Appendix 13-5: Mitigation & Adaptation Measure Log

Appendix 13-5 Climate Change Mitigation & Adaptation Measures Log

1.1.1 This appendix presents the embedded climate mitigation and adaptation measures that were identified while developing the Chapter 13: Climate (EIAR Volume 2) and undertaking the Climate Change Risk Assessment (CCRA) and Lifecycle Greenhouse Gas (GHG) Impact Assessment. The adaptation and mitigation measures presented below represent existing embedded or planned controls at Dublin Airport.

Table 13E-1: Key to Table 13E- 2

Key	
Climate	Overall relevant to Chapter 13: Climate (EIAR Volume 2), touches on climate mitigation and climate risk adaptation measures.
CCRA	Only details adaptation measures relevant to the climate risk section of the chapter.
Lifecycle GHG Impact Assessment	Only details measures relevant to GHG assessment and mitigation section of the chapter.

Table 13E- 2: Climate Change Mitigation and Adaptation Measures Log

Measure is Relevant to: GHG, CCRA, or Climate	Measure / Activity	Issue being Addressed by Measure / Activity
Climate	The Overarching Energy and Sustainability Report developed nine themes based on daa policies, Irish regulation and Fingal County Council (FCC) requirements. The nine themes are: building layout and design, carbon, energy, waste and resources, overheating and climate resilience, biodiversity, flooding and pollution prevention. The Proposed Development will be reviewed and updated, as necessary, to align with the recast EPBD and future Zero Emission Building (ZEB) requirements. Reliance on natural gas should be reduced or eliminated through the integration of low-carbon heating technologies and energy-efficient design measures	Vulnerability to climate change risk Impact on the climate (GHG emissions)
Climate	**Transport** • daa have and will continue to support, and where feasible influence, the use of public transport and modes of active travel.	Vulnerability to climate change risk Impact on the climate (GHG emissions)
GHG	**Energy** • daa will continue to review opportunities for on-site renewable energy generation as part of its wider energy and carbon management programmes and corporate sustainability objectives. • daa will support the use of electric vehicles through the operation and management of existing EV charging infrastructure, where available and appropriate.	Impact on the climate (GHG emissions)
CCRA	Surface water management • The peak discharges to the Forrest Little Stream and Kealy's Stream will be attenuated and limited to the greenfield run-off rates.	Vulnerability to climate change risk
Climate	Fuel storage facilities are regulated under the Seveso Directive to ensure safety.	Extreme heat
CCRA	Dublin Airport has an existing and operational fire station with fire safety equipment and facilities on site.	Extreme heat
CCRA	daa will continue to monitor weather forecasts and implement established contingency procedures if required.	Extreme temperatures, flooding and extreme weather events
CCRA	The HVAC system has been designed to support occupant comfort and energy-efficient operation through the use of mechanical ventilation, free-cooling and high-efficiency heat recovery. These measures reduce cooling demand during warmer periods and heating demand during colder periods, improving the overall energy performance of the building.	Extreme heat
CCRA	Where necessary and feasible external shading devices will be favoured over glazing solar coatings as this will allow for heat to be absorbed in winter but reflected in summer.	Extreme heat
CCRA	Where necessary and feasible solar control measures such as solar glazing will be used to minimise solar gain indoors.	Extreme heat
CCRA	Design standards for taxiway surfaces and runways are intended to withstand high temperatures, allowing them to cope with aircraft braking.	Extreme heat
CCRA	Where feasible and appropriate permeable materials will be used in paved areas to allow water to be absorb into the ground and not gather on the surface area, increasing overall surface drainage capacity.	Flooding
CCRA	daa will continue drainage inspection, maintenance and asset management procedures to maintain drainage performance and minimise the risk of flooding and blockages.	Flooding and extreme weather events

Measure is Relevant to: GHG, CCRA, or Climate	Measure / Activity	Issue being Addressed by Measure / Activity
CCRA	daa will continue to monitor weather forecasts and implement established contingency procedures during periods of forecast extreme weather.	Storm events
CCRA	daa will follow the Vegetation Management Plan which outlines regular monitoring procedures for trees and vegetation.	Storm events
CCRA	daa will maintain existing lightning monitoring, warning and response procedures to support safe airport operations during storm events.	Storm events
CCRA	daa will maintain staff training and operational response procedures for severe weather and lightning events.	Storm events
CCRA	Heating, cooling and ventilation systems will be operated and maintained to maintain occupant comfort during periods of extreme temperatures.	Extreme heat
CCRA	Storage facilities have been designed with appropriate cooling, ventilation and environmental control systems to maintain operational performance and resilience during periods of elevated temperatures.	Extreme heat
CCRA	daa will maintain routine inspection and maintenance of operational surfaces to ensure continued performance during extreme weather conditions.	Extreme heat
CCRA	daa will maintain and implement established snow clearance, de-icing and severe winter weather response procedures to minimise operational disruption and maintain safe airport operations during periods of extreme cold weather.	Extreme cold
CCRA	Heating, cooling and ventilation systems will be operated and maintained to maintain occupant comfort during periods of extreme temperatures.	Extreme cold
CCRA	daa will maintain operational procedures and existing infrastructure to support safe operations during periods of reduced visibility.	Fog conditions
CCRA	Existing Sustainable Drainage Systems (SuDS) at Dublin Airport, including silt traps, petrol interceptors, permeable paving, filter drains, infiltration trenches, soakaways, drainage blankets, ditches, rainwater harvesting systems, attenuation systems and separate surface water and foul drainage networks, will continue to be maintained and operated to manage surface water runoff, improve drainage performance and reduce flood risk across the airport estate.	Flooding
CCRA	• To minimise the risk of wildlife particularly flocks of birds colliding with a moving aircraft and creating a significant safety risk, daa have a strict policy around open bodies of water. Wildlife are often attracted to open bodies of water and large areas of landscape, as a result to avoid unnecessary attraction of wildlife daa do not intend on increasing the area or length of open ditches serving as land drains in the airside grassed areas. • Dublin Airport currently has no open water storage facilities and any introduction of new SuDS features comprising open water facilities such as ponds, detention basins, wetlands or bio ponds will significantly increase the attractiveness to birds by providing a nesting habitat.	Flooding
CCRA	Typical SuDS components used within Dublin Airport: filter strips, filter drain, infiltration trench, wet swale, dry swale, bioswale, ditches, tree pit, bioretention area, permeable paving, drainage blanket, silt traps and catchpits, soakaway, infiltration basin, green roof, rainwater harvesting, petrol interceptor, underground attenuation, detention basins, retention ponds, wetlands, bio ponds.	Flooding
GHG	A Carbon Reduction Strategy has already been developed for Dublin Airport. The Strategy has been developed in response to Objective CA02 of the Dublin Area Local Plan.	Impact on the climate (GHG emissions)
GHG	daa will periodically review the operational energy performance of airport buildings and implement energy management and efficiency measures, where feasible, to support compliance with applicable energy performance requirements and corporate decarbonisation objectives.	Impact on the climate (GHG emissions)
GHG	daa will maintain an ISO 50001-certified Energy Management System, including monitoring, reporting and periodic review of energy performance to identify opportunities to improve operational energy efficiency and reduce GHG emissions.	Impact on the climate (GHG emissions)

Measure is Relevant to: GHG, CCRA, or Climate	Measure / Activity	Issue being Addressed by Measure / Activity
GHG	daa will operate and maintain existing lighting controls, including occupancy sensors, time scheduling and daylight-responsive controls, to minimise unnecessary energy consumption.	Impact on the climate (GHG emissions)
GHG	Energy-efficient lighting systems will be maintained and operated in accordance with airport energy management procedures to optimise operational performance and minimise electricity consumption.	Impact on the climate (GHG emissions)
GHG	daa will continue to encourage the use of existing Fixed Electrical Ground Power facilities by aircraft operators, where operationally feasible, to reduce aircraft ground-based fuel consumption and emissions.	Impact on the climate (GHG emissions)
GHG	Daa will continue to purchase 100% renewable electricity through Renewable Energy Guarantees of Origin (REGO) backed supply contracts.	Impact on the climate (GHG emissions)
GHG	daa will continue to support the use of existing EV charging facilities and optimise their operation through airport energy management procedures.	Impact on the climate (GHG emissions)
GHG	daa will continue to implement fleet management practices that improve vehicle efficiency and reduce fuel consumption, taking account of operational requirements and vehicle replacement programmes.	Impact on the climate (GHG emissions)
GHG	Operational plant and equipment will be monitored, maintained and optimised to ensure efficient operation and minimise unnecessary energy consumption.	Impact on the climate (GHG emissions)
GHG	Existing energy monitoring data will be reviewed and utilised to identify opportunities for improved operational energy performance and efficiency.	Impact on the climate (GHG emissions)
GHG	Building services systems will be operated and maintained in accordance with energy management objectives to maximise operational efficiency and minimise GHG emissions.	Impact on the climate (GHG emissions)
GHG	Where operationally feasible and commercially available, lower-emission alternatives will be considered during the replacement of Ground Support Equipment.	Impact on the climate (GHG emissions)
GHG	Existing electrical charging facilities for Ground Support Equipment (GSE) will be managed and maintained to support the efficient operation of lower-emission GSE, where available.	Impact on the climate (GHG emissions)
GHG	daa will keep emerging energy storage technologies under review as part of its energy management and decarbonisation programmes and will consider their adoption where operationally feasible, commercially viable and consistent with airport operational requirements.	Impact on the climate (GHG emissions)
GHG	There are two overarching market-based measures in the aviation sector to control its GHG emissions, the EU Emissions Trading System (ETS) and Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).	Impact on the climate (GHG emissions)
GHG	From the perspective of daa, all aircraft emissions fall under Scope 3 for carbon accounting purposes. They are outside the Daa's direct control, but can be influenced by efficient airside infrastructure design, delivery and how aircraft operate at the airport (influenced by airlines, the Air Navigation Service Provider, and daa). Aircraft movements are divided into both the Landing and Take Off Cycle (LTO) and the Climb, Cruise and Decent (CCD) phases. daa has some influence over the LTO cycle when the aircraft are on the ground, so mitigation measures include reducing fuel consumption while aircraft are on the ground. Aviation mitigation measures below describe measures proposed to address emissions from aviation.	Impact on the climate (GHG emissions)
GHG	Mitigation measures identified within the Dublin Airport Carbon Reduction Strategy to reduce aviation emissions, fall into **four categories:** 1 - The use of sustainable aviation fuels (SAFs). Any SAF mandate will be binding on the fuel supply chain rather than on the airport, although the airport operator must enable and facilitate the use of SAFs.	Impact on the climate (GHG emissions)

Measure is Relevant to: GHG, CCRA, or Climate	Measure / Activity	Issue being Addressed by Measure / Activity
	2 - The collaboration of daa with their respective stakeholder groups to set pathways to reach net zero emissions by 2050. The implementation of this measure remains the responsibility of the airport operator. 3 - The introduction of Zero Emission Aircraft, such as electric, green hydrogen, or hybrid models. The introduction and use of such aircraft is beyond the responsibility of the airport operator, but when the technology becomes available in the future, the operator enable their charging and/ or refuelling. 4 - Carbon pricing via CORSIA. Market-based mechanisms such as EU ETS and CORSIA act as a backstop for aviation emissions, but their use is outside the responsibility of the airport operator.	
GHG	**Aviation Mitigation Measures** • daa will continue to collaborate with airlines, regulators, fuel suppliers and other stakeholders to support the aviation sector's transition towards net zero emissions. • daa will continue to engage with relevant stakeholders regarding the future deployment and use of Sustainable Aviation Fuels at Dublin Airport.	Impact on the climate (GHG emissions)
GHG	**Surface Access Mitigation Measures** • Improve passenger and staff mobility by enhancing access to public transport, cycling and walking. • Lower-emission vehicle technologies will continue to be considered through fleet planning and replacement programmes where operationally feasible. • daa will continue to support the use of electric vehicles through the management and operation of existing charging infrastructure, where available.	Impact on the climate (GHG emissions)
GHG	**Airport Operations Mitigation Measures** • Continue to purchase 100% renewable electricity through REGO-backed supply contracts. • Compete transition of light vehicle fleet and continue the transition of heavy vehicle fleet to LEVs. • Air source heat pumps for renewable heating. • Smart lighting with daylight sensors and energy reduction measures throughout. • Use of LED low energy lighting throughout. • Utilise an extensive lighting control system across estate, incorporating: – Occupancy sensing. – Time control. – Daylight sensing (South Apron).	Impact on the climate (GHG emissions)
GHG	daa will continue to work with airlines and relevant stakeholders to minimise Auxiliary Power Unit usage where operationally feasible and where suitable alternatives are available.	Impact on the climate (GHG emissions)