

Summary of Changes since the Revised Draft WRMP

This document summarises the material changes that have been made since our revised draft WRMP; it is also incorporated into the draft final WRMP as Volume 3 Appendix N.

All material changes have been highlighted in yellow throughout the seven volumes that comprise this draft final WRMP.

Section	Amendments to our revised draft WRMP	dfWRMP ref.
Executive Summary		
Volume 1	This section of our draft final WRMP (dfWRMP) has been amended to take account of changes following the Public Inquiry on our draft WRMP (dWRMP) and in accordance with instructions issued by Defra in May 2011 in response to the Planning Inspector's recommendations. It provides an outline of each of the sections in Volume 2.	Volume 1
Volume 2: Main Report		
1	Introduction	
	This section introduces water resources planning and how this document relates to previous and future submissions.	Section 1.1
	An outline of the Public Inquiry process which was held during the summer of 2010 and the resulting Planning Inspector's recommendations which the Secretary of State (Defra) has directed that we address in this dfWRMP, including references to where in the Plan the recommendations are addressed.	Section 1.6
	How the document links with our updated 2011 Drought Plan.	Section 1.8
2	Water Resources Programme 2005-10	
	This section has not been amended significantly since the revised draft WRMP (rdWRMP), as it relates to our AMP4 (2005-2010) water resources programme. Some minor changes have been made to reflect the latest position on resource development studies.	Section 2
	The base year for the draft final WRMP remains as 2007-08, this is consistent with the rdWRMP. The forecast to 2010 also remains as per the rdWRMP and has not been updated to reflect actual performance.	
3	Current and Future Demand for Water	
	This section describes how our current and future demand forecast is prepared. The baseline and final planning demand forecast is unchanged from the rdWRMP, as this was accepted by the Planning Inspector at the Public Inquiry on our dWRMP. This section therefore only contains minor text updates.	Section 3
4	Current and Future Water Supply	
	This section describes the amount of water which is currently available for water supply and how this has been assessed. It also presents how the baseline supply forecast has been constructed.	Section 4

Section	Amendments to our revised draft WRMP	dfWRMP ref.
	This section of our dfWRMP has been amended to take account of changes following the Public Inquiry on our dWRMP and in accordance with instructions issued by Defra in May 2011 in response to the Planning Inspector's recommendations.	
	One of the key outcomes of the Public Inquiry was a change to the way in which we considered long term risk, particularly with respect to sustainability reductions beyond AMP5. This change is reflected in this section and later sections of our dfWRMP.	Sections 4.2.5 and 4.2.6
	Defra has not instructed us to change any other aspects of our baseline supply forecast for the dfWRMP.	Section 4
5	Allowing for Risk and Uncertainty - 'HEADROOM'	
	This section of our dfWRMP describes how we have assessed risk and uncertainty relating to our supply demand balance. Defra has not instructed us to change our Headroom assessment.	Section 5
	However, with reference to the Planning Inspector's Recommendation Number 20, we have further explored the sensitivity of the least cost programme to these factors and this analysis is presented.	Sections 8 and 9
6	Baseline Supply Demand Balance	
	This section describes how our baseline supply demand balance is built up. This section has only minor text updates.	Section 6
7	Appraisal of Supply Demand Options	
	This section of our dfWRMP presents the appraisal of supply demand options. It has been amended to take account of changes following the Public Inquiry on our dWRMP and in accordance with instructions issued by Defra in May 2011 in response to the Planning Inspector's recommendations. There are several amendments to this section.	Section 7
	We summarise the additional preliminary SEA/HRA consultation we have undertaken with statutory authorities for the dfWRMP. We also set out the way in which the double counting of environmental and social impacts is avoided in our options appraisal process.	Section 7.1.2.3
	Changes have been made to the list of water resource schemes under consideration.	Section 7.2
	Several new options have been added, some have been excluded and the assumptions and costs for others have been amended.	Section 7.1
	The demand management options are unchanged from those considered in the rdWRMP however text has been included to reflect agreements, with Ofwat on mains replacement and the Consumer Council for water on aspects of metering, made at the Public Inquiry.	Section 7.3
8	Programme Appraisal	
	This section describes the process used to develop a preferred programme of options to restore and maintain security of supply in Water Resource Zones in deficit. This process is known as programme appraisal and includes least cost modelling of alternative scenarios in combination with the Strategic Environmental Assessment (SEA) to inform the selection of a preferred solution.	Section 8

Section	Amendments to our revised draft WRMP	dfWRMP ref.
	This section of our dfWRMP has been amended to take account of changes following the Public Inquiry on our dWRMP and in accordance with instructions issued by Defra in May 2011 in response to the Planning Inspector's recommendations. It takes account of changes to and presents additional material explaining the judgements leading to the preferred plan. This includes:	
	Changes made to the dfWRMP following Stakeholder Update Note No. 2 have been summarised.	Text box prior to Section 8.1
	References to "long-term risk" have been removed, notably references to potential future sustainability reductions. It is understood that the EA will provide information on sustainability reductions in our supply area in sufficient time for these to be taken into account in the preparation of our next WRMP (WRMP14).	Section 8
	<p>With the removal of long-term risk, the planning problem to be addressed in the dfWRMP has changed:</p> <ul style="list-style-type: none"> • In the London WRZ the supply demand deficit is 80 MI/d from 2020, this is based on the assumption that the AMP5 and AMP6 demand management programme is implemented. • In SWOX WRZ, the supply demand deficit is 1MI/d from 2025; this assumes the AMP5 and AMP6 programme of demand management and small resource schemes is implemented. 	Sections 8.2 and 8.3
	A revised programme appraisal has been undertaken to appraise potential programmes to meet the supply-demand balance to 2035. Whilst our methodological approach to the programme appraisal has not been revised, we have endeavoured to provide a clearer explanation of the approach and decision-making process, as instructed by Defra.	Section 8.1 (EBS Stage 13)
	The schemes included within the preferred programmes for London and SWOX WRZs are different from those outlined in our rdWRMP, due to the reduced planning problem compared to that in our rdWRMP.	Sections 8.2 and 8.3
9	<p>Preferred Supply Demand Programme</p> <p>This section of our dfWRMP has been amended to take account of changes following the Public Inquiry on our dWRMP and in accordance with instructions issued by Defra in May 2011 in response to the Planning Inspector's recommendations. The final planning solutions, or the preferred programmes, for each WRZ are presented. In summary, the main changes and points to note are as follows:</p> <p>The baseline and final planning demand forecast is unchanged from the revised dWRMP, as accepted by the Inspector. Only minor textual updates in relation to our preferred demand management programme have been made.</p> <p>Our resource development programmes for the London and SWOX WRZs have changed significantly since the rdWRMP following the Planning Inspector's recommendations following the Public Inquiry and instructions from Defra which have resulted in a significantly smaller supply demand deficit to be addressed.</p>	<p>Section 9</p> <p>Sections 9.1 and 9.2</p> <p>Section 9.3</p>

Section	Amendments to our revised draft WRMP	dfWRMP ref.
	<p>The least cost programme is selected as the preferred final planning programme for the London WRZ. This programme comprises a number of small groundwater schemes, two aquifer recharge schemes, three aquifer storage and recovery schemes, the reuse scheme at Hogsmill sewage treatment works (STW) and the 25 MI/d reuse scheme at Deephams STW. The decision-making process that led to this preferred programme has been documented in Volume 2 Section 8 of this plan. The supply demand balances of alternative programmes are presented here.</p>	Section 9.3.1
	<p>The Abingdon reservoir scheme is not included in the London WRZ least cost programme for this plan, due to the high yield (110 MI/d) of the smallest (50 Mm³) scheme relative to the supply-demand deficit for London WRZ of 80 MI/d by the end of the 25-year planning period. In addition, the Severn-Thames transfer schemes are not chosen. Further work to define the yield, cost and ongoing risks for these strategic options will be carried out for WRMP14.</p>	n/a
	<p>The preferred final planning programme for the SWOX WRZ comprises, as specified in Defra's instructions, the same resource development schemes in AMP5 (2010-15) as contained in the rdWRMP. The raw water transfer from Culham to Farmoor WTW is selected to address the supply demand deficit of 1 MI/d beyond 2024/25. This decision-making process has been documented in Volume 2 Section 8. The supply demand balances of alternative programmes are presented here.</p>	Section 9.3.2
	<p>The remaining zones are unchanged and remain in surplus throughout the planning period.</p>	Sections 9.3.3 to 9.3.6
	<p>Details of utilisation-based AISCs for the preferred programme are now presented in Volume 2 Section 8, along with those of other programmes investigated.</p>	Section 8
10	<p>Sensitivity Testing</p> <p>This section of our dfWRMP has been amended to take account of changes following the Public Inquiry on our dWRMP and in accordance with instructions issued by Defra in May 2011 in response to the Planning Inspector's recommendations. These amendments include sensitivity tests on the new preferred programme. The demand scenarios comprising the sensitivity tests remain the same as those applied in the rdWRMP. Sensitivity is investigated in two different ways:</p> <p>Testing the impact of altered demand scenarios on the surplus/deficit in London and SWOX WRZs under the preferred programme of supply and demand side measures</p> <p>The alternative programmes selected by the EBSD model to balance supply and demand under the altered demand scenarios</p>	<p>Section 10</p> <p>Section 10.3</p> <p>Section 10.4</p>

Section	Amendments to our revised draft WRMP	dfWRMP ref.
	<p>The following key conclusions can be drawn from the sensitivity testing carried out:</p> <ul style="list-style-type: none"> • The London WRZ solution is quite sensitive to changes in demand side assumptions; • This is to be expected given the strong focus on demand management in the programme and the fact that the preferred supply side programme comprises small to medium sized supply side schemes; as a result the demand line closely tracks the supply line and deviations can provide surplus or indeed tip the balance into deficit; and • The SWOX WRZ preferred programme is less sensitive than London as the zone already starts from a low leakage level and a relatively high metering penetration. As such the reliance is less on demand management and more a balance with water resource development. 	Section 10.5
	<p>In order to mitigate this risk it is essential to develop contingency options that can be utilised should demand management activities not deliver the anticipated level of savings, or that water use behaviour is not altered by Company water efficiency messages or the Government's drive to reduce water use. Additionally, we intend to continue to examine 'innovative solutions' to the supply demand problem which can be utilised in the longer term, such as innovative tariffs and the potential for regional transfer solutions.</p>	Section 10.6
Volume 3: Appendices		
Appendix A	<p>WRZ Maps No updates have been made to this appendix since the rdWRMP.</p>	Appendix A
Appendix B	<p>Demand Forecasting Methodology and Assumptions Only one minor textual erratum update has been made to this appendix since the rdWRMP.</p>	B4.4.7
Appendix C	<p>Leakage and Underground Assets No updates have been made to this appendix since the rdWRMP.</p>	Appendix C
Appendix D	<p>IDM, Metering and Water Efficiency No updates have been made to this appendix since the rdWRMP.</p>	Appendix D
Appendix E	<p>Climate Change No updates have been made to this appendix since the rdWRMP.</p>	Appendix E
Appendix F	<p>Water Resource Options Assessment Appendix F expands on information contained in Volume 2 Section 7 of this dfWRMP, which describes how the identification of potential water resource development schemes has built on work undertaken for WRP06, the Stage 1 UTMRD Needs Case, the draft/revised draft WRMP and Defra's recommendations following the Public Inquiry on our dWRMP.</p>	Appendix F
	<p><i>Generic Options List</i> No changes have been made to the generic options list presented in the rdWRMP. However, the justification for rejection of particular generic options has now been moved to the option rejection register.</p>	F.4
	<p><i>Unconstrained List of Water Resources Options</i> As a result of the discussions within the Public Inquiry on our revised draft WRMP, the Inspector's recommendations and Defra's subsequent instructions, a number of additional water resource schemes have been added to the unconstrained and feasible options list for our dfWRMP:</p>	F.2

Section	Amendments to our revised draft WRMP	dfWRMP ref.
	<ul style="list-style-type: none"> • Unsupported Severn Thames Transfer - Pipeline (300MI/d transfer): Defra recommendation 1; • Unsupported Severn Thames Transfer - Cotswold Canal (3 options): Defra recommendation 2; • Reservoir - Abingdon 50Mm3: Defra recommendation 4; • Deephams STW Reuse - 60 MI/d: Defra recommendation 5 and 7; • Supported Severn-Thames Transfer - Longdon Marsh Case B (Abingdon 100 Mm3 equivalent): Defra recommendation 7; • Beckton STW Reuse – 50 and 150 MI/d: Defra recommendation 2; • Estuary South Desalination - 100 MI/d: Defra recommendation 7; and • Hogsmill STW Reuse (option 1, 2 and 3): Defra recommendation 7. <p>In addition, some water resources schemes have been removed from further consideration in this dfWRMP:</p> <ul style="list-style-type: none"> • Craig Goch and Columbus transfer options have been excluded from the feasible options list as a result of representations made by the Welsh Assembly Government regarding the feasibility of these options. • Oxford STW re-use option has been excluded from the feasible options list as a result of the findings of a study commissioned by the Environment Agency. • Hogsmill Sewage Transfer option identified in the revised draft WRMP has been excluded and replaced by a re-use scheme (see above) in response to comments made by the Environment Agency. 	
	<p><i>Feasible/Constrained Options list</i></p> <p>The following changes have been made to the feasible options costs since the rdWRMP:</p> <ul style="list-style-type: none"> • Re-calculation of the carbon costs (included within the environmental and social costs for each option) to reflect the latest Government guidance on the use of the Non-Traded Price of Carbon. • Update of the environmental and social costs for the Estuary South Desalination (100MI/d) and the Abingdon 50Mm3 options which were presented in draft at the Public Inquiry. • Correction of spreadsheet calculation errors and data entry errors that have been identified during the review of options data. • Update of the costs for the Longdon Marsh Case A and B options and the Unsupported Severn-Thames transfer (300 MI/d transfer) option to reflect iterations in engineering scope and cost appraisal agreed at the Public Inquiry. Also improvements to the Longdon Marsh Case A cost estimates prior to the Public Inquiry. • Re-calculation of the deployable output and option costs for the Oxford Canal transfer option as a result of information received from British Waterways and presented at the Public Inquiry. • Re-calculation of the energy use for effluent re-use options as presented at the Public Inquiry, to reflect actual energy consumption at Thames Water’s operational pilot plant. 	F.3
	<p><i>Option Rejection Register</i></p> <p>This section provides justification for the rejection of each of the generic option types which were not included in the unconstrained options list.</p> <p>This section is new for this dfWRMP.</p>	F.4

Section	Amendments to our revised draft WRMP	dfWRMP ref.
Appendix G	Uncertainty and Risk Methodology No updates have been made to this appendix since the rdWRMP.	Appendix G
Appendix H	Programme Appraisal Supporting Information This section of our dfWRMP has been amended to take account of changes following the Public Inquiry on our dWRMP and in accordance with instructions issued by Defra in May 2011 in response to the Planning Inspector's recommendations.	Appendix H
	The main change involves updating of the figures and supporting information such that it now relates to the alternative programmes identified through the programme appraisal, which has been detailed in Volume 2 Section 8 of this dfWRMP.	H.1 and H.2
	In addition to the supply demand balances for each alternative programme, this appendix now also contains a detailed breakdown of the programme appraisal results for alternative programmes identified for the London and SWOX WRZs and a breakdown detailing how the Criterion 3 of the programme appraisal was derived. These results are presented in direct accordance with the Planning Inspector's recommendation number 8: improving the transparency of our programme appraisal process, in particular the application of the programme appraisal criteria.	Tables H.2 and H.3 for London WRZ Tables H.5 and H.6 for SWOX WRZ
Appendix I	UTMRD Stage 1 Needs Case and the dWRMP No updates have been made to this appendix since the rdWRMP.	Appendix I
Appendix J	Customer Surveys and Willingness to Pay No updates have been made to this appendix since the rdWRMP.	Appendix J
Appendix K	Glossary No updates have been made to this appendix since the rdWRMP.	Appendix K
Appendix L	References No updates have been made to this appendix since the rdWRMP.	Appendix L
Appendix M	Updated Demand Forecasts No updates have been made to this appendix since the rdWRMP.	Appendix M
Appendix N	Summary of Changes since Revised Draft WRMP This table comprises Appendix N, summarising changes made since to rdWRMP. Appendix N in the rdWRMP summarised changes made since the dWRMP, thus has now been superseded.	Appendix N
Volume 4: Supply demand tables		
Volume 4	London WRZ - Dry Year Annual Average	
	The feasible water resource options list, and associated costs and water available for use (WAFU), updated where appropriate in accordance with changes to the feasible options list as summarised in Volume 2 Section 7 and documented more fully in Volume 3 Appendix F.	London DYAA WRP2
	The preferred list of water management options has been updated in accordance with the preferred final planning programme, as documented in Volume 2 Sections 8 and 9.	London DYAA WRP3

Section	Amendments to our revised draft WRMP	dfWRMP ref.
	<p>In Table WRP4-FP Row 1, the profile of additional deployable output resulting from the preferred list of resource management options from Table WRP3 Row 65 has been added to the baseline deployable output profile from Table WRP1-BL Row 1.</p> <p>The impacts of this change has also been reflected in later rows of Table WRP4-FP.</p>	<p>London DYAA WRP4-FP</p>
	<p>SWOX WRZ - Dry Year Annual Average and Dry Year Critical Period</p>	
	<p>The feasible water resource options list, and associated costs and WAFU, updated where appropriate in accordance with changes to the feasible options list as summarised in Volume 2 Section 7 and documented more fully in Volume 3 Appendix F.</p>	<p>SWOX DYAA and DYCP WRP2</p>
	<p>The preferred list of water management options has been updated in accordance with the preferred final planning programme, as documented in Volume 2 Sections 8 and 9.</p>	<p>SWOX DYAA and DYCP WRP3</p>
	<p>In Table WRP4-FP Row 1, the profile of additional deployable output resulting from the preferred list of resource management options from Table WRP3 Row 65 has been added to the baseline deployable output profile from Table WRP1-BL Row 1.</p> <p>The impacts of this change has also been reflected in later rows of Table WRP4-FP.</p>	<p>SWOX DYAA and DYCP WRP4-FP</p>
	<p>Kennet Valley - Dry Year Annual Average and Dry Year Critical Period</p>	
	<p>The timing of the Speen sustainability reductions applied to both the baseline (Row 2a_{BL}, Table WRP1a-BL) and final planning (Row 2a_{FP}, Table WRP4a-FP) tables has been amended to correct an internal inconsistency, so that it is implemented in 2013/14.</p>	<p>Kennet Valley DYAA and DYCP WRP1a-BL and WRP4a-FP</p>
<p>Volume 5: Best Practicable Environmental Programme: Assessment of Alternative Schemes</p>		
<p>Volume 5</p>	<p>Volume 5 of this dfWRMP has been amended to take account of changes following the Public Inquiry into our dWRMP. The changes include:</p>	<p>Volume 5</p>
	<p>Changes to the list of feasible schemes, as identified in Volume 2 Section 7 of the dfWRMP. These changes are:</p> <ul style="list-style-type: none"> Assessment of new schemes and assessment of different scales of schemes. These 13 schemes are: Severn-Thames Transfer: Longdon Marsh A; Severn-Thames Transfer: Longdon Marsh B; Severn-Thames Transfer: Unsupported; Reuse: Hogsmill 3; Reservoir - Abingdon 50Mm³ A; Reservoir - Abingdon 50Mm³ B; Reuse: Beckton (50MI/d); Reuse: Beckton (150MI/d); Estuary South Desalination (100MI/d); Cotswold Canal Transfer (Base); Cotswold Canal Transfer (Full Cost); Cotswold Canal Transfer (Alternative); and Reuse: Deephams STW (60 MI/d). The assessments of environmental and social impacts are presented in Sections 104-118; and Withdrawal of schemes no longer considered to be viable or replaced by alternative designs. These 8 schemes are: Severn Thames Transfer Craig Goch; Severn Thames Transfer Longdon Marsh; Columbus (South Wales) Transfer B; Columbus (South Wales) Transfer A; Hogsmill Transfer B; Oxford Reuse (25 MI/d); Reuse: Hogsmill 1; and Reuse: Hogsmill 2. 	<p>Volume 5</p>

Section	Amendments to our revised draft WRMP	dfWRMP ref.
	<p>Since publication of the rdWRMP a number of changes have been made to the assumptions for the feasible options in terms of the yield (deployable output - DO), capital cost and operating cost. These are the result of discussions during the Public Inquiry on the dWRMP, Defra's recommendations after the Public Inquiry and the on-going process of checking and review conducted before and since the inquiry. These changes usually affect the assessment of environmental and social impacts. Amendments to operating costs since the Public Inquiry typically relate to power consumption and these trigger changes in the environmental and social cost.</p>	Volume 5
	<p>The environmental and social costs of all options have been re-calculated to reflect current guidance for expressing the monetised value of carbon emissions. The Government's latest guidance is on the use of the EU Traded Price of Carbon and Non-Traded Price of Carbon. This replaces Government guidance on the use of the Shadow Price of Carbon. This results in a change in the environmental and social cost for all options.</p>	Volume 5 Appendix 1
	<p>The methodology for assessing Cultural Heritage has been revised in consultation with English Heritage; this applies to all scheme assessments.</p>	
	<p>The on-going process of checking and review conducted before and since the Public Inquiry included the environmental and social impact assessments in this document. This has resulted in a range of changes. Those amendments documented at the Public Inquiry have been incorporated. Further checks since the Public Inquiry – to ensure consistency in assessment – have been made. These checks particularly relate to the treatment of site area and construction traffic effort. These checks have resulted in changes with minor effect on the assessment of a range of criteria.</p>	Volume 5
Volume 6: Strategic Environmental Assessment		
Volume 6	<p>This volume is substantially new for this dfWRMP as the SEA has been undertaken on the preferred programme of schemes as selected as part of this dfWRMP (<i>note: as a result, changes in this volume have not been highlighted in yellow</i>). This comprises the Environmental Report and Addendum.</p>	Volume 6
Volume 7: Habitats Regulations Assessment		
Volume 7	<p>This volume is entirely new for this dfWRMP (<i>note: as a result, changes in this volume have not been highlighted in yellow</i>).</p>	Volume 7