RiverOak Strategic Partners

Climate Change Adaptation Strategy Framework

TR020002/D4/CCASF

Examination Document

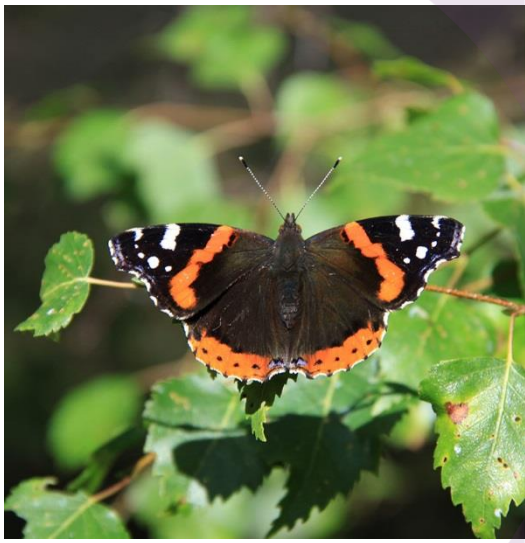
Project Name:	Manston Airport Development Consent Order
Application Ref:	TR020002
Submission Deadline:	**4**
Date:	8 March 2019

RiverOak Strategic Partners

STH Manston Airport Post Application

Manston Airport

Framework Climate Change Adaptation Strategy



Wood Environment & Infrastructure Solutions UK Limited – March 2019

Draft - see disclaimer

Report for

RiverOak Strategic Partners

Main contributors

Christopher Harris

Issued by

Signature here

.....

Christopher Harris

Approved by

Signature here

.....

Nick Hilton

Wood

Floor 12
25 Canada Square
Canary Wharf
London E14 5LB
United Kingdom
Tel +44 (0) 203 215 1610

Doc Ref.

document3

Draft report disclaimer

This report has been prepared in a working draft form and has not been finalised or formally reviewed. As such it should be taken as an indication only of the material and conclusions that will form the final report. Any calculations or findings presented here may be changed or altered and should not be taken to reflect Wood's opinions or conclusions.

Copyright and non-disclosure notice

Third party disclaimer

Management systems

This document has been produced by Wood Environment & Infrastructure Solutions UK Limited in full compliance with the management systems, which have been certified to ISO 9001, ISO 14001 and OHSAS 18001 by LRQA.

Document revisions

No.	Details	Date
0.1	First draft	5/3/19

Contents

1. Introduction

1.1.1 This Framework Climate Change Adaptation Strategy (CCAS) sets out the processes and actions that will be applied to ensure that Manston Airport (the 'Proposed Development') is resilient to the effects of climate change. The finalised CCAS will be delivered following Development Consent Order (DCO) consent.

1.2 Climate change overview

1.2.1 Climate change is regarded as one of the most significant threats facing the planet. Although it is a global issue, its impacts will also be felt at a local and regional level. In the UK, climate change is projected to lead to increasing temperature, changing rainfall patterns, flood risk and more extreme weather events, with associated disruption and damage to infrastructure and services[i].

1.2.2 Climate change occurs as a result of greenhouse gas (GHG) emissions, including carbon dioxide (CO_2) and methane (CH_4). GHG emissions have many sources, including energy generation, transport, industrial processes, agriculture and changes in land use. Action must be taken to mitigate climate change, both through reducing GHG emissions, as well as adapting and increasing resilience to the expected changes. The CCAS is concerned with the latter.

1.2.3 Climate change is already having a global effect; the extent of future change is linked with how effective we are in limiting GHG emissions. In November 2016, the Paris Accord came into force in which the majority of countries agreed to work together to limit a global temperature rise to below 2°C[ii]. Consequently, there is now a necessity to explore how resilient the services, assets and infrastructure upon which society relies are to the impacts of climate change, as well as continuing to reduce emissions.

1.3 Climate change impacts on the aviation sector

1.3.1 As set out in the UK Climate Change Risk Assessment (CCRA)[iii], the aviation industry faces a relatively low level of risk from climate change compared to many other infrastructure sectors (notably power, rail and road).

1.3.2 Environmental impacts facing airport operators include, but are not limited to, snow and ice affecting operations, flooding (predominantly surface water flooding, particularly on surrounding infrastructure), fog, storm impacts on infrastructure and operations, high temperatures affecting assets, staff and passengers, and changes in average temperatures altering biodiversity including species of nesting birds. The aviation industry is also at risk of impacts on interdependent infrastructure (e.g. power, telecommunications, water, gas and transport networks).

1.3.3 The design for Manston Airport includes primarily newly built infrastructure and therefore, Manston Airport will have the advantage of being able to embed climate resilience into the design of the airport. This will provide savings in whole life costs as retrofitting and adapting assets is not necessary. Existing airports have assets of varying age that must be maintained with climate change in mind, increasing expense.

1.4 Requirements for the CCAS

1.4.1 The CCAS is required by the commitments made in the Environmental Statement (ES) for the Manston Airport DCO (paragraph 16.5.6). It is included in the Register of Environmental Actions and Commitments.

1.4.2 There were no potentially significant effects identified for climate change resilience in the ES due to the commitment to embed a CCAS within the detailed design, construction and operation of the Proposed Development. This was justified given that detailed design is a more suitable time to interrogate climate resilience at an asset level.

1.4.3 This Framework version of the CCAS is provided ahead of its full development following DCO consent.

2. Purpose of the CCAS

2.1 Introduction

2.1.1 The purpose of the CCAS is to enable RiverOak Strategic Partners to demonstrate that the construction, design and operation of the Proposed Development is planned to avoid increased vulnerability to the range of impacts arising from climate change.

2.1.2 In its completed form, the CCAS will:

- Describe the chosen adaptation approach and provide reasoning for its selection;
- Describe the procedure for assessing the most critical climate impacts;
- Describe any prioritisation process used in the selection of options and its outcomes;
- Document any assumptions made;
- Document the information and data on which decisions are made;
- Describe any relationships with existing policies and strategies;
- Set out a detailed adaptation plan for the design, construction and operation of the Proposed Development;
- Set out the plan for implementing the adaptation plan;
- Document the monitoring and evaluation requirements for continual improvement of the adaptation plan;
- Describe how the CCAS will be communicated; and
- State its period of validity.

2.2 Principles of the CCAS

2.2.1 The principles used throughout the CCAS and evidenced throughout the construction, design and operation of the Proposed Development are as follows:

- **Flexibility** – using 'decision pathways' ensures that adaptation options are implemented when they are required, rather than necessarily being built into the initial design. To do this, flexibility and adaptability in the design of the Proposed Development is required, for example through ensuring room for additional Heating, Ventilation and Air Conditioning (HVAC) is provided for. This requires a culture of learning by monitoring and evaluating risks over time, and then acting on it by changing processes or altering a design.
- **Mainstreaming and embedding** – climate change considerations are built in to all design and operation processes, including the design of assets, risk management processes, and operational resilience planning.
- **Robustness** – adaptation options are tolerant of uncertainty in climate change projections. The options chosen are valid across the range of climate change uncertainty, although not necessarily the 'best' for any individual projection of the future climate.
- **Commitment to environmental sustainability** – embedding practices such as the maximisation of energy and water efficiency/self-dependency reduces the exposure of the

airport to external shocks, which can be exacerbated by climate change impacts (e.g. drought events, power failures). Optimising green infrastructure solutions can have benefits in terms of climate change resilience through the retention of water, providing cooling, and improving connectivity for species.

- **Systems thinking** – the Proposed Development as a whole, and its dependencies on other infrastructure systems (such as power, telecommunications, water etc.) is considered when understanding climate risk.
- **Transparency** – the CCAS is a publicly available document, as is any other reporting on climate change risk and resilience throughout the operational lifetime of the Proposed Development, including reporting against the Climate Change Act 2008[iv].
- **Adaptive capacity** – for adaptation to be successful, Manston Airport must adopt a management approach that reflects the complexity of their climate change adaptation challenge. The CCAS will therefore state the way in which the climate change adaptation process is to be embedded in the organization's policies, strategies and plans.

2.3 Outputs of the CCAS

2.3.1 The specific outputs are:

- An assessment of climate change risks;
- Actions for mitigating the negative impacts of climate change risks, including the consideration of both soft and hard measures;
- Realisation of opportunities from climate change; and
- Monitoring and evaluation activities required to ensure continual improvement on a plan-do-check-act basis. This includes monitoring of key performance indicators (KPIs), reporting, and embedding of knowledge and learning.

3. Policy context

3.1.1 The policy considered in the development of this CCAS is listed in **Table 3.1**.

Table 3.1 Policy relevant to the CCAS

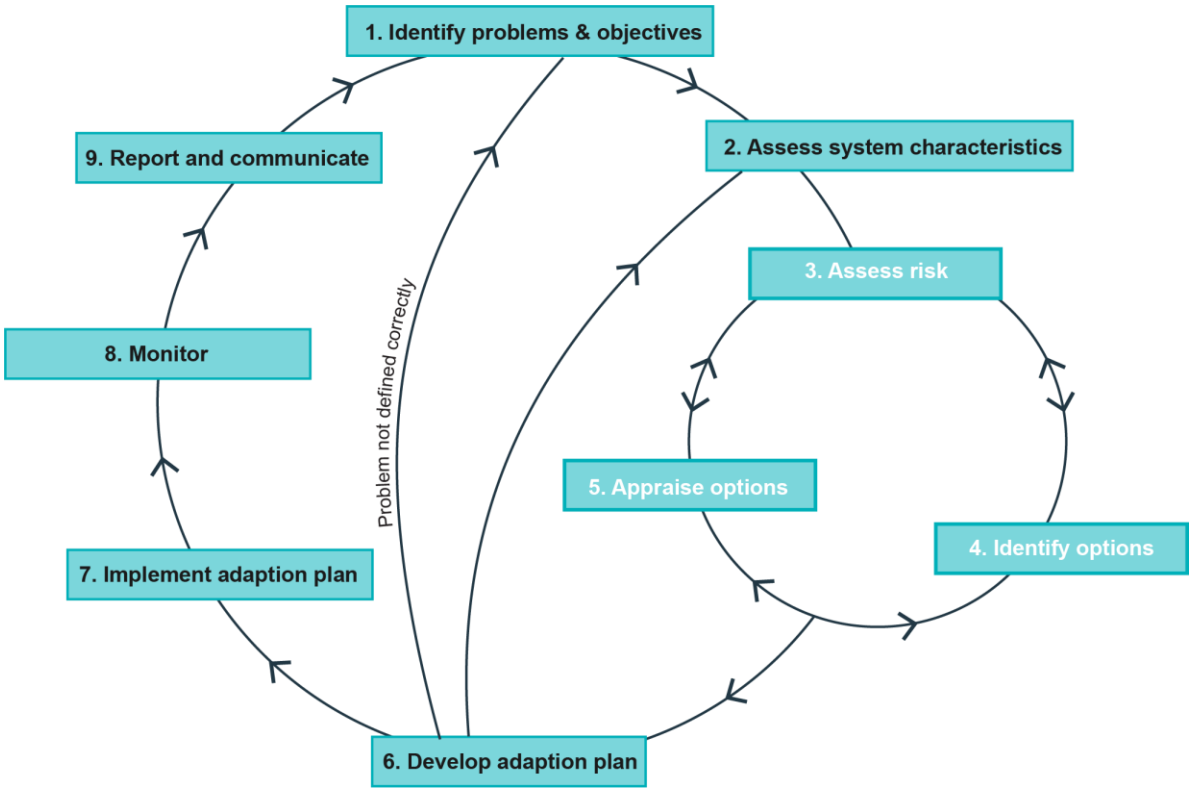
Legislation or policy reference	Summary
International policy	
EIA Directive 2014[v]	The EIA Directive 2014 sets out the rationale for incorporating climate change into the EIA process. It reads: *"Climate change will continue to cause damage to the environment and compromise economic development. In this regard, it is appropriate to assess the impact of projects on climate (for example greenhouse gas emissions) and their vulnerability to climate change."*
National Policy	
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017[vi]	The Infrastructure Planning EIA Regulations 2017 are the transposition of the 2014 EIA Directive into UK law, as it relates to infrastructure (town and country planning is considered separately). The Regulations refer to 'climate' in the following way: *'climate (for example greenhouse gas emissions, impacts relevant to adaptation)'*, and: *'the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change'*. This signals that both the impact of climate change on the development (including environmental receptors), and the impact of the development on climate change, are to be considered.
Airports National Policy Statement 2018 (ANPS)[vii]	The ANPS puts Government policy on climate change adaptation and GHG emissions into practice for the aviation sector. It is the basis for decision-making on development consent applications for the Heathrow Expansion Programme (HEP), which has knock-on effects to other aviation developments. It states: *"The Airports NPS provides the primary basis for decision making on development consent applications for a Northwest Runway at Heathrow Airport, and will be an important and relevant consideration in respect of applications for new runway capacity and other airport infrastructure in London and the South East of England",* and… *"It sets out planning policy in relation to applications for any airport nationally significant infrastructure project in the South East of England".* The ANPS sets the principles for this CCAS. They include: • Adaptation measures should be based on the latest set of UK Climate Projections (i.e. UKCP18)[viii], the most recent UK Climate Change Risk Assessment (i.e. 2017), consultation with statutory consultation bodies, and any other appropriate climate projection data. • The estimated lifetime of new infrastructure is considered; • Consideration of a scenario that reflects a high level of GHG emissions at the 10%, 50% and 90% probability levels; • Consequential impacts from any proposed adaptation measures should be considered; and • Adaptation measures can be required to be implemented at the time of construction where necessary and appropriate to do so, but can also be implemented throughout the operational period where appropriate.
Regional Policy	
Kent Environment Strategy[ix]	The 2016 Kent Environment Strategy aims to ensure "*Kent's communities, businesses, environment and services are resilient to environmental change whilst making the most of the economic and health opportunities this brings*". The Strategy commits to a carbon reduction target for Kent

	county of 34% by 2020, based on a 2012 baseline. Key climate change adaptation commitments set out in the strategy include: • Continued assessment of the economic, health and social impacts of climate change on Kent's businesses, services and residents; • Policy decisions and development must be informed by key environmental risks (including flooding and heat); • The impacts of infrastructure should be mitigated for with growth in sustainable or alternative transport options and green infrastructure; • Awareness and resilience of severe weather and environmental change risks and opportunities should be increased; and • Water management must be improved with increased resilience of build infrastructure to flood risk.
Draft Thanet Local Plan[x]	The draft Local Plan (submitted for independent examination in October 2018) is "*required to guide and deliver the Council's plans and aspirations for growth*". The Plan recognises the Council's commitment *"to tackling climate change and reducing the carbon emissions of Thanet*". Policies aim to minimise the negative impact of climate change on the local water environment, air quality, biodiversity and flooding. New developments must: • Minimise vulnerability to climate change and provide resilience to the impacts of climate change; • Mitigate against climate change by reducing emissions and energy demands; • Utilise the best available technology to improve resilience of the build environment to climate change; and • Reduce the impact of climate change on biodiversity within the development.
Kent and Medway Growth and Infrastructure Framework (GIF)[xi]	The Kent and Medway Growth and Infrastructure Framework provides a strategic framework for a range of infrastructure investments within the County up to 2031. The framework recognises the need for infrastructure in creating sustainable communities and states that infrastructure must be adaptable to climate risks and resilient to changes in climate, particularly those caused by increases in extreme events. Green infrastructure is considered a "*fundamental part of building communities and resilience for the future*". The Framework encourages investment in green infrastructure that "*fully supports adaptation to climate change, improves flood management and prevention, improves urban air quality and provides the other important benefits which underpin sustainable economic growth*".

4. Overall approach

4.1.1 The approach taken to ensure the Proposed Development is designed, constructed and operated to be resilient to climate change is set out using the approach below.

Figure 4.1 Overall approach to delivering the CCAS



1) Identify the problem and objectives of the assessment:

- Set out the rationale for carrying out the CCAS and define the objectives that it sets out to achieve
- Define the priorities and ambitions of the Proposed Development and stakeholders.
- Define each asset that will be assessed, including critical utilities and supply chains.

2) Assess system characteristics:

- Assess characteristics and Key Performance Indicators (KPIs) corresponding to each asset. These metric(s) degrade following a shock and are typically related to the service that a system provides (e.g. in this case passenger throughput, ATMs etc.).
- Update as additional design detail becomes available.

3) Assess risks which could impact future operations:

- Define critical thresholds used to screen climate risks and other hazards relevant to the sector and asset.

4) Identify options to mitigate climate risks and exploit opportunities:

- Develop adaptation options and solutions to enhance asset performance and overall system resilience.

5) Appraise options to mitigate climate risks and exploit opportunities:

- **Identify the best course of action to take given the options available.**

6) Develop adaptation plan:

- Set out the adaptation measures to be implemented throughout the design, construction and operation of the airport.

7) Implement adaption plan:

- Put the plan into action.

8) Monitor the adaption plan:

- Monitor progress of the adaption plan, updating the risk assessment and CCAS at regular intervals when the adaptive plan changes.

9) Report and communicate:

- Report progress against the CCAS at regular intervals and respond to all legislative reporting requirements (e.g. Climate Change Act 2008). Liaise with all relevant stakeholders as appropriate.

5. Climate change risk assessment

5.1 Spatial scope

5.1.1 The spatial scope of the CCAS is the redline boundary for the Proposed Development, as well as any interdependent infrastructure systems. All assets within the Proposed Development are considered within the CCAS.

5.2 Temporal scope

5.2.1 The impacts of climate change increase in significance over time. Therefore, the most significant effects will be experienced at the end of an asset or system's design life. For those expected to be in operation in perpetuity, the temporal scope is the furthest extent of the UKCP18 projections[viii].

5.3 Climate change projections

5.3.1 This CCAS uses the UK Climate Projections 2018 (UKCP18)[viii] as the basis of assessment. UKCP18 was released on 26 November 2018, replacing UKCP09[xiii] as the *de facto* climate projections for use in climate change impact and adaptation assessment in the UK.

5.3.2 The most relevant 25km^2 UKCP18 grid square for the Proposed Development provides the climate data for the assessment. Where a receptor lies outside of this area, the relevant grid square within which it is located provided the source of current and future climate data required for the assessment. Where the most appropriate data was from the 12km^2 regional projections within UKCP18, the relevant grid square for this dataset was used instead.

5.3.3 More radical changes in climate, including the 'H++ Projections[xii]', are considered in the development of the adaptation options.

5.3.4 Qualitative climate change information and trends for other parameters with less readily-available quantified data, such as fog, lightning, storms and wind direction, are sourced from:

- *UKCP09 Technical Notes*[xiii];
- *Coupled Model Intercomparison Project stage 5 (CMIP5)*[xiv];
- Committee on Climate Change Adaptation Sub-Committee's (CCC ASC) report on '*Developing H++ climate change scenarios (hereafter referred to as 'H++ scenarios')*;
- Outputs from the UK Climate Change Risk Assessment (CCRA)[xv]; and
- Responses to the Adaptation Reporting Power (ARP) by airport operators, such as at Heathrow[xvi] and Gatwick[xvii].

5.4 Risk assessment process

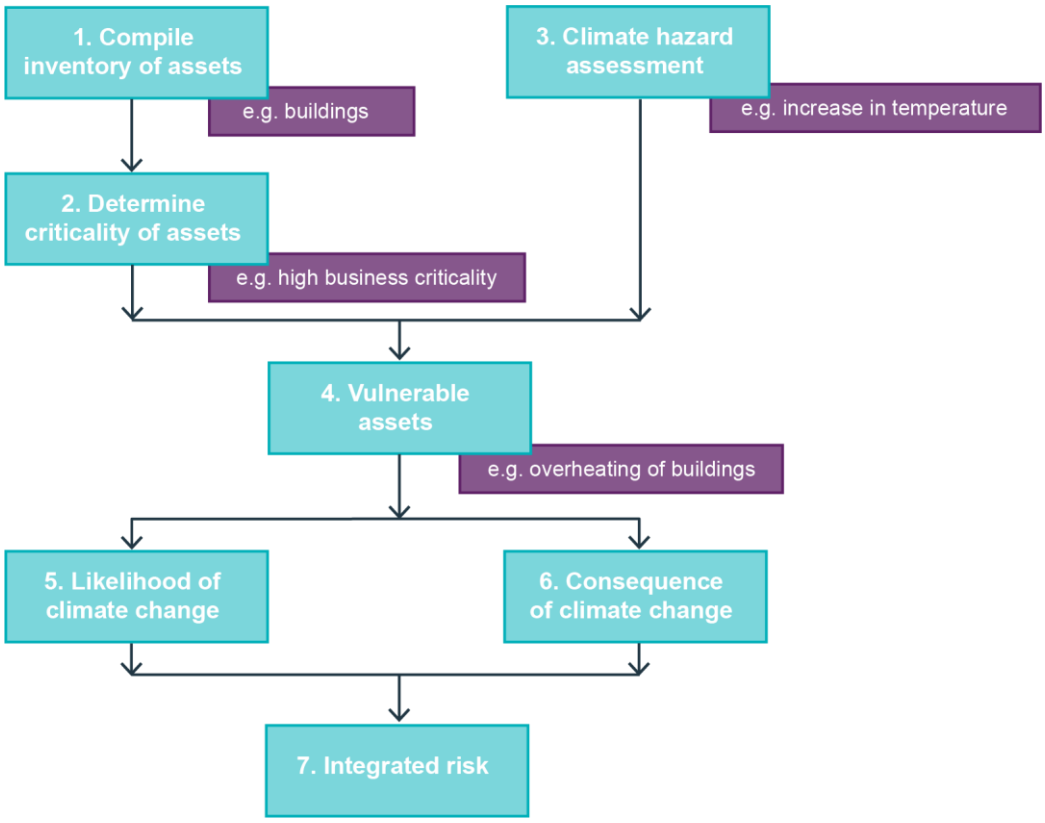
5.4.1 The assessment uses a risk-based approach to evaluate whether the climate resilience of the Proposed Development is affected by climate change (for instance, by the projected change in climate variables described in Section 4) within the anticipated lifetime of its assets and overall operation (considered to be perpetual). This process is designed to meet the requirements of the ANPS[vii].

5.4.2 The following key terms and definitions relating to the climate change risk assessment (CCRA) were used; these are in-line with those used in the UK Climate Change Risk Assessment 2017[i], but have been adapted to suit the CCRA within an Environmental Impact Assessment (EIA) context:

- A climate hazard is a weather or climate related event, which has the potential to do harm to the infrastructure and assets associated with the Proposed Development. An example of a climate hazard is a high precipitation event. Global climate change as a result of anthropogenic activity is the risk source for each hazard;
- Vulnerability is the propensity or predisposition of a receptor to be negatively affected by climate change;
- An impact can be any type of damage to the infrastructure or assets or interference with their ability to operate because of a climate hazard – an impact can be either direct, for example flooding of the infrastructure or assets, or indirect, for example heat exhaustion of workers;
- A consequence is any negative or positive effect on the Proposed Development as a result of an impact. It can be defined in terms of safety, cost, journey times and/or public perception; and
- Risk combines the likelihood of an impact resulting from a climate hazard on infrastructure, assets and operations, taking into account mitigation measures, and the consequence resulting from the impact if it occurs.

5.4.3 An example of the resilience of the Proposed Development being affected by climate change is shown in Figure X and summarised here. The potential overheating of buildings arising from an increase in high temperatures. In this case, vulnerability of the asset relates to its initial design specification. The hazard is the high temperature, and the impact is the overheating in buildings. One potential consequence could be either financial losses or delays caused by reduced staff productivity. The level of risk to the Project is then estimated as the combination of the likelihood of overheating in buildings, due to an increase in temperature, and the qualitative magnitude of its consequence. Should the level of risk warrant it, risk management measures would be put in place through the provision of mitigation.

Figure 5.1 Climate change risk assessment stages



5.4.4 The climate change risk assessment consists of 7 stages:

1. **Compile inventory of assets.** The assets and asset groups included within the Proposed Development are organised into activity types and listed. Both construction and operational elements of the Proposed Development are considered.

2. **Determine criticality of assets.** Based on expert opinion and literature, the extent to which the asset is crucial to the functionality of the Proposed Development was described as low, medium or high. Assets with low criticality are not considered further.

3. **Climate hazard assessment.** Climate information is compiled from UKCP18[viii] and used to carry out an assessment of hazards that could impact the Proposed Development.

4. **Vulnerable assets.** Combinations of assets and hazards that meet the criteria in stages 2 and 3 are considered vulnerable, and are therefore taken forward for further assessment

5. **Likelihood of climate change impact.** The likelihood of each impact is determined based on the draft definitions in **Table 5.1** Draft likelihood of climate change impact definitions

Table 5.1 Draft likelihood of climate change impact definitions

Level of likelihood	Definition of likelihood
Very unlikely (1)	Impact is highly improbable to occur during the operational lifetime of the assets or systems, or the construction period.
Unlikely (2)	Impact is not expected to occur during the operational lifetime of the assets or systems, or the construction phase.
As likely as not (3)	Impact may occur during the operational lifetime of the assets or systems, or the construction phase.

Likely (4)	Impact is expected to occur during the lifespan of the assets or systems, or the construction phase.
Very likely (5)	Impact is highly probable to occur during the lifetime of key assets or systems, or the construction phase.

6. **Consequence of climate change impact.** The consequence of each impact is determined based on the draft definitions in **Table 5.2** Draft consequence definitions.

Table 5.2 Draft consequence definitions

Level	Safety	Cost	Passenger Journey Times	Public Perception
Very low (1)	Minor harm or near miss	<£5m	Minor delays <1 hour	Short-term negative local stakeholder reaction.
Low (2)	Lost time to injury or medical treatment required, short term impact on persons affected	£5m to £25m	Substantial delays >1 hour	Negative local media reports over sustained period; localised stakeholder concern.
Medium (3)	Long-term injury or illness, prolonged hospitalisation or inability to work	£25m to £100m	Major delays and cancellations <1 day	Significant local or regional reports including social media; national media interest creating public concern.
High (4)	Single fatality or multiple long-term injuries	£100m to £250m	Major cancellations 1-14 days	Extensive prolonged negative national reporting and public disputes with key stakeholders.
Very high (5)	Multiple fatalities	>£250m	Severe cancellations >2 weeks	Extensive and prolonged negative reporting nationally and or public disputes with key stakeholders.

7. **Integrated risk.** The risk for each impact was determined based on the matrix shown in **Table 5.3** Draft climate change risk matrix. Risk appraisal was carried out with relevant asset owners and relevant design teams using a workshop approach to ensure agreement on risk categorisation.

Table 5.3 Draft climate change risk matrix

Consequence						
	Very high (5)	**Low**	**Medium**	**High**	**Very high**	**Very high**
	High (4)	**Low**	**Medium**	**High**	**High**	**Very high**
	Medium (3)	**Low**	**Low**	**Medium**	**High**	**High**
	Low (2)	**Very low**	**Very low**	**Low**	**Medium**	**Medium**
	Very low (1)	**Very low**	**Very low**	**Low**	**Low**	**Low**

	Very unlikely (1)	Unlikely (2)	As likely as not (3)	Likely (4)	Very likely (5)
	Likelihood of the impact				

5.5 Climate change risks

5.5.1 The risk assessment will be carried out following DCO approval. An indicative list of potential risks is provided in **.**

Table 5.4 Indicative list of climate change risks

Climate variable	Summary of risk
High temperature	Higher average temperatures can result in buckling of pavements (e.g. concrete expansion while remaining rigid). Non-concrete pavement integrity can be compromised (e.g. tarmac melt). Heat-related weathering of fleet, including tyres.
High precipitation / storms / extreme weather	Disruption to water and energy utilities including pumping and sub-stations due to storms, flooding and other extreme events, resulting in protracted disruptions and loss of critical services.
High temperature	Higher average temperatures combined with a potentially increased lightning and drought risk increase fire risk on site.
Low temperature	Increasing variability of snowfall challenges winter contingency plans, de-icing supplies and staff experience.
High precipitation	Disruption to ground transport routes including major and minor roads, resulting in crew and passenger disruptions and flights delays.
Storms and extreme winds	Disruption to ground transport routes including major and minor roads, resulting in crew and passenger disruptions and flights delays.
Drought	Increased frequency and severity of drought conditions, resulting in localised water scarcity and pollution incidents. Reduced borehole capacity.
Storms and extreme winds	Climate change could create more winter low pressure storms, although there is significant uncertainty in quantified increases in magnitudes, frequencies and changes to tracks.
Precipitation / soil moisture deficit	Climate change increases winter precipitation and reduces summer precipitation events, increasing the seasonality of the rainfall profile. This potentially reduces throughput and threatens operation due to geohazards caused by more variable soil moisture deficit levels.
Lightning	Climate change is likely to increase the impacts of lighting on control systems and electricity supply. Power cuts and voltage spikes to parts of Manston Airport not on uninterruptible power supply during electrical storms.
Extreme winds	High wind speed can damage aircraft vulnerable built assets. Extreme winds and vortex formation can be dangerous for airside crew and passengers.
Extreme precipitation events	Torrential rain creates hazardous conditions for vehicles and planes (for example, airside and landside vehicles).
Extreme precipitation events	Underground assets inundated and damaged during pluvial flooding event.
Extreme precipitation events	Pollution control system challenged. Higher intensity and frequency of flooding and more extreme precipitation events are likely to increase the load of pollutants washed from soils and overflows.
Increased seasonality of rainfall	Variable groundwater levels affect asset integrity, causing subsidence and water ingress damage to earthworks, underground structures, foundations and platforms.

6. Further steps towards the final CCAS

6.1 Option appraisal

Decision-making process

6.1.1 The decision-making process will be developed once the CCRA has been completed. Adaptive pathways, an approach to schedule adaptations so that the correct decisions are taken at design stage and other decisions are planned for the future, will be embedded in to the decision-making process.

Option prioritisation

6.1.2 The options taken forward will include a list of the risks associated with the decision, and potential benefits if appropriate.

6.1.3 Each documented climate change adaptation action will include:

- An objective;
- Its description;
- Its indicators;
- Timescales;
- Its estimated costs and expected benefits; and
- An assessment of the risks (barriers/ constraints) to its effective delivery.

6.2 Adaptation plan

6.2.1 A full adaptation plan for the design, construction and operation of the Proposed Development will be developed post DCO consent using the CCRA and option appraisal stages set out in Sections 5 and 6.

6.3 Implementation plan

6.3.1 The process for implementing the adaptation plan will be set out in the CCAS, including:

- Leadership of, commitment to, and accountability for implementation by management;
- Documentation of processes to ensure the action identified are delivered;
- Description of the organisational capability and resources to deliver actions;
- Details of the policies, processes and operational activities that climate change adaptation is embedded into; and
- Engagement plans for interested stakeholders.

6.4 Monitoring and evaluation

6.4.1 Monitoring and evaluation will be used to inform the developer and operator of Manston Airport about the progress of its climate change adaptation throughout the design, construction and operation phases. It provides knowledge, learning and evidence to inform the adaptation process throughout the design life of the Proposed Development.

6.4.2 A monitoring and evaluation plan will be incorporated into the CCAS. The plan will detail the actions, inputs, outputs, resources and processes required to inform on progress against the implementation plan.

6.5 Reporting and communication

6.5.1 The development of, and progress against, the CCAS should be reported and communicated to remain transparent.

6.5.2 The periodicity of reporting and communication of the CCAS will be set out in a relevant policy.

[i] Committee on Climate Change (2017), UK Climate Change Risk Assessment. Available online at: https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Synthesis-Report-Committee-on-Climate-Change.pdf

[ii] UNFCC (2017), The Paris Agreement. Available online at: http://unfccc.int/paris_agreement/items/9485.php

[iii] HM Government (2017). UK Climate Change Risk Assessment 2017. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/584281/uk-climate-change-risk-assess-2017.pdf

[iv] HM Government (2008). Climate Change Act 2008. Available online at: https://www.legislation.gov.uk/ukpga/2008/27/contents

[v] European Parliament and Council of the EU (2014), EU EIA Directive 2014. Available online at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0052&from=EN

[vi] UK Legislation (2017), The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available online at: http://www.legislation.gov.uk/uksi/2017/572/contents/made

[vii] Department for Transport (2018). Airports National Policy Statement. Available online at: https://www.gov.uk/government/publications/airports-national-policy-statement

[viii] UKCP18 (2018). UK Climate Projections. Available online at: https://www.metoffice.gov.uk/research/collaboration/ukcp

[ix] Kent County Council (2016). Kent Environment Strategy. Available online at: https://www.kent.gov.uk/about-the-council/information-and-data/Facts-and-figures-about-Kent/environmental-policies/kent-environment-strategy

[x] Thanet District Council (2018). Draft Thanet Local Plan – 2031. Available online at: https://consult.thanet.gov.uk/consult.ti/TLP_PRE_SUB/consultationHome

[xi] Kent County Council (2018). Kent and Medway Growth and Infrastructure Framework 2018. Available online at: https://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/growth-and-infrastructure-framework-gif

[xii] Committee on Climate Change (2015), Developing H++ climate change scenarios for heatwaves, droughts, floods, windstorms and cold snaps (Met Office). Available online at: https://www.theccc.org.uk/publication/met-office-for-the-asc-developing-h-climate-change-scenarios/

[xiii] UKCP09 (2014) UKCP09 published reports. Available online at: http://ukclimateprojections.metoffice.gov.uk/22530

[xiv] Program for Climate Model Diagnosis and Intercomparison (PCMDI), CMIP5 - Coupled Model Intercomparison Project Phase 5 – Overview. Available online at: https://cmip.llnl.gov/cmip5/

[xv] The Committee on Climate Change Adaptation Sub-Committee (2017), UK Climate Change Risk Assessment, Chapter 4: Infrastructure. Available online at: https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Chapter-4-Infrastructure.pdf

[xvi] Heathrow (2016), Climate Change Adaptation and Resilience Progress Report. Available online at: https://www.heathrow.com/file_source/Company/Static/PDF/Communityandenvironment/Climate-Change-Adaptation-Report-2016.pdf

[xvii] Gatwick (2016), Climate Change Adaptation Progress Report. Available online at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/530908/climate-adrep-gatwick-airport.pdf