



Drainage and Wastewater Management Plans

Technical Summary: Options Development and Appraisal (ODA)

Version 1
August 2021



Introduction: what is the Options Development and Appraisal?

The Water UK guidance says that the aim of the Options Development and Appraisal (ODA) stage of the DWMP is to be “*Consistent with the overall aims of the DWMP framework, the options development and appraisal methodology has been developed to focus the level of planning effort, i.e. proportionate to the risks identified, with a view to providing a measure of consistency across the industry.*”

This paper sets out our proposed approach and process for the ODA.

The ODA stage of the Drainage and Wastewater Management Plan (DWMP) is a key part of the development of the plan. It follows the risk assessment and problem characterisation stages which identified the risks and helped us to understand the problems so that solutions can be developed to reduce those risks. The ODA stage is where the solutions to the problems can be identified and appraised to determine what investments are put forward to manage and reduce the risks in the wastewater system.

Our intention is to develop robust ‘best value’ interventions to manage and reduce the ‘significant’ risks in our drainage and wastewater systems. These interventions need to be packaged up to reduce the risks under all 14 of the planning objectives to an acceptable level wherever possible. The ODA process enables us to identify potential solutions and then evaluate them in a robust and transparent way to determine a preferred set of investments for inclusion within our investment programme.

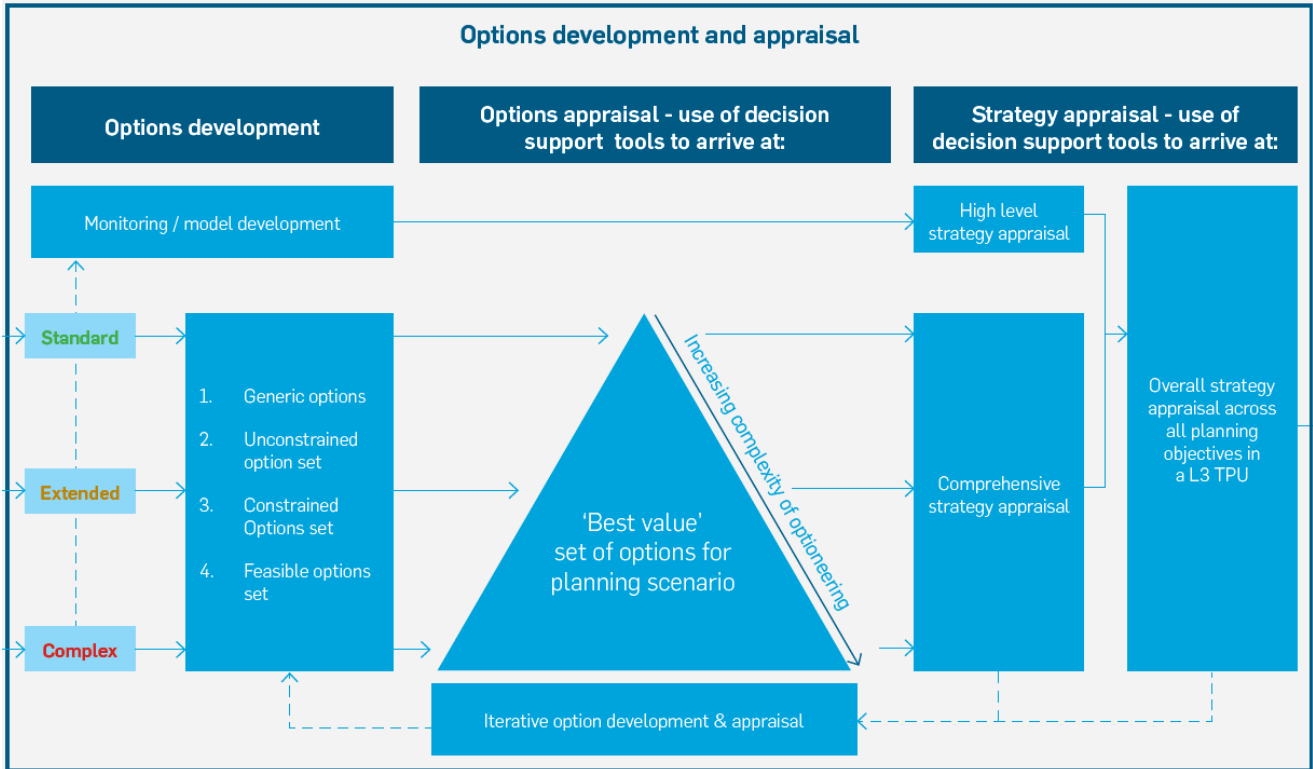
An ODA is undertaken for each of our wastewater systems (also known as catchments) where a risk is identified. It looks at potential interventions for each wastewater system. A summary of these generic options is provided at the River Basin Catchment scale so that partner organisations can see where there may be opportunities to work collaboratively to resolve problems.

Water UK Framework Guidance

The Water UK guidance sets out an approach to “*provide a framework that will enable companies to develop robust ‘best value’ interventions to identified exceedances of planning objectives where these arise in the planning period. A key principle in the development of the DWMP is that the ODA process should be undertaken for any L3 Tactical Planning Unit (TPU) where a risk is identified. Options appraisal should then include potential interventions at L3, L2 and L1 to produce an optimised L2 plan that delivers against the planning objectives for the L2 Strategic Planning Area (SPA) and derived from those set at a company level.*”

This is shown schematically in Figure 1 and is to be applied at each L3 TPU.

Figure 1 – Schematic of ODA Process



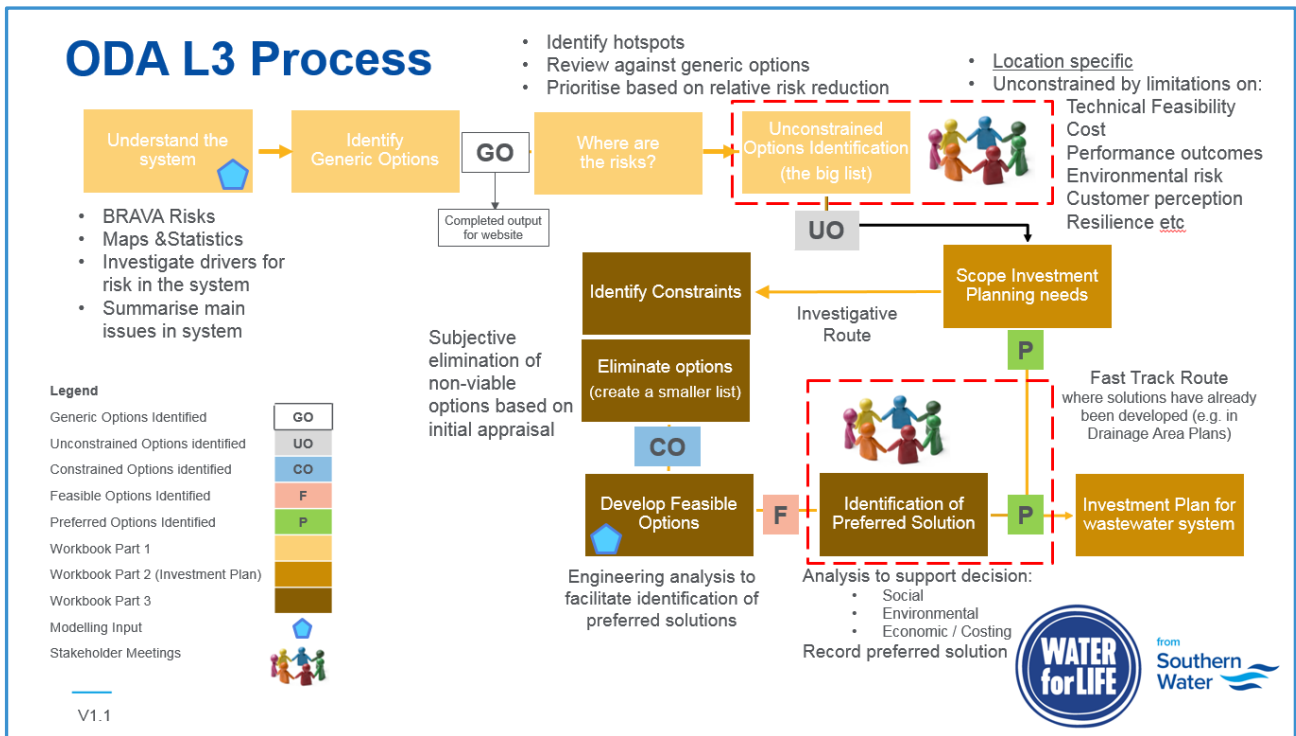
How we have applied the Framework for our ODA

Process

Our approach for the ODA stage follows the Water UK guidance and is illustrated in the process chart in figure 2.

The ODA process commences at the river basin catchment scale (level 2 planning) in order to look across all level 3 wastewater systems in the river basin and assign generic options that could work in the wastewater system. These Generic Options are based on the drivers and causes of risks, and these can then be investigated and developed further from a long-list of 'unconstrained' options through to feasible options during the level 3 planning.

Figure 2: ODA process















Generic Options

The first step in the ODA process is to review the generic option categories against the specific risks in each of the wastewater systems across the 11 river basin catchments. This is so we can identify the generic types of solutions we think might be useful in reducing the risks.

We have utilised the Source-Pathway-Receptor model for our approach to options development and appraisal. This model helps us to consider and identify opportunities to tackle and reduce the risks ‘at source’ as well as by investing in our infrastructure assets on ‘the pathway’, and also whether, perhaps as a last resort, we can mitigate the impacts on customers and the environment in the ‘receptor’. The ‘source-pathway-receptor’ model for our ODA is shown in figure 3.

Figure 3: The Source-Pathway-Receptor Model application for ODA

Type of Measures	Generic Option Categories	Icon	Examples of Generic Options
Source (Demand) Measures (to reduce likelihood)	Control / Reduce surface water run-off		Natural Flood Management; rural land management and catchment management; SuDS including blue and green infrastructure; storm management
	Reduce groundwater levels		Reduce leakage from water supply pipes; pump away schemes to locally lower groundwater near sewer network
	Improve quality of wastewater		Domestic and business customer education; incentives and behaviour change (reduce Fats, Oils & Grease, wet wipes etc.); monitoring trade waste at source; on-site black water and/or greywater pre-treatment
	Reduce the quantity / demand		Water efficient appliances; water efficient measures; blackwater and/or greywater re-use; treatment at source
Pathway (Supply) Measures (to reduce likelihood)	Improve Sewer Network		Asset optimisation; additional network capacity; storage; separate flows; operational improvements; structural repairs; re-line sewer pipe and manholes; smart networks.
	Improve Treatment Quality		Increase treatment capacity; rationalisation of treatment works (centralisation / de-centralisation); install tertiary plant; UV plant or disinfection facilities; innovation; improve Technical Achievable Limits; new WTWs
	Wastewater Transfer to treatment elsewhere		Transfer flow to other network or treatment sites; transport sewage by tanker to other sites
Receptor Measures (to reduce consequences)	Mitigate impacts on Air Quality		Carbon offsetting; noise suppression /filtering; odour control and treatments
	Improve Land and Soils		Sludge soil enhancement
	Mitigate impacts on receiving waters		River enhancement, aeration
	Reduce impact on properties		Property flood resilience; non-return valves; flood guards / doors; air brick covers
Other	Study / Investigation		Additional data required; hydraulic model development; WQ monitoring and modelling

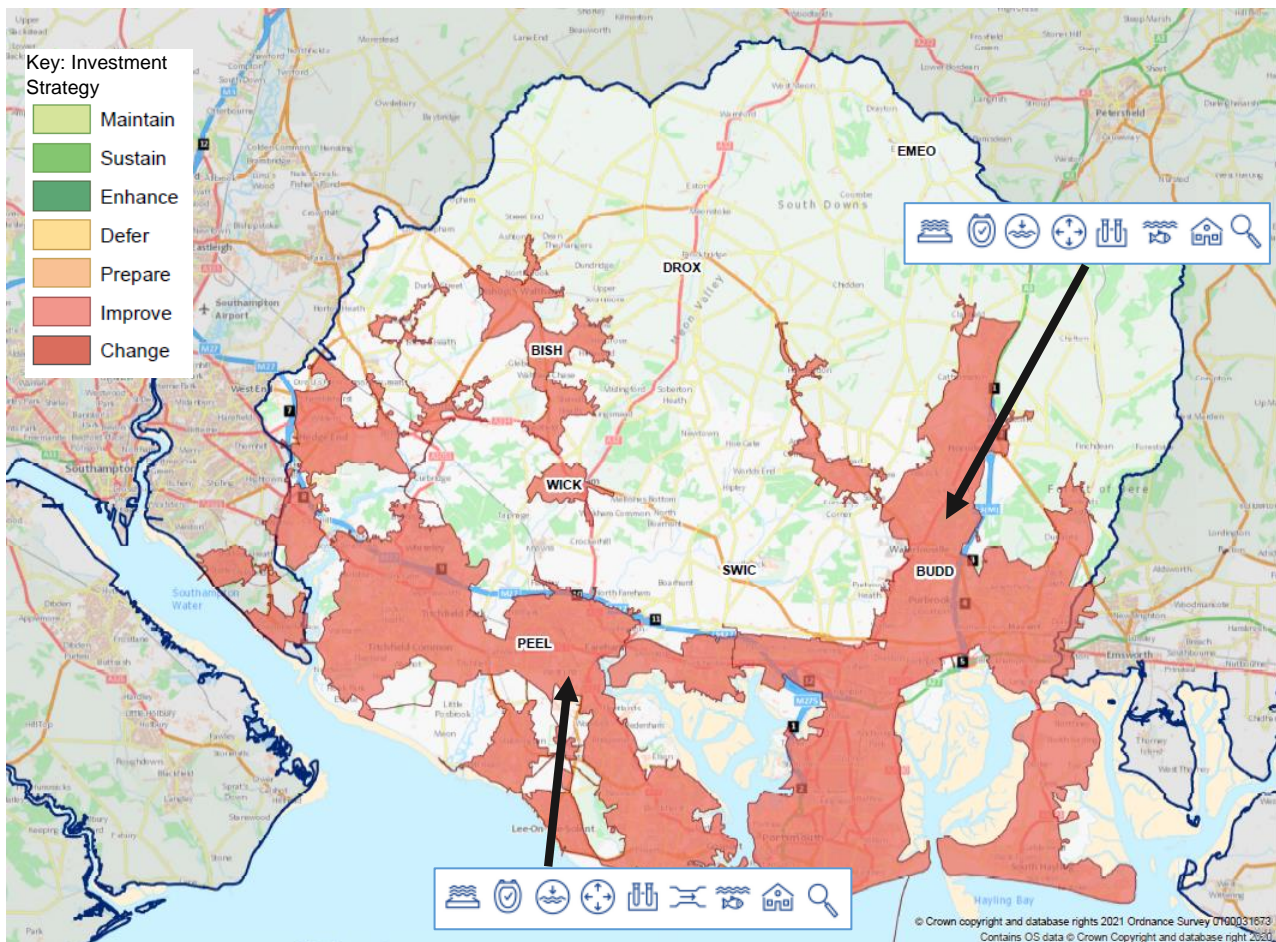
Screening of Generic Options

We looked at the risks and their associated drivers and causes across all the wastewater systems within each of our river basin catchments. This allows us to understand the types of interventions that could potentially provide appropriate solutions for each specific wastewater system without undertaking further studies to determine the exact scale or geographic locations for these options. Where appropriate, the Generic Options clarify interventions that must be considered further during the Level 3 planning (see ODA Level 3, below).

We held workshops with staff and partner organisations in April and May 2021 to discuss the ODA process, the application of the Source-Pathway-Receptor approach, and we started the generic options screening for a few selected wastewater systems. This screening process was completed after the workshops for all the wastewater systems selected for inclusion in the level 3 planning for the first cycle of DWMPs. The screening eliminated all the generic options that will not address any of the risks in the wastewater system. The completed generic options screening template are available on our website.

We have produced a map of each of our 11 river basin catchments showing the proposed generic options for each wastewater system – see our website www.southernwater.co.uk/dwmps. The purpose of the map is to show the type of solutions we will consider and progress for managing the risks in the wastewater system. The map will help to identify potential opportunities to work with partner organisations and/or developers to deliver a more environmentally sustainable approach to managing both water and wastewater in the local communities. An example of these maps is shown in figure 4.

Figure 4: Example map of a River Basin Catchment showing the wastewater systems (shaded by the investment strategy) and the generic options to be explored in each system

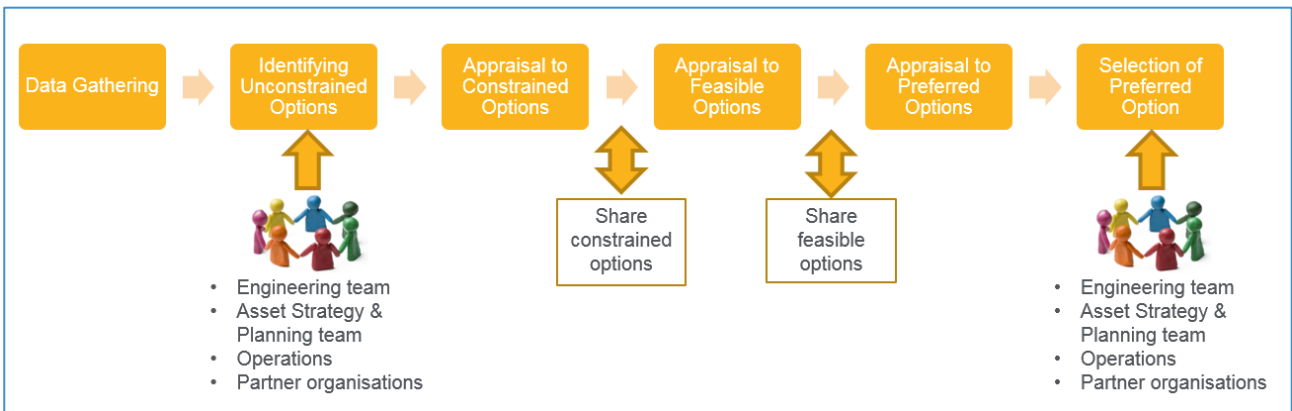


Options Development

The options development for each wastewater system is informed by the BRAVA, problem characterisation and the generic options screening. This means we know the scale of the risks (the problem), the drivers and causes, the location of the risks in the system, and the types of options we need to explore further during this stage.

This stage of ODA starts with creating a 'virtual team' of our staff and experts from partner organisations. This team is then brought together for a brainstorming session to consider the risks in the wastewater system and identify a long list of 'unconstrained' options (see figure 5). These are options that could reduce the risks if there were no funding, technical or other constraints. For each 'hotspot' or 'cluster' of risks in a system, the unconstrained options are identified. These are then put forward for appraisal.

Figure 5: Approach to working with partners for the ODA stage



The appraisal approach follows that set out in the Water UK guidance. Questions are asked at each stage of the appraisal process to evaluate and screen out further options until a set of feasible options is established. The feasible options are then costed and assessed in order to identify a preferred option, as shown in figure 6. The feasible options for the system will be discussed with the 'virtual team' and a preferred option selected.

Figure 6: Appraisal Process for the Options Development stage

