

Thames Water WRMP19 Resource Options

Fine Screening Report Update
Executive Summary

September 2016

Thames Water Utilities Ltd



Issue and revision record

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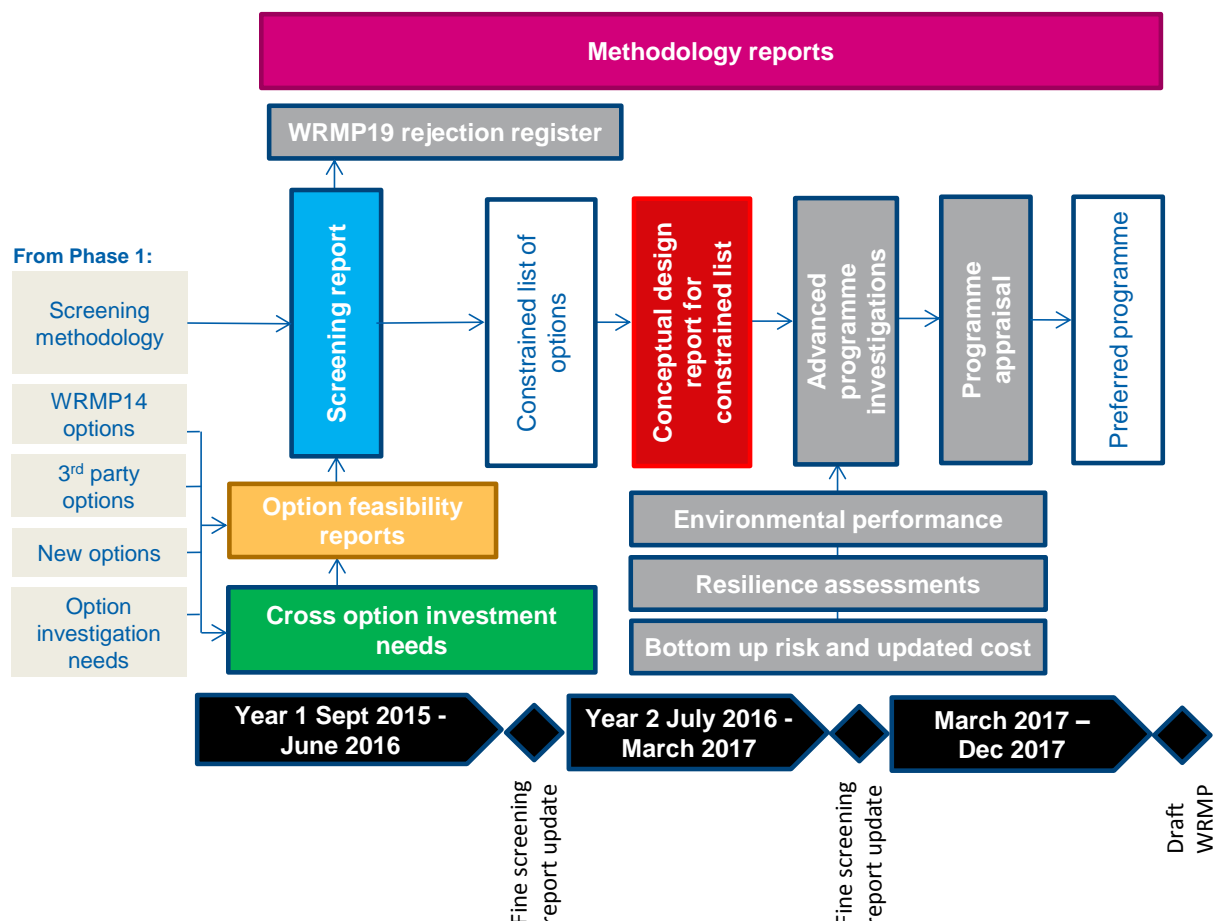
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Executive Summary

Introduction

This report describes the updated fine screening for resource options that has been conducted. The report builds on the fine screening methodology and initial fine screening assessment undertaken in Phase 1. The Phase 1 work also identified a number of investigations required to inform the decision making process. In many cases these Phase 2 investigations have been incorporated into a set of feasibility assessments for each resource option type and into a number of cross-option studies. The feasibility methodology is consistent with other similar recent feasibility studies carried out by Thames Water for the Thames Tideway scheme and for the Deephams sewage treatment works upgrade. The approach also aligns to methods of site selection and feasibility assessments that are now widely applied by other organisations for major infrastructure schemes.

Figure S.1: Overview of reporting and documentation



The information from these studies feeds into the updating of the fine screening report which generates the Constrained List of options that feeds into the WRMP19 programme appraisal. Figure S.1 illustrates these different stages.




Fine screening summary

This report, provides an update on the current fine screening position, focusing in particular on the London Water Resource Zone (WRZ). A summary of the fine screening status of those options identified on the Feasible List from the feasibility reports can be found in Table S.1.

Table S.1: Fine screening summary for specific options

Option	Size Band (Ml/d)							Comment
	0	25	75	125	175	225	275	
London								
Reuse - Beckton								Develop conceptual design for 100, 200 and 300M/d options
Reuse - Mogden								Mutually exclusive with DRA Teddington
Reuse - Deephams								Develop conceptual design for option to prove reuse technology concept
Reuse - Crossness								Screened out on cost and not expected to be needed in planning period
Reuse - Mogden South Sewer								Mutually exclusive with DRA Teddington
RWT - STT Deerhurst								Develop 300 Ml/d transfer option at conceptual design
New Reservoir - Abingdon								Develop conceptual design for 2 phase and single phase options (excl. 30 and 50Mm ³)
New Reservoir - Chinnor								Excessively costly compared to reuse, desalination and Abingdon reservoir
New Reservoir - Marsh Gibbon								Excessively costly compared to reuse, desalination and Abingdon reservoir
DRA - River Lee								Screened out due to uncertainty around water quality and yield
DRA - Teddington								Develop concept design for 300M/d option. Assessment of navigational impact needed.
Desalination - Beckton								Develop conceptual design for 150M/d option
Desalination - Crossness								Screened out due to resilience and operability concerns
Desalination - Thamesmead								Develop phased option connecting into Beckton desalination conveyance

Key

	Screened out at fine screening
	Passes fine screening onto Constrained List
	Fine screening TBC

Fine screening for the Thames Valley Water Resource Zones has not been updated at this stage pending:

- Completion of the groundwater feasibility report
- Completion of the inter-zonal transfers feasibility report
- Finalisation of the raw water transfers feasibility report, particularly in relation to the Canal & River Trust (CRT) canal transfer options

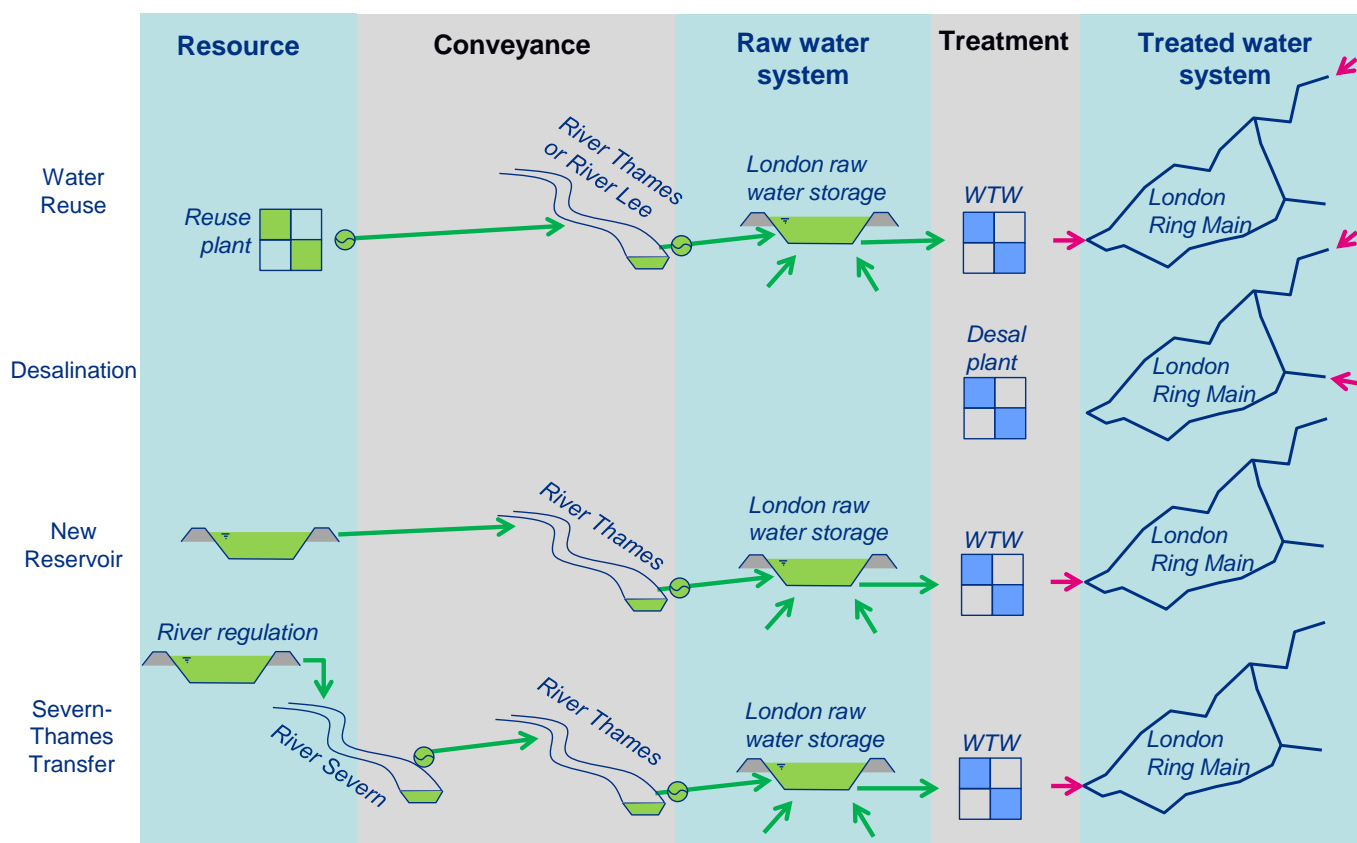
The fine screening report will be finalised once all of the feasibility reports have been completed.

Preliminary Constrained List

A preliminary view of the constrained list for the resource options is provided in Table S.2 for the London Water Resources Zone (WRZ). The list only includes options that have passed the fine screening and not those where decisions have still to be confirmed.

For the large scale options the constrained list breaks the options into system elements (see examples in Figure S.2). The reason for doing this is that the information is not currently available to choose the optimal phasing of the different system elements now.

Figure S.2: Separating options into system elements



The key data on the projected deficits and the drivers for the deficits (whether growth, sustainability reductions or resilience) will not be available until 2017. Once this information is available it will be possible to identify the optimal combination of the different system elements.

Next steps

Further work is required in a number of areas to finalise the WRMP19 Constrained List including:

- Complete groundwater and catchment management feasibility reports and incorporate into fine screening
- Complete inter-zonal transfers feasibility report once WRMP19 demand forecasts are available and incorporate findings into fine screening (includes inter-company treated water transfers)
- Incorporate findings from raw water transfers feasibility report for options whose status has still to be confirmed (including CRT canal transfer options)
- Complete investigation into reinforcements required to the raw water system in the Rivers Thames and Lee
- Complete investigation into an alternative site to the existing Coppermills water treatment works for a new water treatment works in east London

For options included on the Constrained List the following next steps are planned:

1. Complete conceptual design reports, building on and updating WRMP14 dossiers where these exist
2. Undertake Strategic Environmental Assessment, Habitats Directive and Water Framework Directive assessments of the Constrained List options
3. Update cost estimates for conceptual design
4. Undertake bottom-up assessment of risk
5. Use the above information to inform cost, deliverability and environmental metrics to feed into programme appraisal

In addition to the general next steps associated with options on the Constrained List, there are also a number of key next steps to address uncertainties associated with specific options:

- a. Progress negotiations and reach agreement in principle on terms for bulk supply agreements (particularly for Severn-Thames Transfer resources)
- b. Confirm process, timescales and nature of changes needed to the existing River Severn regulation for the supported Severn-Thames Transfer options
- c. Undertake hydro-dynamic modelling for Teddington DRA option to confirm discharge location and extent of navigational impacts to inform engagement with Port of London Authority and Environment Agency.

Table S.2: Preliminary Constrained List for London WRZ

Option Type	Resource Element		Conveyance Element		Raw Water System	Treatment Element		Network Element	
	Location	Nominal Capacity MI/d	Location	Nominal Capacity MI/d		Location	Nominal Capacity MI/d	Location	Nominal Capacity MI/d
Indirect water reuse	Deephams	60	Deephams to King George V Intake Beckton to King George V Intake	60	TBC	East London Treatment	60 100*3	See network reinforcement matrix	
	Beckton	100		300					
		200							
		300							
Raw Water Transfer	Vyrnwy	180	Deerhurst to Radcot	300	TBC	Kempton	100*3	See network reinforcement matrix	
	Minworth	88							
	Draycote	25							
	Mythe	15							
Desalination	Beckton	150	N/A	N/A	N/A	N/A	See network reinforcement matrix, plus Beckton to Coppermills 450		
	Thamesmead	300							
New Reservoir	Abingdon 75Mm3	153	N/A	N/A	TBC	Kempton	300 150 100	See network reinforcement matrix	
	Abingdon 100Mm3	204							
	Abingdon 125Mm3	247							
	Abingdon 150Mm3	287							
	Abingdon 30+ approx 90Mm3	59+179							
	Abingdon 70+ approx 50Mm3	145+93							
Direct River Abstraction	Teddington Weir (Mogden effluent transfer)	300	Teddington to Thames-Lee tunnel shaft	300		Kempton / East London	TBC	See network reinforcement matrix	