

Climate Change Risk Assessment & Management Plan



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5 Consequences of climate change risks for Cambridge

The next stage of the climate change risk assessment process involves identifying the consequences of those impacts detailed in the preceding stages resulting from climate and weather related events, and their changing likelihood as a result of climate change. These consequences are identified first for the whole of Cambridge.

Assessment of various risks to Cambridge is already undertaken by the Cambridgeshire & Peterborough Local Resilience Forum¹⁴, who produce a prioritised list of such risks in the Community Risk Register. In order to assist consideration of the risks associated with climate change alongside those identified in the Community Risk Register, the risk assessment exercise described below has adopted the same approach to scoring the likelihood and severity of impacts, which is detailed in Appendix A.

Appendix B lists 42 climate change risks, 32 of which present threats and 10 of which present opportunities to the people, property, economy and environment of Cambridge. For each risk the following features are identified.

Climate / weather event – which generates the risk e.g. higher temperature extremes or drier summers.

Likelihood – a score of 1 to 5 is assigned to each event corresponding to the description of how likely it is to occur contained in Appendix A. This is done for three time periods based on the results of the UK Climate Change Projections presented in section 4.2: 2020's (corresponding to the thirty year period 2010-2039), 2050's (corresponding to the thirty year period 2040-2069), and 2080's (corresponding to the thirty year period 2070-2099). As the climate represents the average weather over a thirty year period, assigning a likelihood score to the near-term (e.g. now until 2015) or to shorter periods of time is not possible.

Impact / opportunity – resulting from the climate or weather event, e.g. flooding resulting from wetter winters, or increased incidence of unpleasant smells resulting from higher seasonal temperatures.

Risk category – indicating the nature of the impact and those affected by it. The following table indicates how those 'receptors' identified in Table 1 correspond with the risk categories used in the Community Risk Register, as described in Appendix A.

¹⁴ www.cplrf.org.uk

Risk Category	Receptors
Health	<ul style="list-style-type: none"> • People
Social	<ul style="list-style-type: none"> • Households • Transport • Utilities
Economic	<ul style="list-style-type: none"> • Workplaces
Environment	<ul style="list-style-type: none"> • Natural environment

Primary consequence – resulting from the impact or opportunity e.g. fewer accidents and less disruption to travel resulting from reduced incidence of winter ice and snow. There may be several consequences affecting different risk categories resulting from the same impact or opportunity.

Severity – a score of 1 to 5 is assigned to each consequence corresponding to the description of the scale of its impact contained in Appendix A. Whilst the risk scoring method contained in Appendix A is primarily designed to assess negative impacts, for this exercise it has also been used to inform the scale of potential opportunities, and a negative score (-1 to -5) was used accordingly.

Secondary consequence – resulting from the primary consequence e.g. potential public health and safety risk resulting from disruption to water dependent activities (e.g. washing and cleaning). There will also be third, fourth and lower order consequences associated with these, which may affect different risk categories. Secondary consequences have been included in Appendix B to indicate the implications of the primary consequences and to inform organisation or sector specific risk assessment, although they have not influenced the risk score.

Risk score – an indication of the overall level of risk calculated by multiplying the likelihood and severity for each primary consequence. As the likelihood for each primary consequence is identified for the 3 time periods 2020's, 2050's and 2080's, corresponding risk scores are likewise calculated for each time period.

Figure 11 adopts the same risk matrix format used in the Community Risk Register to prioritise the 32 negative risks (threats) identified for Cambridge in the 2020's resulting from climate change and Table 5 provides details of the nine threats judged to be very high priority.

Figure 11: Cambridge 2020's climate change risk matrix - threats

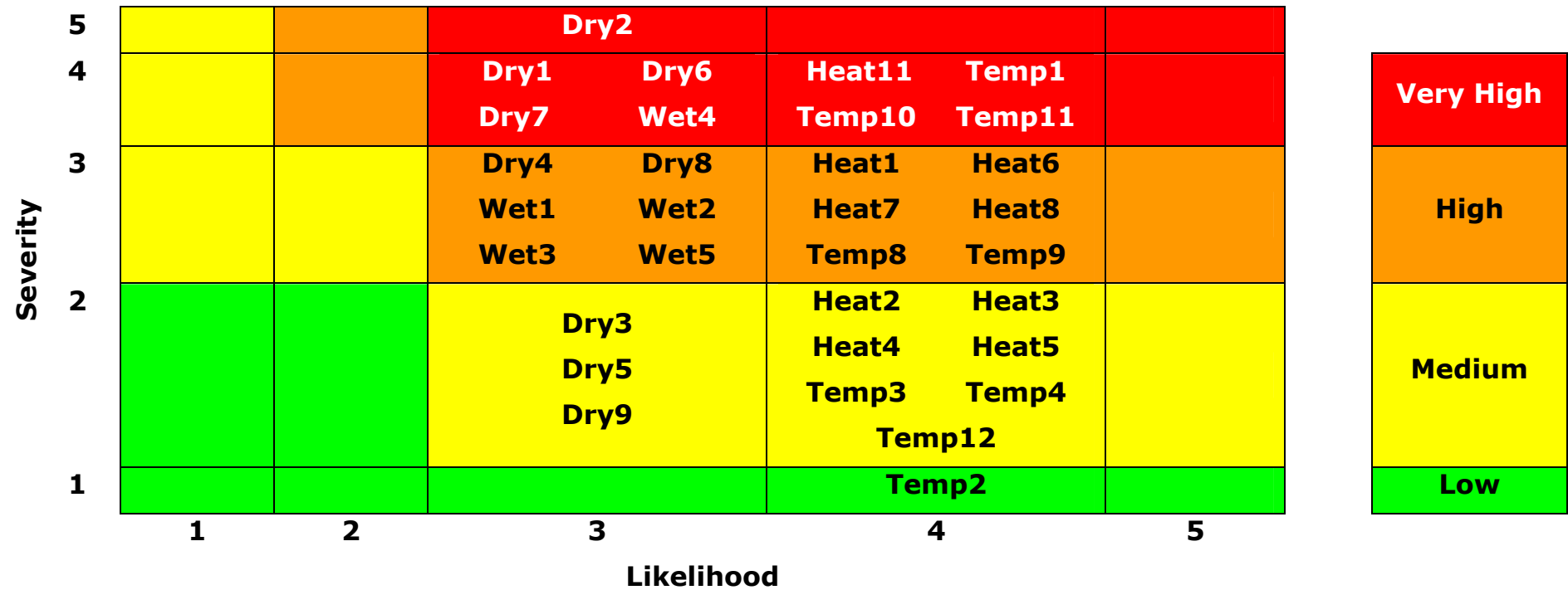


Table 5: Very high priority 2020's climate change threats to Cambridge

ID	Climate/ weather event	Impact/ opportunity	Category of Impact	Primary consequence	Secondary consequence	2020s Risk
Dry1	Drier summers	Reduced summer river flows	Environment	Lower water quality standards	Reduced river and wetland ecology	12
Dry2	Drier summers	Increased concentration of pollutants in drains, sewers & rivers	Environment	Lower water quality standards & increased treatment costs	Higher water bills	15
Dry6	Drier summers	Increased water consumption (esp. gardening)	Environment	Increased pressure on reducing water availability	Reduced water quality standards & ecological stress on moisture dependant species & habitats	12
Dry7	Drier summers	Ecological stress on drought intolerant species & habitats	Environment	Reduction in biodiversity due to lack of habitat	Ecological stress & loss of amenity	12

ID	Climate/ weather event	Impact/ opportunity	Category of Impact	Primary consequence	Secondary consequence	2020s Risk
Heat11	Higher temperature extremes (heat waves)	Increased water consumption	Environment	Increased pressure on reducing water availability	Reduced water quality standards & ecological stress on moisture dependant species & habitats	16
Temp1	Higher seasonal temperatures	Increase in vector-borne diseases (incl. Reduced winter die-off)	Health	Public health & safety risk	Increased demand for healthcare services	16
Temp10	Higher seasonal temperatures	Species migration	Environment	Reduction in biodiversity due to lack of habitat	Ecological stress & loss of amenity	16
Temp11	Higher seasonal temperatures	Species migration	Environment	Increase in invasive species forcing out native species	Ecological stress & loss of amenity	16
Wet4	Wetter winters & more intense rainfall	Increased flood risk (river & surface water)	Economic	Disruption to work due to supply chain, utility & travel disruption and staff absenteeism	Potential business failures	12

Figure 12 adopts the same risk matrix format used in the Community Risk Register to prioritise the 10 positive risks (opportunities) identified for Cambridge in the 2020's resulting from climate change. Whilst none of these are judged to be very high, Table 6 provides further details for each opportunity identified

Figure 12: Cambridge 2020's climate change risk matrix - opportunities

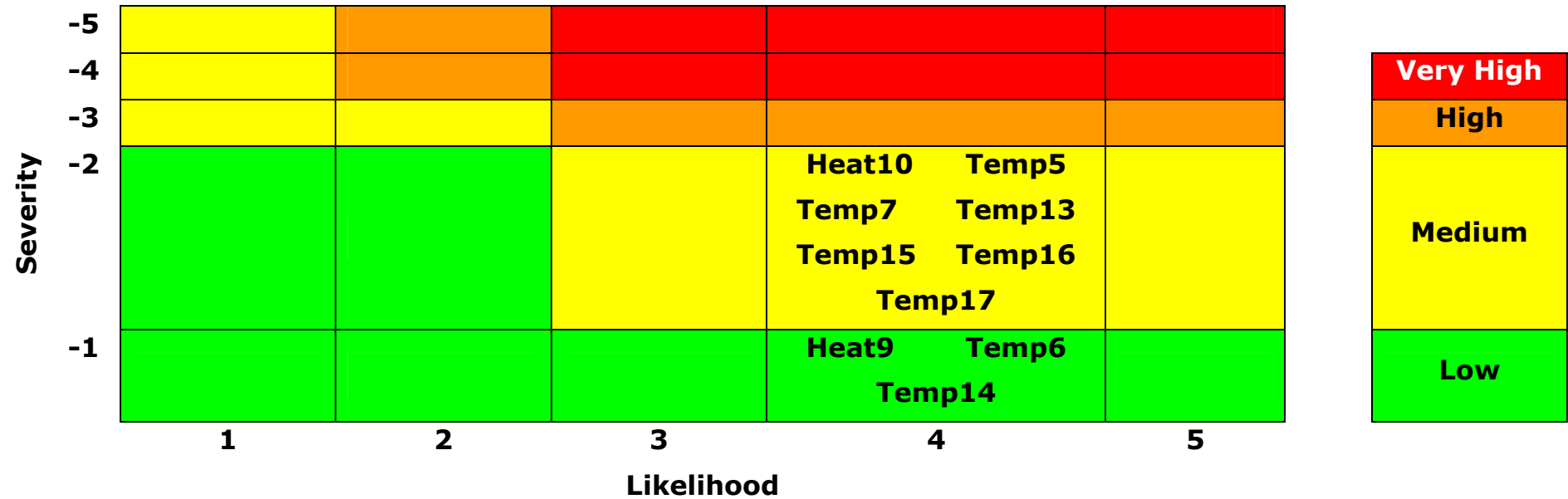


Table 6: Medium priority 2020's climate change opportunities to Cambridge

ID	Climate/ weather event	Impact/ opportunity	Category of Impact	Primary consequence	Secondary consequence	2020s Risk
Heat10	Higher temperature extremes (heat waves)	Increase demand for tourism & leisure services	Economic	Increased commercial opportunities for warm weather goods & services (e.g. BBQ's, ice creams, salads)	Reduced demand for other goods & services	-8
Temp5	Higher seasonal temperatures	Increased internal building temperatures	Economic	Reduced winter energy demand for heating	Reduced energy demand & costs	-8
Temp7	Higher seasonal temperatures	Increase demand for tourism & leisure services	Economic	New commercial opportunities	Reduced demand for other goods & services	-8
Temp13	Higher seasonal temperatures	Longer growing season	Environment	Potential for increased food crop production		-8
Temp15	Higher seasonal temperatures	Reduced probability of frost, ice & snow	Health	Public health & safety benefit (slips, accidents)	Reduced demand for emergency & healthcare services	-8

ID	Climate/ weather event	Impact/ opportunity	Category of Impact	Primary consequence	Secondary consequence	2020s Risk
Temp16	Higher seasonal temperatures	Reduced probability of frost, ice & snow	Social	Less damage & disruption to transport infrastructure (accidents, icing of rails & points)	Reduced demand for winter road gritting	-8
Temp17	Higher seasonal temperatures	Reduced probability of frost, ice & snow	Economic	Less disruption to work due to staff absence, travel delay, ice & snow		-8