

Appendix F – Models used in the SFRA

Watercourse	Model details	SFRA Flood Zone 2 and 3a	Model used to map Flood Zone 3b?	Return period Flood Zone 3b is taken from	Climate Change 100-year + 25% outline mapped from this model?	Climate Change 100-year + 35% outline mapped from this model?	Climate Change 100-year + 70% outline mapped from this model?	Comment
Barbourne Brook	2009, Flood risk mapping study, JBA	The results from the 1,000-year and 100-year undefended models were used in the SFRA Flood Zones	Yes	25-year	Yes	Yes	Yes	
Bow Brook	2002, Bow Brook Elcock's Brook and Shell Brook Flood risk mapping, JBA	Not used	No	n/a	No – Flood Zone 2 used as a conservative indication	No – Flood Zone 2 used as a conservative indication	No – Flood Zone 2 used as a conservative indication	Model was outdated by generalised 2D modelling used in the Flood Map for Planning, so this was used in preference to the model for Flood Zones 2, 3a and 3b. Flood Zone 2 was used as a conservative indication of climate change.
Carrant Brook	2013, Tewkesbury Tributaries SFRM, JBA	The results from the 1,000-year and 100-year defended models (but no defences present on the watercourse) were used in the SFRA Flood Zones	Yes	20-year	Yes	Yes	Yes	
Kyre Brook	2010, Hazard mapping study, JBA	The results from the 1,000-year and 100-year undefended models were used in the SFRA Flood Zones	Yes	25-year	Yes	Yes	Yes	
Noleham Brook	2015, Noleham Brook modelling and mapping, Capita and AECOM	The results from the 1,000-year and 100-year defended models (no defences present on the watercourse) were used in the SFRA Flood Zones	Yes	20-year	Yes	Yes	Yes	
River Avon	2010, Flood risk mapping study, Halcrow Group and JBA	The results from the 1,000-year and 100-year undefended models were used in the SFRA Flood Zones	Yes	20-year	Yes	Yes	Yes	
River Avon	2016-2017, Pershore, Worcestershire County Council highways adaptation modelling study, JBA	Not used – Flood Zones here were taken from the River Avon 2010 model, as the Pershore model had not been run for the undefended scenario.	No – as the 100-year and 1,000-year outputs for this model could not be used for FZ2 and FZ3a it was consistent to use the River Avon model output.	n/a	Yes	Yes	Yes	
River Avon	2017, Eckington, Worcestershire County Council highways adaptation modelling studies, JBA	Not used – Flood Zones here were taken from the River Avon 2010 model, as the Pershore model had not been run for the undefended scenario.	No – as the 100-year and 1,000-year outputs for this model could not be used for FZ2 and FZ3a it was consistent to use the River Avon model output.	n/a	Yes	Yes	Yes	
River Salwarpe	2007, Strategic flood risk mapping study, Halcrow Group	The results from the 1,000-year and 100-year defended models (no defences present on the watercourse) were used in the SFRA Flood Zones	Yes	25-year	No – model could not be run	No – model could not be run	No – model could not be run	The model could not be run for climate change. In the absence of this model, 2D generalised modelling was used the River Salwarpe and its tributaries.
River Salwarpe	2016, JBA generalised 2d modelling	Not used	No	n/a	Yes	Yes	Yes	Used in the absence of detailed hydraulic model being unable to run for climate change.
River Severn	2012, Midlands Flood Warning Thresholds Review, JBA	Not used – Flood Zones here were taken from the Environment Agency Flood Map for Planning Flood Zones, as the River Severn models had not	Yes	25-year	Yes	Yes	Yes	

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		been run for the undefended scenario.						
River Severn	2015, Worcester New Road, Worcestershire County Council highways adaptation modelling study, JBA	Not used – Flood Zones here were taken from the Environment Agency Flood Map for Planning Flood Zones, as the River Severn models had not been run for the undefended scenario.	Yes	25-year	Yes	Yes	Yes	
River Severn	2016-2018, Upton upon Severn, Worcestershire County Council highways adaptation modelling study, JBA	Not used – Flood Zones here were taken from the Environment Agency Flood Map for Planning Flood Zones, as the River Severn models had not been run for the undefended scenario.	Yes*	25-year	Yes	Yes	Yes	*The modelled outline for Flood Zone 3b was based on the highway flood scheme which at the time of writing this SFRA was being implemented at the marina.
River Teme	2008, River Teme SFRM, Capita Symonds	The results from the 1,000-year and 100-year defended models (no defences present on the watercourse) were used in the SFRA Flood Zones	Yes	25-year	Yes	Yes	Yes	
River Swilgate and Tirl Brook	2013, Tewkesbury Tributaries SFRM, JBA	The results from the 1,000-year and 100-year defended models (no defences present on the watercourse) were used in the SFRA Flood Zones	Yes	20-year	Yes	Yes	Yes	Not within the study area; however, the area is shown on the Appendix A GeoPDF mapping so was included.