Programme Appraisal Briefing Note

The aim of this document is to expand on the content provided in the webinar introducing the fifth DWMP framework stage: Programme Appraisal in August 2021.

The webinar introduced the Programme Appraisal (PA) process, its complexities, and highlighted the key steps and requirements ahead to create a draft shared DWMP by the end of 2021. It also outlined the work that is being carried out to complete Options Development ahead of stakeholder workshops in October/November.

In this document we will provide more detail on some methods/outputs that will be key to closing out Options Development and the success of our Programme Appraisal approach.

Topics covered

1. The approach we have used to identify cost and benefits through Options Development Appraisal (ODA) - outputs of this work will be presented in workshops in October/November 21.
2. Our approach to Best Value and how this impacts Programme Appraisal.
3. The weights our customers placed on the value criteria and how these will be used in Programme Appraisal.
4. Timeline and alignment with other plans.
5. Working together – what's next?

Any comments or questions should be directed to DWMP@thameswater.co.uk

1. The approach we have used to identify cost and benefits through Options Development Appraisal (ODA)

Options from the feasible list have been taken through the following process to develop relevant costs and benefits in stage four of the DWMP Framework – ODA.

First, we developed a conceptual design which provided a consistent, high-level option definition to ensure a basis for comparable assessment.

The conceptual design was developed to a level at which the broad elements of the option were quantified and costed. This was undertaken at a much higher level than outline and detailed design: these stages will be progressed as potential schemes are confirmed.

- For non-infrastructure, the options are generally location specific as they relate to the individual requirements at particular works to maintain compliance.
- For infrastructure, we have grouped interventions for this DWMP cycle as one Reference Option (in accordance with the DWMP Framework), representing the broad type of work we may need to undertake to maintain and/or improve the network. This Reference Option captures a blend of investment in green infrastructure (e.g. SuDS) and grey infrastructure (for example, providing additional capacity through upsized sewers or storage tanks) that would be necessary; for example, to increase resilience and address storm overflow risks. Where groundwater ingress has been identified as impacting on

our network performance, we have also included options to manage infiltration into the network (e.g., sewer lining and manhole sealing).

The conceptual design then provided the basis for an assessment of cost where we used a combination of the Thames Water Engineering Estimation System (EES) and bottom-up costing (using market rates for new technologies). Costs have been developed for construction, operation and replacement / capital maintenance over the plan period reflecting asset life. The carbon impact of each option has also been quantified.

Through the conceptual design we also identified option risks. These were captured and then monetised following established practice from Treasury Green Book.

A benefit assessment has been undertaken for the options for the following key metrics:

- Treatment compliance/capacity
- Network capacity
- Modelled sewer escapes
- Extreme flood resilience
- Internal/external flooding
- Collapses

In addition to assessment of the metrics above we've also looked at:

- The environmental and social performance of each option to capture potential impacts on river basin management plan objectives.
- The strategic habitats regulation assessment to capture any potential implications for designated sites.
- The natural capital assessment to inform the Strategic Environmental Assessment of the preferred plan.

The outputs of this benefits assessment for each option will be used within a best value framework to develop the preferred plan by December 2021.

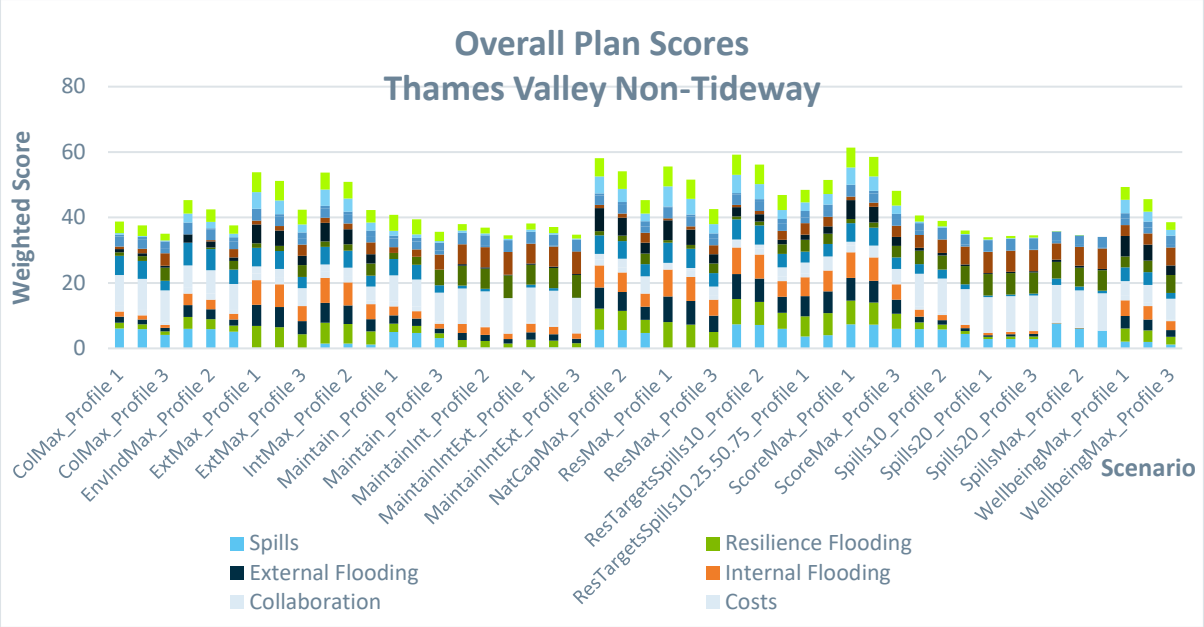
2. Our approach to Best Value and how this impacts programme appraisal

A best value plan is defined with the regulatory guidelines for water resources planning and is described as one that, *"considers factors alongside economic cost and seeks to achieve an outcome that increases the overall benefit to customers, the wider environment and society" Water Resources Planning Guideline, Environment Agency et al, 2021.* We have utilised this description in producing our DWMP.

The table below shows the steps that should be undertaken in a best value plan (according to the WRMP guidelines) and how and where we have done this so far in DWMP plan development.

Steps towards best value	How we've achieved this
Set clear objectives/value criteria	We, Thames Water and our stakeholders, set clear planning objectives for our DWMP in the Strategic context stage of our plan development (2019). These objectives are the main value criteria we use to balance the plan.
Identify metrics	Through Options Development, metrics for these objectives (value criteria) were created. For example, the objective: Storm overflow is measured through the number of annual spills in a catchment. We have also derived weights for these value criteria through customer research (please see section 3 for more information on this).
Develop a decision-making approach	Atkins have developed a decision support tool (DST) using the same principles as developed for the Water Resources Management Plan. This tool is based around a mathematical model that optimises the selection of options given predefined targets such as least cost, best environmental outcome etc. A multi-criteria decision analysis (MCDA) approach as set out in the Best Value Framework guidance has been adopted to compare the performance between different programmes/plans.
Steps towards best value	Steps towards Best Value How we've achieved this
Identify a least cost plan to provide a benchmark	The tool will be used to identify the least cost plans for a range of outcomes, starting with the least cost programme that maintains current baseline performance of the system/service.
Compare different programmes/plans	Each catchment has several possible interventions or 'options' which can be selected by the model and each option has an equivalent value or score against each of the value criteria. Through ODA and Programme Appraisal multiple alternative plans are generated in line with the stakeholder-approved scenarios (i.e. minimise cost while achieving targets). Plans are compared using the multi criteria decision analysis (MCDA) technique to understand performance against each value criteria and their combined overall score. This exercise includes using the customer-derived weights given to the value criteria.
Undertake effective engagement	Stakeholder and customer input has been key to progressing the DWMP to this point. Through Programme Appraisal 'portfolios' of options or plans that provide the best range of outcomes will be discussed with Level 1 stakeholders and customers (late 2021) to explore where trade-offs between outcomes and cost might be necessary.
Present and justify your plan clearly	Following this engagement and using the resulting feedback, we will set out our preferred plan and potential adaptive strategies to manage future risks and uncertainties (early 2022).

Below is an image showing the potential outputs of the best value approach and how a preferred plan might be chosen by looking at cost vs each scenario score.



3. Our approach to Best Value and how this impacts programme appraisal

In July 2021 Eftec, on behalf of Thames Water, carried out a piece of customer research to derive weighted preferences for the value criteria of the DWMP. The outputs will support Programme Appraisal by developing a weighting for each criterion and therefore increasing/decreasing the priority level given to it within a potential scenario/plan. These weights will be compared to stakeholder priorities and used as one of many ways to balance the final plan.

With our customers we carried out an online survey with a choice task (activity to choose preferred and second preferred value criteria when presented in groups of three in different combinations). This gave us relative values of importance for each of the value criteria. The survey was completed by 400 household customers and 150 non-household customers from a mixture of age groups, locations across the Thames Water region and socio-economic backgrounds.

<u>Key findings:</u>

- Although all the planning objectives and outcomes represented by the value criteria are important to customers, there is a clear prioritisation:
- Top priorities: to ensure that the current system is properly maintained and effective ahead of further investment to increase capacity (i.e. asset health). This is closely followed by avoiding pollution incidents (consistent with the potential severity of impact on rivers and wildlife) and costs (impact on customer bills).
- Mid-tier priorities: to reduce flooding and address wider environmental quality issues, including storm overflows.
- Lower priorities: activities that customers see as “business as usual” across all service areas – rather than exclusive to the DWMP - including net zero carbon and collaborative working.

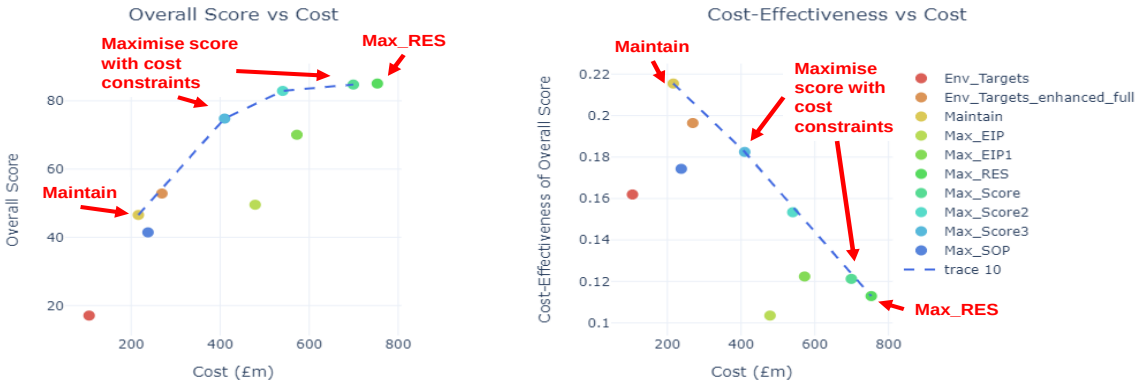
This prioritisation is consistent across the household and non-household customers, as well as different segments of the household customers (location, socio-economic group and vulnerability).

Our approach to Best Value and how this impacts programme appraisal

The customer weights are used in Programme Appraisal to aid comparisons between alternative programme/plans. Customer weights against each value criteria (e.g. Wellbeing, Resilience, Internal flooding) are used to define an 'Overall Score' for each plan which can then be used to compare performance across multiple plans.

The figure below is for illustrative purposes only, but it shows the performance of ten potential plans, showing the contribution of different value criteria to each plan's overall score.

Example applications and outputs



Sensitivity analysis on the weights is used to identify where small changes in one criteria's weight may lead to a difference in the ordering of plan preferences according to the 'Overall Score'.

4. Timeline and alignment with other strategic plans

We're working to a very tight timeline to create a draft DWMP.

- Discussion on preferred plan complete by end 2021
- Plan freeze for internal approval Early February 2022
- Informal pre-consultation with regulators and internal governance/assurance February to June 2022
- Public consultation June 2022

We realise there are lots of other strategic plans being created by Thames Water or other organisations which all interlink in some way. In the table below we have tried to highlight where these plans overlap and link into each other:

Strategic Plan	Link to DWMP/vice versa
WRMP	– We are aligning our approach to WRMP assessments, framework and communications where possible.
GISMPs	– Provide the detail on infiltration risk to input into DWMPs
SWMPs	– Discussion on preferred plan complete by end 2021 – We are using similar assessment approaches.
FRMPs	– Informed direction and ambition of DWMP to date. – Updates over coming months/years will be included in the plan as and when or into next round of DWMP (2025 to 2030)
RBMPs	– Informing direction and ambition of DWMP. – Updates over coming months/years will be included in the plan as and when or into next round of DWMP (2025 to 2030)
Drainage Strategies	– Learning from Drainage Strategies are incorporated in DWMP
Smarter Water Catchment plans	– Ongoing alignment of content as SWC plans are developed. – Provides learning for DWMP on partnership working.

5. Working together to draft the plan – what's next

Regional half-day workshops in November 2021 will be the key opportunity for Level 2 stakeholders (LLFAs, EA local reps and Catchment Partnerships) to input to the DWMP creation prior to draft plan public consultation in June 2022. All Level 2 feedback, input and priorities will be used to complete Programme Appraisal by the end of this year, along with oversight and amendments from our Level 1 stakeholders and further customer research (Level 3 stakeholders).

Once the plan is finalised (Early February 22) it is then 'frozen' and no more new data can be incorporated. This is so that it can be ready for pre-consultation with regulators, final governance/assurance by our Executive teams and we can prepare for consultation. Information about the consultation in June will be available via our website and portal next year.

This means the workshops are key for creating a collaborative plan so please make every effort to attend. Dates and pre-reading will be sent out in October.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