

Risk ID	Risk description		Risk status	Risk owner	Qualitative ranking (before response action)					Response Action			Qualitative Ranking (After Response Action)					Data for Quantitative Analysis				Assumptions (for cost and time basis)	
	Source of risk	Consequence on project			Probability scale	Cost impact	Time impact	Cost+time impact	Risk priority	Existing safeguards in place	Action	Action owner	Residual probability (%)	Probability scale	Cost impact	Time impact	Cost+time impact	Priority	Least cost (£)	Most likely cost (£)	Max cost (£)		MEV (£)
1	Perception of low general awareness of risk/problem strategy seeks to address, to city and wider region. Adverse PR possible. Limited engagement resources.	Delay/challenge to flood strategy delivery or funding priority	Live	BCC	M	M	M	M	M	Consultation carried out at SOC stage to raise awareness.	Ongoing engagement and consultation planned through FBC stage	BCC	40%	M	M	H	H	H	£ 5,000	£ 1,500,000	£ 6,000,000	£600,000	Least - 1 month overheads, most likely - 6 month inc. inflation (1% total increase), most - 2 year inc. inflation (4%)
3	Interfaces with other projects/strategies engagement	Delay/challenge to flood strategy delivery.	Live	BCC	L	M	M	M	M	Interface management plan in place. BCC leading engagement planning.	Ongoing engagement and consultation planned through FBC stage	BCC	30%	L	VL	H	H	M	£ 5,000	£ 300,000	£ 1,200,000	£90,000	Least - 1 month overheads, most likely - 6 month inc. inflation (1% total increase), most - 2 year inc. inflation (4%)
6	BCC - EA Legal Agreement for delivery of strategy (use of stat. powers, maintenance responsibilities)	Delay to flood strategy delivery.	Live	BCC	VL	L	M	M	L	MOA and Initial Collaboration Agreement drafted.	Review at FBC stage. EA/BCC to identify resource.	BCC / EA	5%	VL	L	M	M	L	£ 5,000	£ 30,000	£ 60,000	£300,000	Least - 1 month overheads, most likely - 6 month overheads, 1 year overheads
8	Lack of funding delays FBC start - significant requirement at this stage	Delay to flood strategy delivery.	Live	BCC	H	L	H	H	H	Budget monitoring	Options in discussion to fund FBC. Possibility of 'soft start' FBC funding	BCC	50%	H	VL	M	M	M	£ 5,000	£ 30,000	£ 60,000	£15,000	Least - 1 month overheads, most likely - 6 month overheads, 1 year overheads
9	OBC assurance delays start of FBC	Delay to flood strategy delivery.	Live	BCC	M	L	M	M	M	Approved SOC, ongoing EA engagement	Engagement with EA ongoing through OBC. Robust business case to be presented to LPRG.	BCC / SP	40%	M	VL	M	M	M	£ 5,000	£ 30,000	£ 60,000	£12,000	Least - 1 month overheads, most likely - 6 month overheads, 1 year overheads
10	FBC assurance delays start of construction	Delay to flood strategy delivery.	Live	BCC	M	L	M	M	M	Approved SOC, ongoing EA engagement	Engagement with EA ongoing through OBC. Robust business case to be presented to LPRG.	BCC	20%	L	VL	M	M	M	£ 5,000	£ 30,000	£ 60,000	£6,000	Least - 1 month overheads, most likely - 6 month overheads, 1 year overheads
11	Lack of funding certainty delays TWAO submission	Delay to flood strategy delivery.	Live	BCC	M	L	M	M	M	Budget monitoring	Review and monitor	BCC	40%	M	VL	M	M	M	£ 5,000	£ 30,000	£ 60,000	£12,000	Least - 1 month overheads, most likely - 6 month overheads, 1 year overheads
12	Insufficient revenue funding between EA and BCC wrt maintenance liabilities	Delay to flood strategy delivery.	Live	BCC				Data missing	Data missing	Lessons from examples such as Derby. Precedence of Junction Lock MOU. Paper on powers and maintenance responsibilities prepared.	Review and monitor	BCC	40%	L	L	L	L	L	£ 5,000	£ 30,000	£ 60,000	£12,000	Least - 1 month overheads, most likely - 6 month overheads, 1 year overheads
13	Change in flood defence grant arrangements	Delay to flood strategy delivery.	Live	BCC	L	L	M	M	M	OBC based on 2021-2027 partnership funding rules	Review and monitor	BCC / EA	10%	L	L	L	L	L	£ -	£ -	£ -	£ -	No cost to project as would be significant scope change and also affect benefits - more likely to have positive effect. Allowance in OB
14	Natural Flood Management measures increase total costs/benefits	Increase to budget identified by OBC	Live	BCC	H	M	L	M	M	NFM measures identified in OBC	NFM opportunities report carried out to give budget estimates.	BCC / EA	60%	H	VL	VL	VL	L	£ 50,000	£ 475,000	£ 1,295,000	£285,000	Lower Malago only: £50k. All Malago: £475k. Malago plus BB: £1.3m
15	Insufficient funding for wider benefits or placemaking approach	Delayed/unrealised opportunities for wider benefits	Live	BCC				Data missing	Data missing	Provide a range of placemaking options and indicate 'low' and 'high' costs	Refine budget estimates for phase 1 works.	BCC & SP		M	L	L	L	L	£ 0	£ 0	£ 0	£ 0	No cost to project as would reduce Capex, but may lead to project not being viable.
17	Climate change impact projections/guidance changes	Impact on defence levels/benefits, and timing of future phases.	Live	BCC	L	H	VH	VH	H	Allowances agreed with EA and BCC	Modelling carried out to latest climate change guidance. No planned updates within project timescales known.	BCC	10%	VL	M	H	H	M	£ 0	£ 0	£ 0	£ 0	No cost to project as would be significant scope change and also affect benefits - more likely to have positive effect. Allowance in OB
23	Additional ecological and Heritage surveys required	Additional complexity and risk of challenge	Live	BCC	H	L	L	L	M	Allowance for extra surveys in forward programme and costs	Monitor and prioritise	BCC	40%	M	L	L	L	L	£ 25,000	£ 50,000	£ 500,000	£20,000	Future costs include ecological and heritage surveys. Range of additional surveys costed
26	Local Choice delays flood strategy timing/phasing due to interface with other projects	Limited change flood risk in strategic and site specific planning terms (requires enabling infrastructure to have reasonable prospect of delivery).	Live	BCC				Data missing	Data missing	Governance agreed.	Governance.	BCC/EA		M	M	M	M	M	£ 0	£ 0	£ 0	£ 0	No cost
27	Interface with other sources of flood risk - surface water and sewerage. Known surcharging e.g. Albert Road.	Additional cost (e.g. non-return valves)	Live	BCC	M	L	L	L	L	SOC considered surface water and sewerage interface at strategic level, ensuring no increase in risk.	Wessex Water ongoing study. Opportunity to incorporate at FBC	BCC	20%	L	L	L	L	L	£ 10,000	£ 100,000	£ 500,000	£20,000	Estimate of unknown additional costs
30	Non-acceptance/delayed acceptance by statutory consultees (HE, NE, BCC, BANES, South Glos, North Somerset - Highways Authorities, Harbour Authorities etc)	Programme delay and potential increase in costs for additional studies/mitigation measures.	Live	BCC	M	M	VH	VH	H	Engagement to gain buy-in and support during Strategy development.	Further engagement through strategy consultee working group. TWAO and supporting assessments required	BCC & SP	20%	L	M	VH	VH	M	£ 10,000	£ 1,500,000	£ 6,000,000	£300,000	Least - 1 month overheads, most likely - 6 month inc. inflation (1% total increase), most - 2 year inc. inflation (4%)
31	Landowner/occupier agreements protracted/delayed. Areas of land unregistered (e.g. St Philips Avon Path)	Programme delay and potential increase in costs for additional studies/mitigation measures.	Live	BCC	H	L	H	H	H	Default flood strategy option minimises requirement for works on third-party (i.e. non-BCC) land. Budget estimate includes compensation allowance including compounds and working access.	Early identification of likely landowner agreements and early engagement	BCC & SP	40%	M	L	H	H	H	£ 700,000	£ 1,400,000	£ 7,000,000	£560,000	Additional compensation mitigation allowance needed. 10-100% extra allowance, most likely 20%
32	Challenge to scheme(s) consenting due to perception of flood risk impact on third-parties	Programme delay and potential increase in costs for additional studies/mitigation measures.	Live	BCC	M	L	L	L	L	Detriment mitigation developed in consultation with EA.	Engage affected communities, identifying opportunities for win-win (e.g. Pill wall repairs and Keynsham development strategy)	BCC & SP	20%	L	L	L	L	L	£ 5,000	£ 30,000	£ 60,000	£6,000	Detriment mitigation
33	Additional requirements to enhance navigation	Increase in costs for additional mitigation measures.	Live	BCC	H	L	L	L	M	Liaison with harbourmaster.	Engage with Harbourmaster and operators during design stages, identifying mitigation.	BCC & SP	50%	M	L	L	L	L	£ 50,000	£ 250,000	£ 5,000,000	£125,000	Max cost - additional lock gate replacement and walls. Min - additional bollards.
34	Utilities (known/unknown) interface with proposals	Potential significant increase in costs/delay or changes to proposed alignment/form.	Live	BCC	H	M	L	M	M	Budget estimate based on desk study information carried out	Further surveys and engagement with utility owners at FBC	BCC & SP	25%	M	M	L	M	M	£ 1,000,000	£ 2,500,000	£ 6,000,000	£625,000	Current allowance £6m.
35	Ground conditions including risk of Unexploded Ordnance and Contamination	Potential significant increase in costs/delay or changes to proposed alignment/form.	Live	BCC	H	H	H	H	H	Desk studies carried out, precautionary approach included in costing preferred solution	Ground investigation at FBC detailed design stage (inc. UXO search).	BCC & SP	20%	L	M	M	M	M	£ 2,500,000	£ 5,000,000	£ 12,500,000	£1,000,000	Range 1-5% additional cost of non-PFR defences. Most likely 2%
36	Procurement delays. Late contractor involvement.	Potential significant increase in costs/delay.	Live	BCC	M	H	H	H	H	OBC includes indicative procurement options, including ECI options. Some ECI carried out at OBC stage	Procurement strategy to be developed	BCC	20%	L	H	H	H	M	£ 2,500,000	£ 5,000,000	£ 12,500,000	£1,000,000	Range 1-5% additional cost of defences. Most likely 2%
37	Ground permeability may be high, affecting the effectiveness of defences by allowing water to propagate underneath them.	Effectiveness of defences may be reduced. Potential to lead to remedial construction works	Live	BCC	M	H	H	H	H	Desk studies carried out, precautionary approach included in costing preferred solution	Allow for piled / deep foundations in initial designs. Targeted assessment and GI to be undertaken at FBC	BCC & SP	20%	L	H	H	H	M	£ 2,500,000	£ 5,000,000	£ 12,500,000	£1,000,000	Range 1-5% additional cost of non-PFR defences. Most likely 2%
38	Working with heritage / ageing assets (e.g. riparian retaining structures in varying/poor condition). Risk of asset failure (e.g. Chocolate Path and Clarence Road recent collapses). Insufficient information on existing structures.	Potential significant increase in costs/delay or changes to proposed alignment/form.	Live	BCC	M	M	M	M	M	Budget estimate optimism allowance. BCC Harbour Condition Assessment findings and heritage DBA	Review at FBC stage with design, surveys and contractor engagement	BCC & SP	5%	VL	M	M	M	L	£ 500,000	£ 1,000,000	£ 5,000,000	£50,000	Estimate of potential costs
40	Flood strategy interface with rail assets	Potential significant increase in costs/delay or changes to proposed alignment/form.	Live	BCC	H	M	H	H	H	OBC recognises risk, and includes cost allowance for extra interface with NR. Some engagement between EA and NR carried out	FBC to include engagement with Network Rail	BCC & SP	20%	L	M	H	H	M	£ 100,000	£ 500,000	£ 5,000,000	£100,000	Estimate of potential costs
41	Damage (or risk of damage) to third-party structures (e.g. adjacent buildings)	Potential significant increase in costs/delay or changes to proposed alignment/form.	Live	BCC	M	M	M	M	M	OBC design recognises risk and adopts precautionary approach.	Continue precautionary approach at FBC stage	BCC & SP	5%	VL	M	M	M	L	£ 100,000	£ 500,000	£ 5,000,000	£25,000	Estimate of potential costs
43	The amended Strategy contains a number of direct impacts on heritage assets. Risk of archaeology	Potential requirement for consent from Historic England/LPA. Potential significant increase in costs/delay or changes to proposed alignment/form.	Live	BCC	M	M	M	M	M	Heritage desk based assessment completed. Design looks to avoid impact on heritage structures	Environmental documentation to be updated further at future stages. Engage with HE.	BCC & SP	20%	L	M	M	M	M	£ 1,250,000	£ 2,500,000	£ 5,000,000	£500,000	Range 0.5-2% additional cost of non-PFR defences. Most likely 1%
44	Environmental impacts deemed too great or inadequately mitigated	Potential significant increase in costs/delay or changes to proposed alignment/form.	Live	BCC	M	M	VH	VH	H	OBC adopts precautionary approach and looks to minimise harm. Preliminary EIA and other environmental surveys carried out to understand impacts	Design, engagement, consultation and further environmental assessment proposed in future stages.	BCC & SP	20%	L	M	VH	H	M	£ 400,000	£ 800,000	£ 4,000,000	£160,000	Additional environmental mitigation allowance needed. 10-100% extra allowance, most likely 20%
48	Widespread flood event	Recovery/repair costs. Potential to accelerate/change in project direction. Implications on scope, programme and cost.	Live	BCC	VL	L	M	M	L	Communication with BCC and Council leadership	Seek to deliver defences at pace, phasing FBCs	BCC	1%	VL	L	M	M	L	£ -	£ -	£ -	£ -	£0 No additional cost to project, potential interface change
49	Underfall Yard sluice operation failure - open and unable to emergency repair (and harbour drains down)	Unplanned harbour drawdown - poor condition of assets. Risk of operator issues. Vulnerability of walls and navigation craft.	Live	BCC	VL	L	M	M	L	Temporary repair	project has now received Environment Agency FSoD approval of £1.75m to fully fund the project with 100% grant in aid funding.	BCC	5%	VL	L	M	M	L	£ -	£ -	£ -	£ -	£0 No additional cost to project, potential interface change
50	Underfall Yard sluice operation failure - close and unable to emergency repair (and flooding)	If coincide with fluvial flood - over 100 homes inundated.	Live	BCC	VL	L	M	M	L	Temporary repair	project has now received Environment Agency FSoD approval of £1.75m to fully fund the project with 100% grant in aid funding.	BCC	5%	VL	L	M	M	L	£ -	£ -	£ -	£ -	£0 No additional cost to project, potential interface change
51	Entrance Lock sluices operation failure - open	Navigation through Entrance Lock hindered.	Live	BCC	VL	L	M	M	L	Temporary repair	Ongoing monitoring and preparation of business case for permanent repairs	BCC	5%	VL	L	M	M	L	£ -	£ -	£ -	£ -	£0 No additional cost to project, potential interface change
52	BCC Political Timeline including council leadership / structure change	Change from mayoral to committee could lead to a standstill period in 2024, impacting assurance/approval of OBC and funding to progress FBC	Live	BCC	H	L	H	H	H	Project Board escalation. Programme has generous allowance pre-FBC	Continued monitoring against OBC programme	BCC	50%	M	L	H	H	H	£ 5,000	£ 1,500,000	£ 6,000,000	£750,000	Least - 1 month overheads, most likely - 6 month inc. inflation (1% total increase), most - 2 year inc. inflation (4%)
53	Temporary works and traffic management - restrictions on available space for construction at key areas	Increase in time and cost to construct project	Live	BCC	H	H	H	H	H	ECI engagement has informed design and cost allows for a 'reasonable' level of disruption, including through works phasing.	Council engagement about acceptable disruption and phasing works	BCC	25%	L	H	M	H	M	£ 5,000,000	£ 10,000,000	£ 25,000,000	£2,500,000	Current costs and timescales allow for a reasonable space allowance. Least cost - 5% cost increase on city centre defences. Most likely 10%, max cost 25%