



Gatwick Airport Northern Runway Project

Environmental Statement

Appendix 15.8.1: Climate Change Resilience Assessment

Book 5

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Table 4.1.1: Glossary of Terms

1 Introduction

1.1.1 This document forms Appendix 15.8.1 of the Environmental Statement (ES) prepared on behalf of Gatwick Airport Limited (GAL) for the proposal to make best use of London Gatwick Airport's existing runways and infrastructure (referred to within this report as 'the Project').

2 Climate Change Resilience Assessment

2.1 Introduction

2.1.1 This document provides the full climate change resilience (CCR) assessment for the project, the results of which are presented in Table 2.1.1. The assessment considers how resilient the Project is against projected climate change.

2.1.2 A risk analysis-based approach has been undertaken. The risk assessment uses a combination of likelihood and consequence to determine the level of risk.

2.1.3 The full CCR methodology is presented in Section 8 of **ES Chapter 15: Climate Change** (Doc Ref. 5.1). The criteria to assess the likelihood of the climate change impact and the consequence of the climate change impact can be found in Table 15.8.1 and Table 15.8.2 of **ES Chapter 15: Climate Change** (Doc Ref. 5.1).

2.1.4 The likelihood of the climate impact occurring has been assessed qualitatively, based on expert judgement and in discussion with the design team as well as accounting for embedded mitigation.

1.1.1 The risk level is determined based on a combination of the likelihood and consequence of the climate change impact as set out in the risk matrix in Table 15.8.3 of **ES Chapter 15: Climate Change** (Doc Ref. 5.1).

1.1.2 No high or very high risks (considered significant) during construction or operation were identified in the CCR assessment. Therefore, no further mitigation is required. Whilst not considered necessary to avoid significant effects, additional measures may be implemented following scheme refinements during detailed design stage (post Development Consent Order (DCO) consent) which would further reduce the risk of any significant effect.

1.1.3 No future monitoring is proposed with regard to climate change resilience during this construction period of the Project as existing

and embedded mitigation identified are considered to be sufficient.

1.1.4 As a responsible operator, and in compliance with the evolving legislative landscape, GAL has procedures to check the efficacy of embedded mitigation measures and keep them under review on account of regulator change, other circumstances change or the prevailing climate changes; to preserve passenger and operational safety and business continuity. All risks, especially the medium risks (not significant) (see Table 2.1.1), to ensure they do not move to the high or very high rating, need regular review. During operation this can be formalised and aligned with the GAL's Task Force for Climate-Related Disclosures (TCFD) mandatory reporting (latest example in GAL, 2023) and GAL's 5-year review cycle for the Climate Adaptation Risk Assessment (GAL, 2021), reporting to the Government under the Adaptation Reporting Power (ARP) as part of the 2008 Climate Change Act. Although currently voluntary, all major airport and infrastructure operators currently report under the ARP and this reporting may become mandatory in the future.

Table 2.1.1: Climate Change Resilience Assessment

Risk ID	Construction / Operation Period	Climate Change Hazard	Trend or Likelihood of Climate Hazard occurring	Asset Type	Climate Change Impact	Existing or Embedded Mitigation Measure	Result of Mitigation Measure on Resilience	Assessment of Climate Change Impact		Risk Rating	Justification		Proposed Further Resilience Measure (only if Risk Rating = 'High' (4) or 'Very high' (5))	Reference Documenting Relevant Mitigation
								Likelihood	Consequence		For the Likelihood of the Hazard Impact	For the Consequence of the Hazard Impact		
1	Construction	Increased number of extremely hot days.	Increasing trend Likely	Temporary buildings for construction workers and site offices	Increased risk of overheating in temporary building accommodation for construction workers during construction of the Project, negative impacts of working conditions.	Cooling and ventilation systems will be included in the design of temporary office buildings design following relevant outline Climate Resilience Design Principles and example measures during construction that are sufficient to deal with projected climate changes. This is captured within the Code of Construction Practice (CoCP) and will follow appropriate guidance from the Chartered Institution of Building Services Engineers (CIBSE). In addition to this, evidence of climate change projections are to be considered in all contractor risk assessments developed as part of the CoCP.	Resilience achieved through existing plans. Embedded mitigation measures are considered to be sufficient.	Unlikely	Major	Medium	The impact of the climate hazard is unlikely as although heatwaves are expected to occur several times over the course of the construction period. Temperature extremes ¹ by the 2030s indicate that maximum daily air temperature will increase across all seasons, and more so in summer. These conditions may cause overheating. However, the implementation of appropriate mitigation measures from the CoCP will reduce this impact.	Major as could cause delays > 1 day due to buildings becoming unusable and/or create public disputes with contractors using the buildings	No further resilience measures required.	ES Appendix 5.3.2: Code of Construction Practice (Doc Ref. 5.3).
2	Construction	Increased probability of extreme weather events (eg heatwaves, flooding).	Increasing trend Likely	Construction processes	Disruption or hinderance of construction processes	Mitigation comprises requirements relevant contractor risk assessments of extreme weather impacts on construction processes, as set out in CoCP. The mitigation of adverse weather measures in Construction (as part of the CoCP) would provide details on	Resilience achieved through existing plans. Embedded mitigation measures are considered to be sufficient.	Likely	Major	Medium	The current assessment of the impact of the climate hazard is unlikely as although impacts are likely to occur several times during the construction period, the implementation of	Potentially Major due to disruption and delays caused.	No further resilience measures required.	ES Appendix 5.3.2: Code of Construction Practice (Doc Ref. 5.3).

¹ Probabilistic Projections of Climate Extremes (PPCE) projections for daily maximum air temperature for the 95th percentile of the 1 in 100-year event under emissions scenario RCP 8.5.

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								Likelihood	Consequence		For the Likelihood of the Hazard Impact	For the Consequence of the Hazard Impact		
						measures considered necessary, some of which will be temporary or short term and change during construction, to appropriately manage extreme weather events including training for staff. This will be linked to the latest, and annual update of the Gatwick Airside Operations Adverse Weather Plan for operation, and look to Eurocode good practice for AWP (Eurocontrol, 2021a) and managing climate risks (Eurocontrol, 2021b). Through the implementation of this embedded mitigation, the risk is reduced to medium (not significant).					appropriate mitigation measures from the CoCP will reduce this impact.			
3	Operation	Increased number of extremely hot days.	Increasing trend Very likely	Airport Operation	Increased risk of overheating in terminal buildings, hotels, and other buildings including in relation to the replacement Central Area Recycling Enclosure (CARE) facility and the new waste water treatment works (WWTW), posing risk of thermal discomfort and heat stress for passengers and staff during	Embedded mitigation measures following the Outline Climate Resilience Design Principles and example measures for reducing overheating risk has been developed for designers to work to and secured mitigation around heating and cooling that informs the detailed design stage (to follow post DCO consent), to ensure resilience to future extreme heat events as part of the final design, selection and construction of building assets. The embedded mitigation includes longer term provision of climate resilient cooling and	Resilience achieved through existing plans. Embedded mitigation measures are considered to be sufficient.	Likely	Major	Medium	The current assessment of the impact of the climate hazard is Likely because heatwaves are expected to occur several times over the course of operation and are likely to cause overheating unless mitigated against through the design of the buildings.	Major as could cause delays > 1 day due to buildings becoming unusable and/or create public disputes with staff and passengers.	No further resilience measures required.	Design Principles – Design and Access Statement (DAS) (Doc Ref. 7.3)

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								Likelihood	Consequence		For the Likelihood of the Hazard Impact	For the Consequence of the Hazard Impact		
					operation of the airport; negative impacts on passenger experience.	ventilation systems in the design of terminal buildings, hotels and other buildings sufficient to deal with hotter and more extreme temperatures (aligned with GAL's net zero by 2030 commitment in the Carbon Action Plan).								
4	Operation	Increased number of extremely hot days.	Increasing trend Very likely	Airport infrastructure and airport operation	In hot weather, air is less dense which means there are less molecules for the wings of the plane to push down and produce lift. If a plane is taking off in such conditions, then it must travel much faster before it is able to generate enough thrust to takeoff and may therefore require a longer runway, or rescheduling flights during cooler times of the day or increased weight restrictions on flights.	Measures relating to take-off weight restrictions during hot weather and rescheduling are managed by standard flight operation procedures. Continuation of and adherence to the latest management of flight operation procedures, as required in existing UK Civil Aviation Authority (CAA) regulation.	Resilience achieved through existing procedures. Embedded mitigation measures are considered to be sufficient.	Likely	Moderate	Medium	The current assessment of the impact of the climate hazard is likely because increased temperatures are expected to occur during the operation period.	Moderate as changing flight times to cooler times of the day or changing weight restrictions will result in lower revenues on flights.	No further resilience measures required.	Existing legislative regime
5	Operation	Increased number of extremely hot days.	Increasing trend Very likely	Airport infrastructure	Reliability of journeys may reduce at high temperatures due to potential deformation of	Continuation of and adherence to the Gatwick heat plan as part of the Airside Operations Adverse Weather Plan (GAL, 2021) as required in existing UK CAA regulation. This includes	Resilience achieved through existing plans. Embedded mitigation measures are	Unlikely	Major	Medium	Unlikely as although high temperatures are more likely in the future, Gatwick already has a heat plan in place with	Major as could cause delays > 1 day and major financial loss due to reduced.	No further resilience measures required.	Existing legislative regime

Risk ID	Construction / Operation Period	Climate Change Hazard	Trend or Likelihood of Climate Hazard occurring	Asset Type	Climate Change Impact	Existing or Embedded Mitigation Measure	Result of Mitigation Measure on Resilience	Assessment of Climate Change Impact		Risk Rating	Justification		Proposed Further Resilience Measure (only if Risk Rating = 'High' (4) or 'Very high' (5))	Reference Documenting Relevant Mitigation
								Likelihood	Consequence		For the Likelihood of the Hazard Impact	For the Consequence of the Hazard Impact		
					asphalt surface in long periods of hot, sunny conditions causing delays.	monitoring the taxiway and grass areas and ensuring that pumps are situated in hotspots and fit for use for dampening and cooling taxiways.	considered to be sufficient and the choice of materials at detailed design stage (following DCO consent) will be based on relevant design standards and appropriate considerations of climate change.				mechanisms in place to mitigate against this hazard, and the project will also fall under this. This has worked during heat events in the past. Surfaces also have a short design life and more durable materials can be specified during replacement cycles.	Number of take offs and landings		
6	Operation	Increased number of extremely hot days.	Increasing trend Very likely	Electronic Equipment	Sensitive electronic equipment and mechanical operating mechanisms may fail to operate correctly due to high temperatures.	Electronic equipment is designed to current temperature ranges based on existing standards. Upgrades would be completed as part of business as usual operations for existing equipment reaching the end of its design life. New/ upgraded products would be sourced based on latest design standards, and able to cope with projected extreme hot days. Continuation of and adherence to electronic equipment design being based on the latest standards and specifications, as required in UK CAA regulation.	Resilience achieved through design specifications. Embedded mitigation measures are considered to be sufficient.	Unlikely	Major	Medium	The current assessment of the impact of the climate hazard is unlikely as future design would address future climate risks. It is assumed that the industry would change its design standards in line with projected changes to the climate to ensure equipment is resilient to climate change.	Major as could cause delays > 1 day due to sensitive electronic equipment and mechanical operating mechanisms failing.	No further resilience measures required.	Existing legislative regime
7	Operation	Increased number of extremely hot days.	Increasing trend Likely	Flights	Flashpoint of aviation fuel exceeded on hot days, leading to delays in re-fueling procedures.	Continuation of and adherence to the Airport Fire Service aspects embedded in Gatwick's Heat Plan as set out in the Airside Operations Adverse Weather Plan (GAL, 2021) as required in UK CAA regulations.	Resilience achieved through existing procedures. Embedded mitigation measures are considered to be sufficient.	Unlikely	Moderate	Low	The current assessment of the impact of the climate hazard is unlikely because Gatwick has existing procedures in place to minimise the risk of fuel combustion during hot weather.	Moderate as could cause delays of up to 2hrs on multiple days and > 2hrs on one single day.	No further resilience measures required.	Existing legislative regime

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								Likelihood	Consequence		For the Likelihood of the Hazard Impact	For the Consequence of the Hazard Impact		
8	Operation	Increased number of extremely hot days.	Increasing trend Likely	Flights	Possible increase in occurrence of days outside the acceptable range of temperatures affects aircraft and their utilisation schedule, due to air pressure changes affecting maximum takeoff weight capacity.	Measures relating to allowances in maximum take-off weight and maximum plane operating temperature are managed by standard flight operation procedures. Continuation of and adherence to the latest management of flight operation procedures, as required in UK CAA regulations.	Resilience achieved through existing procedures. Embedded mitigation measures are considered to be sufficient.	Unlikely	Major	Medium	The current assessment of the impact of the climate hazard is unlikely impact as mitigation measures are sufficient.	Major because it could result in closure of runway during peak heat hours.	No further resilience measures required.	Existing legislative regime
9	Operation	Extreme cold weather.	Decreasing trend Very unlikely	Electronic Equipment	Sensitive electronic equipment and mechanical operating mechanisms may fail to operate correctly due to low temperatures or freezing.	Electronic equipment is already specified for low temperatures expected to be experienced under future climate conditions.	Resilience achieved through existing specifications. Embedded mitigation measures are considered to be sufficient.	Unlikely	Major	Medium	The current assessment of the impact of the climate hazard is unlikely as future cold weather is not expected to be more extreme than current cold events.	Major as could cause delays > 1 day due to sensitive electronic equipment and mechanical operating mechanisms failing.	No further resilience measures required.	None
10	Operation	Extreme cold weather.	Decreasing trend Very unlikely	Airport Infrastructure	Reliability of journeys may reduce at low temperatures due to cracking of pavement surfaces and snow/ice accretion on aircraft and runways/airfield pavements causing delays.	Continuation of and adherence to the latest Airside Operations snow clearance and de-icing plans in place as part of the Airside Operations Adverse Weather Plan (GAL, 2021) as required in the UK CAA legislation.	Resilience achieved through implementing the snow clearance contingency plan and de-icing procedures which has proven to work in the past when no operational hours were lost during a period of cold weather. Embedded mitigation measures are	Unlikely	Major	Medium	The current assessment of the impact of the climate hazard is unlikely as low temperatures are less likely in future and Gatwick already has sufficient snow and de-icing mechanisms in place to mitigate against this hazard.	Major as could cause delays > 1 day and major financial loss due to reduced number of take offs and landings.	No further resilience measures required.	Existing legislative regime

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								Likelihood	Consequence		For the Likelihood of the Hazard Impact	For the Consequence of the Hazard Impact		
							considered to be sufficient.							
11	Operation	Extreme cold weather.	Decreasing trend Very unlikely	Airport Operation	Possible negative health implications for passengers and staff, disruption to service operation.	Continuation of and adherence to the latest Airside Operations Adverse Weather Plan with existing operational procedures in place to ensure health and wellbeing of passengers and staff during cold weather, as required in UK CAA regulation.	Resilience provided by the procedures set out in the Adverse Weather Plan. Embedded mitigation measures are considered to be sufficient.	Unlikely	Moderate	Low	The current assessment of the impact of the climate hazard is unlikely as low temperatures are less likely in future and Gatwick has sufficient measures in place to ensure health and wellbeing during cold spells.	Moderate as could result in the inability to work and moderate financial loss	No further resilience measures required.	Existing legislative regime
12	Operation	Extreme cold weather.	Decreasing trend Very unlikely	Airport Infrastructure	Periods of extreme cold could affect Heating, Ventilation, and Air Conditioning (HVAC) that is undersized and cannot deliver comfort temperatures, and also that the plant may fail/break if not selected and constructed to withstand extreme cold.	Assumed that HVAC equipment would be designed to cope with current range of cold temperatures. Upgrades would be completed as part of BAU operations for existing equipment reaching the end of its design life. New/ upgraded products would be sourced based on latest design standards and still able to cope with extreme cold spells. Continuation of and adherence to HVAC equipment design being based on the latest standards and specifications, as required.	Resilience achieved through design specifications. Embedded mitigation measures are considered to be sufficient.	Unlikely	Minor	Very Low	The current assessment of the impact of the climate hazard is unlikely as low temperatures are less likely in future and HVAC equipment is likely to be designed to cope with cold temperatures	Minor as the impacts on persons is considered to be short term.	No further resilience measures required.	None
13	Operation	Increased frequency of flooding from river, surface- and ground-water sources.	Increasing trend Likely	Airport Infrastructure	Flooding of infrastructure during operation: inundation of airfield, airport building basements and sub-structures,	Infrastructure assets would be designed for the climatic conditions experienced at the end of their life cycle using appropriate climate change allowances. Permanent site drainage proposals include allowance for	Resilience achieved through design of assets. Resilience also provided by the procedures set out in	Unlikely	Major	Medium	Whilst the PPCE projections of daily maximum and 5-day maximum precipitation events are expected to increase across all seasons by the 2060s, a hazard impact is	Major as could cause delays > 1 day and extensive damage to infrastructure.	No further resilience measures required.	Flood Resilience Statement – ES Appendix 11.9.6: Flood Risk Assessment – Annex 6 (Doc Ref. 5.3)

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								Likelihood	Consequence		For the Likelihood of the Hazard Impact	For the Consequence of the Hazard Impact		
					utility cables/tunnels.	<p>projected climate change. This would help mitigate the risk to underground structures being exceeded during operation.</p> <p>Continuation of and adherence to Gatwick's Airside Operations Adverse Weather Plan that contains mitigation measures to monitor flood risk on airside and landside operations. This plan is in place as good practice.</p>	<p>the Adverse Weather Plan.</p> <p>Updated assessments undertaken as part of the ES Appendix 11.9.6: Flood Risk Assessment (FRA) (Doc Ref. 5.3) for the ES did not indicate the need for further mitigation beyond that which would be included as part of the Project. Onsite flooding which may arise will be managed via the Management System from the Gatwick Flood Resilience Statement.</p>				<p>unlikely as flood resilience has been built into the design of infrastructure assets and Gatwick has procedures in place to mitigate any potential flood risk.</p>			Existing legislative regime
14	Operation	Increased frequency of flooding from river, surface and groundwater sources.	Increasing trend Likely	Airport Infrastructure	Flooding of road infrastructure connecting to the airport during operation: inundation of access roads and railways. Effects of infrastructure interdependencies	Road infrastructure assets would be designed to the climatic conditions experienced at the end of their life cycle using appropriate climate change allowances.	Resilience achieved through design of flood drainage to the correct Environmental Agency (EA) climate change allowances. Updated assessments undertaken as part of the FRA for the ES did not indicate the need for further mitigation. Beyond that which would be included as part of the Project.	Unlikely	Major	Medium	<p>The current assessment of the impact of the climate hazard is unlikely as flood resilience has been built into the design of road infrastructure assets.</p> <p>Major as could cause delays > 1 day and extensive damage to infrastructure.</p>	No further resilience measures required.	Flood Resilience Statement – ES Appendix 11.9.6: Flood Risk Assessment – Annex 6 (Doc Ref. 5.3)	

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								Likelihood	Consequence		For the Likelihood of the Hazard Impact	For the Consequence of the Hazard Impact		
15	Operation	Increased frequency of flooding from river, surface and groundwater sources.	Increasing trend Likely	Airport Operation	Flooding of electrical equipment and mechanical operating mechanisms	<p>The FRA sets out a Flood Resilience Statement and a Surface Access Drainage Strategy to increase flood storage capacity at site and reduce flood risk for all assets including electrical equipment and/ or mechanical operating mechanisms.</p> <p>Continuation of and adherence to the latest Flood Plan as part of the Airside Operations Adverse Weather Plan (GAL, 2021).</p>	<p>Resilience would be achieved by creating additional compensatory flood areas to improve flood storage capacity for fluvial flooding and provision of additional attenuation storage and flow control measures to reduce surface water flood risk.</p> <p>Updated assessments undertaken as part of the FRA for the ES did not indicate the need for further mitigation. Beyond that which would be included as part of the Project.</p>	Unlikely	Major	Medium	<p>The current assessment of the impact of the climate hazard is unlikely to occur as impact would be mitigated, via compensatory flood storage areas, additional attenuation storage and flow control measures.</p>	<p>Major as could cause the runway to be closed for 1 day</p>	No further resilience measures required.	<p>Flood Resilience Statement – ES Appendix 11.9.6: Flood Risk Assessment – Annex 6 (Doc Ref. 5.3)</p> <p>Surface Access Drainage Strategy – ES Appendix 11.9.6: Flood Risk Assessment – Annex 2 (Doc Ref. 5.3)</p> <p>Existing legislative regime</p>
16	Operation	Increased risk of drought.	Increasing trend Likely	Landscaping	Increased heat and drought stress to plants/landscaped areas	<p>Planting schemes for the proposed development would select species that are resistant to warmer and drier temperatures. The Outline Landscape and Ecology Management Plan (oLEMP) would detail the design and management objectives of the landscape scheme including planting specification and mixes.</p>	<p>Resilience would be achieved by planting vegetation that is resilient to warmer and drier conditions.</p>	Unlikely	Major	Medium	<p>The current assessment of the impact of the climate hazard is unlikely as embedded mitigation measures would comprise vegetation that is resilient to drought conditions and therefore the event is not expected to occur more than once during the lifetime of the Project.</p>	<p>Major could result in widespread damage to asset requiring substantial replacement work.</p>	No further resilience measures required.	<p>Planting specification and mixes of resilient species as per the ES Appendix 8.8.1: Outline Landscape and Ecology Management Plan (oLEMP) (Doc Ref. 5.3).</p>

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								Likelihood	Consequence		For the Likelihood of the Hazard Impact	For the Consequence of the Hazard Impact		
17	Operation	Increased risk of drought.	Increasing trend Likely	Airport Operation	Increased water stress for new buildings (hotel and office space, including the CARE facility and new WWTW).	<p>Embedded mitigation measures following the Outline Climate Resilience Design Principles and example measures for reducing water stress in new and extended buildings have been developed for designers to work to and secured mitigation around water stress that informs the detailed design stage (to follow post DCO consent), to ensure resilience to future extreme heat events as part of the final design, selection and construction of building assets.</p> <p>These strategies will reflect those detailed in ES Chapter 11: Water Environment (Doc Ref. 5.1) (eg pressure management, grey water recycling and rainwater harvesting, and water efficient controllers on taps and urinals) and also link to the Decade of Change Goal 8 Water and the 50% reduction in potable water use, as part of the detailed design stage (to follow post DCO consent).</p>	<p>Resilience achieved through existing plans.</p> <p>Embedded mitigation measures are considered to be sufficient.</p>	Likely	Major	Medium	<p>The current assessment of the impact of the climate hazard is likely because droughts are likely to occur more often in future and there is no evidence to suggest that proposed building design considers the impact of increased water stress during the lifetime of the Project.</p>	<p>Major as could cause delays of > 1 day.</p>	No further resilience measures required.	<p>ES Appendix 5.3.2: CoCP Annex 1 – Water Management Plan (Doc Ref. 5.3).</p>
18	Operation	Extreme wind speeds	Possible – low certainty	Airport Infrastructure	Possible debris on runways and other airport infrastructure causing delays (foreign object debris).	Continuation of and adherence to the latest Wind Plan as part of Airside Operations Adverse Weather Plan (GAL, 2021) as required in the UK CAA regulations). This ensures safe operation on the Aerodrome during a wind event and	<p>Current resilience measures in place, with emergency planning.</p> <p>Embedded mitigation measures are</p>	As likely as not	Moderate	Medium	<p>The current assessment of the impact of the climate hazard is as likely as not as changes to wind speeds remain uncertain and therefore this impact</p>	<p>Moderate as impact could result in delays of >2 hours and damage to infrastructure requiring minor repair.</p>	No further resilience measures required.	Existing legislative regime

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								Likelihood	Consequence		For the Likelihood of the Hazard Impact	For the Consequence of the Hazard Impact		
						includes monitoring of equipment areas and infrastructure, implement wind monitoring plan, safety briefings to airside staff, produce procedures to prevent loose and insecure equipment becoming a risk on airside areas.	considered to be sufficient.				could occur during the operational period of the development.			
19	Operation	Extreme wind speeds	Possible – low certainty	Airport Infrastructure	Vegetation fall due to strong winds leading to road and rail disruption	Highways England and Network Rail manage mitigation plans for road and rail disruption respectively.	Resilience measures currently in place, with National Highways and Network Rail responsibility for managing road and rail vegetation, are considered sufficient.	As likely as not	Moderate	Medium	The current assessment of the impact of the climate hazard is as likely as not as changes to wind speeds remain uncertain and therefore this impact could occur during the operational period of the development	Moderate as fallen vegetation could block road/rail infrastructure leading to widespread damage and loss of service.	No further resilience measures required.	None
20	Operation	Extreme wind speeds	Possible – low certainty	Airport Infrastructure	Failure or damage to parts of structure or infrastructure due to changes in strong winds and gustiness.	Continuation of and adherence to the latest Wind Plan as part of Airside Operations Adverse Weather Plan (GAL, 2021) as required in the UK CAA regulations). This ensures safe operation on the Aerodrome during a wind event and includes monitoring of equipment areas and infrastructure, implement wind monitoring plan, safety briefings to airside staff, produce procedures to prevent loose and insecure equipment becoming a risk on airside areas.	Current resilience measures in place, with emergency planning. Embedded mitigation measures are considered to be sufficient.	Unlikely	Major	Medium	The current assessment of the impact of the climate hazard is unlikely as Gatwick's Adverse Weather Plan has procedures in place to limit the risk of this impact.	Major as could cause extensive damage to service or delays > 1 day.	No further resilience measures required.	Existing legislative regime
21	Operation	Extreme wind speeds	Possible – low certainty	Flights	Aircrafts not permitted to land	Continuation of and adherence to the last Wind Plan as part of the Airside Operations Adverse	Resilience achieved through	Unlikely	Major	Medium	The current assessment of the impact of the climate	Major as could cause delays of 1 day due to	No further resilience	Existing legislative regime

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					or take off, causing delays.	Weather Plan, (GAL, 2021) as required in the existing UK CAA regulations for business as usual operations. These are considered sufficient to cope with extreme events in future.	implementation of procedures.				hazard is unlikely as mitigation measures in place to minimise the impact.	aircraft not being permitted to take off or land.	measures required.	
22	Operation	Increased risk of lightning strikes.	Possible – low certainty	Airport Infrastructure	Indirect and direct damage to buildings, infrastructure, aircraft, equipment from lightning strikes.	Continuation of and adherence to the latest cumulonimbus (CB) activity procedures as per the Airside Operations Adverse Weather Plan, (GAL 2021) as required in the existing UK CAA regulations. This provides procedures and processes for dealing with lightning strikes. For new assets lightning protection is also included within the design standards.	Resilience achieved through implementation of procedures and processes.	Unlikely	Moderate	Low	The current assessment of the impact of the climate hazard is unlikely as damage from lightning strikes only occurs in exceptional circumstances.	Moderate as could lead to partial loss of local infrastructure but damage is recoverable by maintenance and minor repair.	No further resilience measures required.	Existing legislative regime
23	Operation	Increased risk of lightning strikes.	Possible – low certainty	Flights	Suspension of activities on the ramp by ground handling agents, delaying the service and turnaround times for aircraft and stressing terminal/gatehouses.	Continuation of and adherence to the latest cumulonimbus (CB) activity procedures as per the Airside Operations Adverse Weather Plan, (GAL 2021) as required in the existing UK CAA regulations. This provides procedures and processes for dealing with lightning strikes.	Resilience achieved through implementation of procedures and processes.	Unlikely	Moderate	Low	The current assessment of the impact of the climate hazard is unlikely as the Gatwick Adverse Weather Plan provides mitigation to reduce the impact from potential lightning strikes.	Moderate as could lead to partial loss of local infrastructure but damage is recoverable by maintenance and minor repair.	No further resilience measures required.	Existing legislative regime
24	Operation	Increased number of extremely hot days.	Increasing trend Likely	Airport infrastructure and operations, landscaping and electrical equipment	The slight night-time Urban Heat Island (UHI) identified at Gatwick (see ES Appendix 15.5.2: Urban Heat Island Assessment (Doc Ref. 5.3))	Continuation of and adherence to the latest Heat Plan as part of the Gatwick's Airside Operations Adverse Weather Plan (GAL, 2021) as required in the existing UK CAA regulations. This contains a heat plan which could mitigate some impacts.	Resilience achieved through implementation of procedures.	Likely	Moderate	Medium	The current assessment of the impact of the climate hazard is likely because increased temperatures are expected to occur during the operation period and a slight UHI has been identified.	Moderate as it may enhance the consequences associated with extreme heat throughout this assessment.	No further resilience measures required.	Existing legislative regime Planting specification and mixes of resilient species as per the ES Appendix 8.8.1: Outline

Risk ID	Construction / Operation Period	Climate Change Hazard	Trend or Likelihood of Climate Hazard occurring	Asset Type	Climate Change Impact	Existing or Embedded Mitigation Measure	Result of Mitigation Measure on Resilience	Assessment of Climate Change Impact		Risk Rating	Justification		Proposed Further Resilience Measure (only if Risk Rating = 'High' (4) or 'Very high' (5))	Reference Documenting Relevant Mitigation
								Likelihood	Consequence		For the Likelihood of the Hazard Impact	For the Consequence of the Hazard Impact		
					may be exacerbated by climate change. This may contribute to damage to infrastructure (eg deformation of asphalt), contribute to increased drought/heat stress for plants, impact the ability of electronic equipment to operate effectively due to overheating and impact those working outside.	Continuation of and adherence to electronic equipment design being based on the latest standards and specifications, as required, and the potential for future upgrades to incorporate the latest design standards. Appropriate planting proposals in the oLEMP.								Landscape and Ecology Management Plan (Doc Ref. 5.3).

3 References

Eurocontrol (2021a) Collaborative Best Practices for Handling of Adverse Weather at European Aerodromes. Available at: <https://www.eurocontrol.int/publication/collaborative-best-practices-handling-adverse-weather-european-aerodromes>

Eurocontrol (2021b) Climate change risks for European aviation Available at: <https://www.eurocontrol.int/publication/eurocontrol-study-climate-change-risks-european-aviation>

Gatwick Airport Limited (2021). Gatwick Operations Adverse Weather Plan [Online]. Available at: <https://s3.amazonaws.com/helpscout.net/docs/assets/59f9ae61042863319924181d/attachments/617fb33012c07c18afde30df/Gatwick-Airport-Adverse-Weather-Plan-v8.0.pdf>

4 Glossary

4.1 Glossary of Terms

Table 4.1.1: Glossary of Terms

Term	Description
ARP	Adaptation Reporting Power
AWP	Adverse Weather Plan
BAU	Business As Usual
CAA	Civil Aviation Authority
CARE	Central Area Recycling Enclosure
CB	Cumulonimbus
CCR	Climate Change Resilience
CIBSE	Chartered Institution of Building Services Engineers
CoCP	Code of Construction Practice
DAS	Design and Access Statement
DCO	Development Consent Order
EA	Environmental Agency
EIA	Environment Impact Assessment
ES	Environmental Statement
FRA	Flood Risk Assessment
GAL	Gatwick Airport Limited
HVAC	Heating, Ventilation, and Air Conditioning
LEMP	Landscape and Ecology Management Plan
oLEMP	Outline Landscape and Ecology Management Plan
PPCE	Probabilistic Projections of Climate Extremes
TCFD	Task Force for Climate-Related Disclosures
UHI	Urban Heat Island
WWTW	Waste Water Treatment Works