

Comhairle Contae Fhine Gall
Fingal County Council

**An Roinn um Pleanáil agus
Infrastruchtúr Straitéiseach**
Planning and Strategic
Infrastructure Department



ENVIRONMENTAL REPORT FOR STRATEGIC ENVIRONMENTAL ASSESSMENT

DUBLIN AIRPORT CENTRAL MASTERPLAN

March 2016

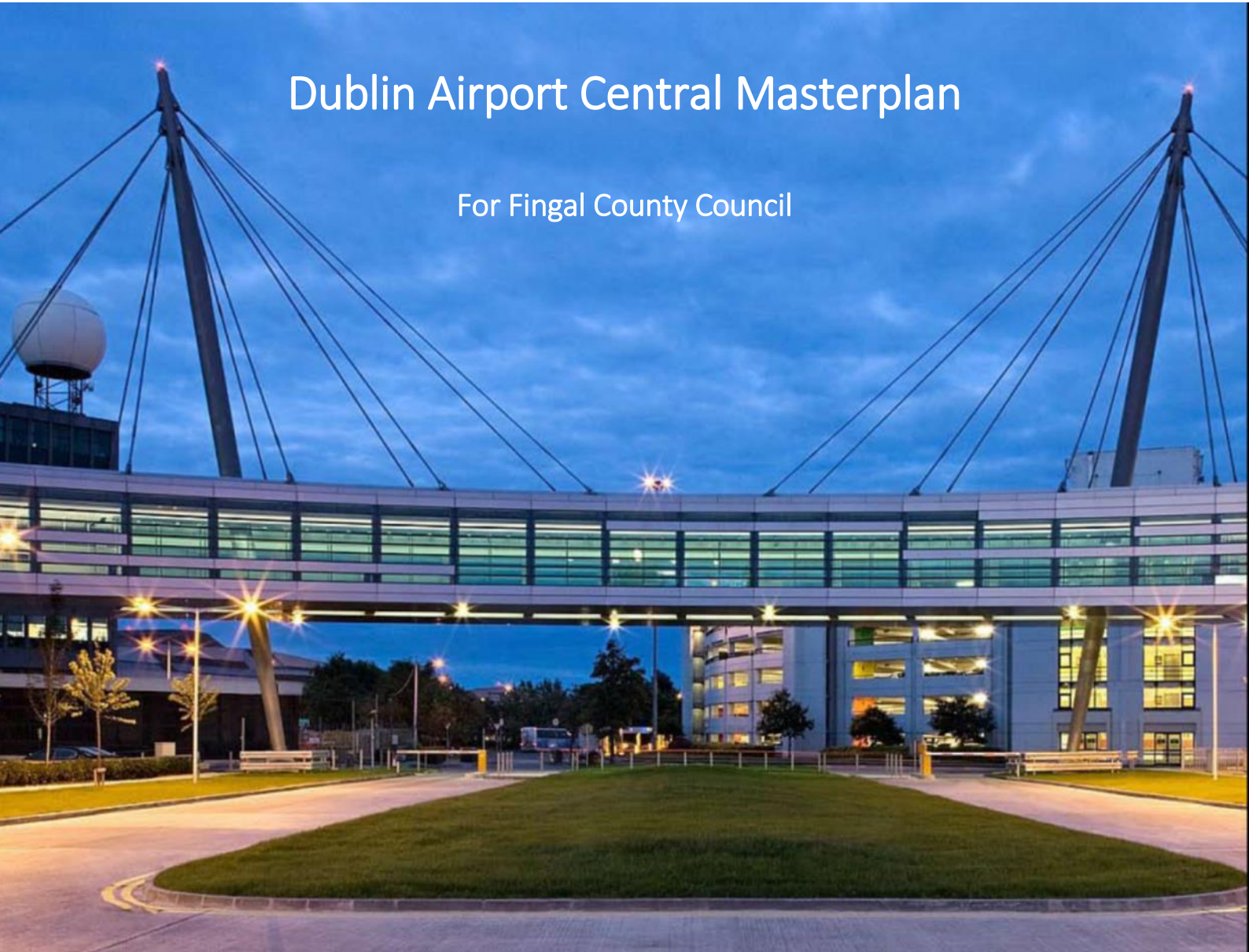


Environmental Report

.....
The Strategic Environmental Assessment of

Dublin Airport Central Masterplan

For Fingal County Council



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**Built.
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April 2016

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Glossary

<i>Appropriate Assessment</i>	An assessment of the effects of a plan or project on the Natura 2000 network. The Natura 2000 network comprises Special Protection Areas under the Birds Directive, Special Areas of Conservation under the Habitats Directive and Ramsar sites designated under the Ramsar Convention (collectively referred to as European sites).
<i>Baseline environment:</i>	A description of the present state of the environment of the P/P area.
<i>Birds Directive:</i>	Council Directive of 2nd April 1979 on the conservation of wild birds (79/409/EEC).
<i>Cumulative effects:</i>	Effects on the environment that result from incremental changes caused by the strategic action together with other past, present, and reasonably foreseeable future actions. These effects can result from individually minor but collectively significant actions taking place over time or space.
<i>Data:</i>	Includes environmental data, proxy data, and any other relevant statistical data.
<i>Designated authority</i> <i>(Designated environmental authority):</i>	An organisation that must be consulted in accordance with the SEA Regulations. For Ireland these are the Environmental Protection Agency (EPA), the Department of the Environment, Community and Local Government (DoECLG) and the Department of Agriculture, Food & the Marine (DoAFM).
<i>Environmental Assessment:</i>	The preparation of an environmental report, the carrying out of consultations, the taking into account of the environmental report and the results of the consultations in decision-making and the provision of information on the decision (in accordance with Articles 4 to 9 of the SEA Directive).
<i>Environmental Characteristics:</i>	Environmental resources, issues and trends in the area affected by the P/P.
<i>Environmental indicator:</i>	An environmental indicator is a measure of an environmental variable over time, used to measure achievement of environmental objectives and targets.
<i>Environmental objective:</i>	Environmental objectives are broad, overarching principles which should specify a desired direction of environmental change.
<i>Environmental receptors:</i>	Include biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage (including architectural and archaeological) and landscape as listed in the SEA Directive. This list is not exhaustive, and can include other receptors which may arise for a particular P/P.
<i>Environmental Report (ER):</i>	A document required by the SEA Directive as part of an environmental assessment which identifies, describes and evaluates the likely significant effects on the environment of implementing a plan or programme.

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<i>Environmental targets:</i>	A target usually underpins an objective often having a time deadline that should be met and should be accompanied by limits or thresholds.
<i>Evolution of the baseline:</i>	A description of the future state of the baseline in the absence of a plan or programme assuming 'business as usual' or 'do nothing' scenarios, depending on which is more reasonable for the P/P being proposed.
<i>Habitats Directive:</i>	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
<i>Hierarchy of Plans:</i>	Both higher and lower level P/P relevant to the P/P being assessed.
<i>Indirect effect:</i>	Any aspect of a P/P that may have an impact (positive or negative) on the environment, but that is not a direct result of the proposed P/P. May also be referred to as a secondary effect
<i>Interrelationships:</i>	Associations or linkages, related to environmental impact of the proposed P/P usually on environmental receptors.
<i>Issues Paper:</i>	Paper produced as part of the consultation process, usually for Land Use Plans, to facilitate consultation with stakeholders on key issues.
<i>Key environmental issues:</i>	Those significant environmental issues, which are of particular relevance and significance within a P/P area and/or the zone of influence of that P/P. These issues should be identified during SEA Scoping process.
<i>Key environmental receptors:</i>	Aspects of the environment likely to be significantly impacted by the proposed P/P.
<i>Material Assets:</i>	Critical infrastructure essential for the functioning of society such as: electricity generation and distribution, water supply, wastewater treatment transportation etc.
<i>Member States:</i>	Those countries that belong to the European Union.
<i>Mitigation measures:</i>	Measures to avoid/prevent, minimise/reduce, or as fully as possible, offset/compensate for any significant adverse effects on the environment, as a result of implementing a P/P.
<i>Monitoring:</i>	A continuing assessment of environmental conditions at, and surrounding, the plan or programme. This determines if effects occur as predicted or if operations remain within acceptable limits, and if mitigation measures are as effective as predicted. The primary purpose of monitoring is to identify significant environmental effects which arise during the implementation stage against those predicted during the plan preparation stage.
<i>Monitoring Programme:</i>	A detailed description of the monitoring arrangements to be put in place to carry out the monitoring of the impact of the proposed P/P on the environment including; frequency of monitoring, who has responsibility for

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	monitoring, and responses if monitoring identifies significant negative impacts.
<i>Non-technical summary:</i>	A summary of the findings of the ER, summarized under the headings listed in Annex 1 of the SEA Directive that can be readily understood by decision-makers and by the general public. It should accurately reflect findings of ER.
<i>Plan or Programme:</i>	Including those co-financed by the European Community, as well as any modifications to them: <ul style="list-style-type: none">- which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and- which are required by legislative, regulatory or administrative provisions. In accordance with the SEA Directive, P/P that require SEA are those that fulfil the conditions listed in Article 2(a) and Article 3 of the SEA Directive.
<i>Post-mitigation residual impacts:</i>	Environmental effects that remain after mitigation measures have been employed.
<i>Proxy data:</i>	Is a measure of activity resulting from a P/P which provides information on environmental impact without the need for a direct measure of an environmental receptor for example, an increase in the number of vehicles (activity resulting from a P/P) can provide information on the impact on air quality and greenhouse gases without having to measure the concentration of these parameters in the receiving environmental receptor.
<i>Public:</i>	One or more natural or legal persons and, in accordance with national legislation or practice, their associations, organisations or groups.
<i>Reasonable alternatives:</i>	Alternatives should take into account the objectives and geographical scope of the P/P. There can be different ways of fulfilling the P/P objectives, or of dealing with environmental problems. The alternatives should be realistic, capable of implementation and should fall within the legal and geographical competence of the authority concerned.
<i>Scoping:</i>	The process of deciding the content and level of detail of an SEA, including the key environmental issues, likely significant environmental effects and alternatives which need to be considered, the assessment methods to be employed, and the structure and contents of the Environmental Report.
<i>Screening:</i>	The determination of whether implementation of a P/P would be likely to have significant environmental effects on the environment. The process of deciding whether a P/P requires SEA.
<i>SEA Directive:</i>	Directive 2001/42/EC 'on the assessment of the effects of certain plans and programmes on the environment'.

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<i>SEA Statement:</i>	<p>A statement summarising:</p> <ul style="list-style-type: none">- how environmental considerations have been integrated into the P/P- how the ER, the opinions of the public and designated authorities, and the results of transboundary consultations have been taken into account- the reasons for choosing the P/P as approved in the light of other reasonable alternatives.
<i>Secondary effect:</i>	Effects that are not a direct result of the P/P, same as indirect effect.
<i>Short-term effects:</i>	These are typical of those effects that may occur during construction stage of a development, for example, the increased traffic going to and from a site during construction, or, the noise associated with construction activities.
<i>Significant effects:</i>	Effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.
<i>Statutory authority:</i>	The authority by which or on whose behalf the plan or programme is prepared.
<i>Statutory Instrument (S.I.):</i>	Any order, regulation, rule, scheme or bye-law made in exercise of a power conferred by statute.
<i>Synergistic effect:</i>	Effects that, when totalled, result in a greater or lesser effect than the sum of the individual effects.

1.0 Non-Technical Summary

1.1 Introduction and Background

The core objective of the process is to assess the Masterplan in terms of its overall environmental impact, both positive and negative and to indicate where necessary how improvements can be incorporated into the plan to improve the plans' environmental performance.

This section of the Environmental Report is a non-technical summary. The purpose of the Non-Technical Summary is to ensure that the key findings of the Environmental Report are readily understood by both decision makers and the general public. To this end technical jargon has been avoided wherever possible.

The Planning and Development Act 2000-2014 require that a Strategic Environmental Assessment, (pursuant to the SEA Directive) and an Appropriate Assessment (pursuant to the EU Habitats Directive) be carried out as part of the Masterplan process.

The preparation of the Dublin Airport Central Masterplan runs in parallel with the Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) and both these processes have significantly influenced the preparation of the Masterplan.


In this regard environmental considerations have been considered throughout the plan process and have been incorporated in the Masterplan ensuring a continuation of a qualitative environment.

The Environmental Report is the primary element in the SEA process and shall be published alongside the Dublin Airport Central Masterplan.

1.2 Steps in the SEA Process

Table 1 below highlights the key stages in the SEA process and the progress made to date:

Table 1: Key Stages in SEA process

Stage	Description	
Scoping	<p>The Scoping of the Draft Dublin Airport Central Masterplan was carried out in accordance with Article 5 (4) of the SEA Directive (2001/42/EC).</p> <p>The principal purpose of the Scoping stage is to decide upon the range of issues and level of detail to be included in the Environmental Report. An overview of the relevant environmental issues requiring further analysis are given and consideration in the Environmental Report and ultimately in the Masterplan itself. By highlighting some of the significant issues at an early stage, it ensures that the issues are firmly to the forefront when considering each of the policies and</p>	<p>Completed</p> 

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	objectives of the Plan and reduces the possibility of relevant issues not being addressed.	
Consultation with the Environmental Authorities	Submissions were received: <ul style="list-style-type: none"> • Environmental Protection Agency • Meath County council • Dublin City Council 	Completed 
Scoping Report	Submissions received from Environmental Authorities were incorporated into the Scoping Report and baseline data was amended.	Completed 
Preparation of draft ER & Masterplan	<ul style="list-style-type: none"> • A multi-disciplinary team was established to create policy consistent documents and to examine the effects on the environment of implementing the objectives and policies. • Objectives created in Masterplan assessed in ER and proposed zonings for the plan area examined. • Feedback from on-going Plan preparation process & ER preparation • Mitigation measures discussed and chosen. • Monitoring incorporated into existing methods. 	Completed 
Consultation	Consultation on the Draft Masterplan and associated Environmental Report and AA Screening	Completed 
Evaluation of submissions	Evaluation of submissions and observations made on the Draft Masterplan, Environmental Report and Natura Impact Report.	Completed 
SEA Statement	Preparation of an SEA Statement identifying how environmental considerations and consultation have been integrated into the finalised Masterplan.	Completed 
Monitoring the Masterplan	Monitoring significant environmental effects over the lifetime of the Dublin Airport Central Masterplan	To be completed

1.3 Content of Environmental Report

The Environmental Report considers all of the following in accordance with the requirements of the SEA Directive:

1. Population, Human Health and Quality Of Life
2. Biodiversity
3. Soil & Geology
4. Water
5. Air Quality and Climate Change
6. Material Assets
7. Cultural Heritage
8. Landscape

Table 2 below summarises the content of the Environmental Report. In the first instance the Environmental Report details the Current State of the Environment of Dublin Airport Central lands within each of the sub headings set out above, and interrelationships between each of

the environmental topics. The Environmental Report examines significant environmental pressures that may affect each of the environmental topics and the current (Baseline) State of the Environment.

Table 2: Content of Environmental Report

Section	Description
Non-Technical Summary	A brief summary of the Environmental Report, its main points and conclusions.
Introduction	Provides a description of the type of plan involved and a summary of its key aims and objectives. The purpose of the SEA process, SEA requirements, and its benefits and how the Masterplan and Environmental Reports have progressed are outlined.
SEA Methodology	Highlights the steps taken in preparation of the SEA, the methods used and technical difficulties encountered.
Relationship of the Plan with Other Relevant Plans and Programmes	The relationship of the Masterplan to other relevant plans and programmes is highlighted.
Baseline	A description of the current environment of the plan area is given, highlighting any existing environmental problems in the plan area. This exercise results in a comprehensive baseline against which the likely effects of implementing the Masterplan can be examined.
Strategic Environmental Objectives	A number of environmental protection objectives which have been established at international, EU or national Level and are relevant to the plan are listed. Following this a description of how the objectives and any environmental considerations have been taken into account in the preparation of the plan is given.
Alternatives	An assessment of proposed development alternatives in the plan area are considered at this stage.
Assessment	The proposed Masterplan policies and objectives are examined in terms of their potential effects on the various Environmental parameters.
Mitigation Measures	Should potentially significant effects be discovered, measures to prevent, reduce or offset these effects are proposed and integrated into the Masterplan.
Monitoring	Proposals for monitoring the significant effects of the Masterplan on the environment are put forward. A number of indicators of change and targets are identified and existing monitoring arrangements are utilised.
Conclusion	A conclusion with regard to the overall impact on the environment resulting from the implementation of the Masterplan.

1.4 Policy Context

The preparation of the Masterplan must be considered within the context of a hierarchy of policies, plans and strategies of international, national, regional and local level as detailed in

Chapter 4 of the Environmental Report. Other relevant Plans, policies and programmes were considered in this report and are referenced throughout.

1.5 Appropriate Assessment

An Appropriate Assessment (AA) Screening has also been carried out in accordance with Article 6 of the EU Habitats Directive and as required under the Planning and Development Acts 2000-2013. The AA is a separate but parallel process that has overlapped significantly with the SEA process in the drafting of the Masterplan.

The AA Screening concluded that there would be no likelihood of significant effects on any European sites either alone or in combination with other plans or projects. This was informed by the collection of best available scientific data on the European sites and identification of the condition, sensitivities and threats to the integrity of the sites and QIs/SCIs therein.

1.6 Contents and Objectives of the Dublin Airport Central Masterplan

Fingal County Council, in consultation with the Dublin daa (formerly Dublin Airport Authority) and their consultancy team, has prepared the Dublin Airport Central Masterplan. The Masterplan is a framework for the future development of lands strategically located adjacent to Dublin Airport. The Masterplan lands comprise an area of land identified as Zone 1. The Masterplan specifically focuses on the development of Zone 1 for high quality, high value office accommodation supplemented with ancillary uses. Longer term plans for other zones are not the subject of this Masterplan and will be subject to SEA Screening in the future.

In the Fingal Development Plan 2011-2017, the Masterplan lands are zoned as 'HT' High Technology and are subject to the map based Local Objective 378. The Zoning Objective for the HT zoning is to:

Provide for office, research and development and high technology/ high technology manufacturing type employment in a high quality built and landscaped environment.

The map based Local Objective 378 specifically applies to these lands and seeks to:

Consider within the context of the Masterplan, the nature and scale of appropriate HT uses and enterprise centre related to aviation and airport business, research and development associated with airports or aviation and Air Transport Infrastructure, having regard to the site's strategic location within the Dublin Airport Authority Lands.

While the Masterplan has been prepared in accordance with the Fingal Development Plan 2011-2017, it is likely that the Masterplan will be implementable under subsequent Fingal Development Plans. At the time of preparing this Environmental Report, the Draft Fingal Development Plan 2017-2023 has been prepared. In the Draft Development Plan, the Masterplan lands remain zoned as 'HT' High Technology and are subject to the map based Local Objective 57. Local Objective 57 maintains the intent of Local Objective 378 and seeks to:

Consider within the context of the Masterplan, that nature and scale of appropriate HT uses having regard to the sites strategic and unique location in proximity to an international airport within the Dublin Airport Authority lands

In this regard, the principles of the Masterplan, in particular relating to use classes, remain consistent with the zoning and objectives of the Draft Fingal Development Plan 2017-2023.

The Masterplan will serve as a coherent framework for the future development of these strategically located lands. The layout of the Masterplan is organised into seven chapters: the initial chapters present the context for the subject lands in relation to the planning policy; existing land uses and environmental conditions; and unique economic factors pertaining to the lands. The subsequent chapters outline the vision and principles which guide the future development framework; present the detailed development strategy for the Masterplan lands with a focus on Zone 1; and a description of the phasing and implementation of the development framework for Zone 1.

The Masterplan framework is formulated and structured on four key guiding principles. These include principles relating to urban design and quality space making; movement and circulation; economic conditions; and environmental and building sustainability.

The Masterplan consists of a written statement and maps. Once finalised, the Masterplan will provide a framework for guiding development and will assist in ensuring that future development is appropriately managed and occurs in a sustainable manner. The Masterplan area is shown in Map A.

The Masterplan will serve as a design framework for the future development of Phases 1 and 2 of Zone 1 of these strategically located lands. Economic analysis was undertaken to ensure that the framework would identify an appropriate nature and scale for such development. Comparative studies with other similarly sized airports internationally, indicated that Dublin Airport is underperforming.

The Masterplan lands comprise two parcels of land, referred to as Zone 1 and Zone 2. The Masterplan specifically focuses on the development of Phases 1 and 2 of Zone 1 for high quality, high value office accommodation supplemented with ancillary uses.

1.7 Current State of the Environment

The Fingal County Development Plan (CDP) 2011–2017 sets out the overall strategy for the proper planning and sustainable development of the county over a six year period. The plan has a critical role to play in ensuring that the needs of future population growth are planned for. The CDP economic strategy has been informed by the Regional Planning Guidelines (RPGs) and the environmental sensitivities of the county. Dublin Airport is the primary gateway for Fingal and Ireland and is supported as such.

The previous Dublin Airport Local Area Plan 2006 identified a number of major infrastructural projects and planned expansion of Dublin Airport and its hinterland. However this LAP coincided with the downturn in the national economy and the collapse of the property market, and a reduction in passenger numbers.

Chapter 5 of the Environmental Report describes in detail the current Environmental Baseline of the County using available environmental data. The current state of the environment and its evolution is described as well as any existing environmental problems affecting the area.

Table 3: Summary of Main Environmental Issues within the Plan Area

Topic	Environmental Issue/Pressures
Biodiversity, Fauna and Flora	Dublin Airport and its immediate environs are entirely artificial in character, comprising existing roads, car parks, buildings and landscape planting. There are a number of treelines, hedgerows and some small areas of amenity grassland.
Population and Human Health & Quality of Life	There are no significant environmental issues existing with regard to the current population of the plan area. The Dublin Airport Central Masterplan does not have, nor does it propose, to accommodate and residential accommodation and as such the consideration of Human Beings relates to the working population of Dublin Airport.
Soil & Geology	Soil is lost annually through the development of agricultural land. The area to be developed under the Masterplan is made or urban lands, with a limestone till and greys in addition to a limestone based bedrock. There are sections shallow rock and thin subsoils in Zone 1.
Water	Due to the different bedrock conditions, groundwater vulnerability ranges from 'low' on lands to east of the airport and environs (the DAA controlled long-term car park on the R132) to 'moderate – high' in Zone 2 and 'high – extreme' in Zone 1 where there is shallow rock and thin subsoils. The groundwater WFD status for the subject lands is predominantly 'good' with an overall objective to 'protect'. Groundwater is also considered to be at risk of not achieving 'good status'
Air and Climate	Air quality within the Plan area is generally good. Increased greenhouse gas emissions have been linked with climate change resulting in increases in the intensity and frequency of flooding. Of particular concern is the high dependency on the use of the private car travelling to and from the Masterplan area.
Material Assets – Transportation	Traffic and transportation is considered the most critical issue effecting the Masterplan and the future development that may arise from it. The lack of a high-quality public transport system to and from the Airport, and consequential impacts on the surrounding national road network is considered a critical issue. A transportation assessment has considered that a certain quantum of development can only be carried out subject to further assessment and or transport infrastructure upgrades.

<p>- Waste Management</p>	<p>All waste collectors have a responsibility with regards to meeting Waste Management targets. Increased facilities for recycling should be provided to reduce the levels diverted to landfill.</p>
<p>- Water Supply</p>	<p>While there is sufficient capacity within the Dublin Airport Reservoir to serve development envisaged in the Masterplan, the potential for increased demand must be considered and conservation measure to limit water usage but be considered. In addition it is considered that Water Supply to the Dublin Region remains a wider issue.</p>
<p>- Wastewater</p>	<p>The existing foul sewer system draining the Masterplan lands is at capacity. A new gravity sewer, of approx. 800m in length, is required to connect the Masterplan lands with the public foul sewer system and pumping station on the R132 road. The existing pumping station on the R132 road will require an upgrade in the form of the addition of a holding tank to cater for emergencies. The holding tank must be capable of storing 24hrs of foul sewage at 1 DWF from all the contributing area. The pumping station on the R132 discharges to the North Fringe Sewer initially and ultimately to the Ringsend WWTP. The North Fringe Sewer only has capacity to cater for Phase 1 of the Masterplan lands.</p>
<p>- Energy</p>	<p>There is an over reliance on external and non-renewable energy sources. The potential for renewable energy exists within the plan area and should be considered. Any such proposals are to be welcomed and must be carefully sited and designed so as to avoid negative impacts on the views and landscapes of the plan area.</p>
<p>Cultural Heritage</p>	<p>Currently the most immediate threat to the cultural heritage is development pressure which can lead to a loss or impairment of a feature of importance. There is limited cultural heritage assets in the immediate Masterplan lands however cognisance of potential finds must be considered.</p>
<p>Landscape</p>	<p>The landscape of Dublin Airport Masterplan lands is a built up and developed environment. It is identified in the Masterplan that landscaped public realms are a key component in contributing to the amenity of the area, and to creating a feeling of wellbeing for employees, visitors and indeed passengers using the terminal buildings.</p>
<p>Interrelationship</p>	<p>Cumulative impacts and interaction of above mentioned items can give rise to increased pressure on the environment. The impacts and interactions will obviously vary in extent and nature. In particular, issues regarding water quality, climate change and traffic impact cross a number of environmental areas. Air travel traffic numbers increase and increased employment development at this location can impact on a wide range of the topics mentioned above.</p>

1.8 Strategic Environmental Objectives, Targets and Indicators

Strategic Environmental Objectives (SEOs) assist in the prediction, description and monitoring of impacts on the environment as a result of the Masterplan. The Objectives are based on the overall strategy of the Planning Authority to safeguard the environmental integrity of the plan

area and to develop in a sustainable manner. The Strategic Environmental Objectives are set out in **Table 4** below.

Table 4: Strategic Environmental Objectives (SEOs)

Environmental Parameter		Objective
Biodiversity	B1	Promote measures to protect biodiversity by creating and improving habitats, where possible
Population	P1	Improve people's quality of life based on high-quality working and environments and on sustainable travel patterns
Human Health	H1	Minimise noise, vibration and emissions from traffic, industrial processes and industry
Soil	S1	Maintain the quality of soils
	S2	Maximise the sustainable re-use of brownfield lands, and maximise and prioritise the use of the existing built environment rather than developing greenfield lands
	S3	Minimise the amount of waste to landfill
Water	W1	Promote sustainable water use based on a long-term protection of available water resources
	W2	To improve water quality of the surface and ground water bodies and support the achievement of the WFD objectives
	W3	Mitigate the effects of floods and droughts including vulnerability to climate change.
Air	A1	Reduce all forms of air pollution
	A2	Minimise emissions of greenhouse gases to contribute to a reduction and avoidance of human-induced global climate change
Material Assets	MA1	Maximise use of the existing built environment
	MA2	To avoid significant negative impacts in terms of traffic levels accessing and exiting the airport
	MA3	Maintain water abstraction, run-off and recharge within carrying capacity (including future capacity) at environmentally sustainable levels.
	MA4	Reduce waste of energy, and maximise use of renewable energy sources
Cultural Heritage	CH1	Promote the protection and conservation of the cultural, including architectural and archaeological, heritage
Landscape	L1	Ensure the provision of high quality built environment and public realm

1.9 Alternative Plan Scenarios

The SEA Directive requires the consideration of SEA Alternatives. This consideration is outlined in Chapter 7 of the Environmental Report.

The consideration of alternatives is restricted by the extent of land identified for development. On this basis, three alternative approaches were considered for the future development of this area and assessed against the SEOs established in the SEA.

This assessment was undertaken to identify any potential issues in relation to these alternatives that may not have been identified as part of the initial alternatives assessment ranking procedure. The alternatives reviewed represent choices that are available to the planning authority in delivering the same balance of growth across the Masterplan area.

1.10 Strategic Environmental Assessment of the Plan

The SEA aims to highlight the potential conflicts, if they are present, between the stated policies and objectives contained in the Plan with the Strategic Environmental Objectives. Furthermore, the assessment examines the potential impact arising from the implementation of the Plan's policies and objectives on sensitive environmental receptors.

The process of SEA and Masterplan formulation is an iterative one and environmental considerations have informed all stages of plan preparation carried out in order for the potential for significant adverse effects arising from implementation of the plan to be minimised. Where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts. Where prevention is not possible, the plan seeks to lessen or offset those effects through mitigation measures.

In some instances there is little or no relationship between the various objectives and the respective environmental receptor. Where this occurs no further discussion is deemed necessary. This has been determined through an initial screening of the Masterplan policies and objectives which ascertains if policies are likely to have a positive, negative or neutral impact on the environment. This screening process allows the assessment to focus more efficiently on the pertinent issues.

The preliminary phase of this assessment identifies the quality of the potential impact on the environment as a result of the policies and objectives of the Masterplan. Table 17 in the Environmental Report highlights where the impact may be either potentially positive (green); neutral (white); potentially negative (yellow); or uncertain (blue). Where a neutral impact is identified no further discussion is deemed necessary. However it is acknowledged localised issues may arise depending on site specific issues and the type of development proposed. The assessment contained herein deals with strategic issues alone, for potential localised impacts the Mitigation section contained in Chapter 9 should be consulted.

It has been determined that there are a number of policies/objectives where the impact is potentially negative. The significant issues are discussed in the following sections. A comprehensive and detailed set of mitigation measures are provided in Chapter 9 which effectively reduces or eliminates identified negative impacts. Similarly, monitoring the implementation of the plan, as discussed in Chapter 10, will ensure that if any negative impact becomes a reality it will be identified at an early stage and appropriate actions taken by the relevant authority/agency to remedy the situation.

In general terms the Plan, in its current form will have a positive effect on the environment as a whole.

1.11 Mitigation Measures

While every effort will be taken to ensure that the impact of the plan on the environment is neutral to positive, certain unavoidable negative impacts may occur as a result of the implementation of the plan. The Environmental Report details mitigation measures to reduce or eliminate identifiable adverse impacts.

Similarly, monitoring of the plan, in accordance with the Planning and Development Act, 2000 – 2014 will incorporate proposals to monitor various environmental receptors. A schedule of monitoring and reporting is proposed in order to ensure that any unforeseen negative impact is identified at the earliest opportunity and subsequently appropriate mitigation measures are put in place to eliminate or at a minimum limit the level of impact to an acceptable degree. Environmental Indicators, as prescribed in the EPA publication “Ireland’s Environment – An Assessment 2012” are provided where relevant to this plan and presented as a yardstick against which the plans success can be monitored.

In general terms, all proposals for development will be required to have due regard to the environmental considerations outlined in the Masterplan. Proposals for development which are deemed contrary to the objectives and policies contained within the Plan will not normally be permitted, and if permitted, not without the appropriate site and development specific mitigation measures. In addition, certain individual applications for developments within the County may be subject to individual Environmental Impact Assessments and Appropriate Assessments.

1.12 Masterplan Monitoring

Monitoring of the Masterplan and its implications on the environment is paramount to ensure that the environment of the plan area is not adversely affected through the implementation of the plan.

While considerable environmental data is directly available to the County Council such as water quality, recycling rates etc, other sources of information will be accessed to provide a comprehensive view of the effect of the Plan. In this regard the Local Authorities will work with other agencies with environmental mandates to gather data for the purposes of monitoring the implementation of the Plan. Therefore, while monitoring specific elements of the environment is not strictly the preserve of the Council, the Council will continue to liaise and work with the Environmental Protection Agency, The National Parks and Wildlife Service etc., as well as others in the pursuit of environmental conservation and protection through existing environmental monitoring procedures.

The Fingal Development Plan is currently under review and the Draft Fingal Development Plan 2017-2023 including Environmental Report is on public display. It is considered appropriate that the monitoring programme for the Dublin Airport Central Masterplan is integrated with the monitoring programme for the adopted Fingal County Development Plan 2017-2023.

2.0 Introduction and Background

Fingal County Council, in consultation with the daa (formerly Dublin Airport Authority) and their consultancy team, has prepared the Dublin Airport Central Masterplan. The Masterplan is a framework for the future development of lands strategically located adjacent to Dublin Airport.

Pursuant to Article 9 of the Planning and Development (SEA) Regulations 2004, as amended, and Articles 6(3) and (4) of the Habitats Directive, Fingal County Council have carried out a Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) Screening as part of the Masterplan preparation process.

Consequently, this SEA Environmental Report has been prepared in tandem with the preparation of the Masterplan.

2.1 Introduction and Terms of Reference

The EU Directive on Strategic Environmental Assessment or SEA (Directive 2001/42/EC) came into force in July 2001. The SEA Directive was subsequently transposed into Irish law through S.I. No. 435 of 2004 (European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 and S.I. No. 436 of 2004 (Planning and Development (Strategic Environmental Assessment) Regulations 2004 as amended by S.I. No. 200 of 2011 (European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011) and S.I. No. 201 of 2011 (Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011) respectively.

Under this legislation member States of the EU are obliged to assess the likely significant environmental effects of plans and programmes prior to their adoption thus providing for the assessment of strategic environmental considerations at an early stage of the decision making process.

Article 1 of the SEA Directive states:

“The objective of this directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment.”

The Directive came into effect in an Irish context in July 2004. Since then SEA must be prepared for plans and programmes, including:

- Regional Planning Guidelines;
- City and County Development Plans;
- Development Plans made by Town Councils, where the population of the area is 10,000 or more; or
- Masterplans for towns with a population of 5,000 or more.

The Regulations state that SEA is mandatory for certain plans while screening for SEA is required for other plans that fall below the specified thresholds. Where plans or programmes fall below or outside of the specified thresholds, a screening report is required to be carried out to

determine whether the making and implementation of a particular plan will or will not, lead to significant environmental consequences for the plan area.

Article 9 (1) (a) of Planning and Development (Strategic Environmental Assessment) Regulations 2004 (as amended in 2011) states:

(1) Subject to sub-article (2), an environmental assessment shall be carried out for all plans and programmes which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism and town and country planning or land use, and which set the framework for future development consent of projects listed in Annexes I and II to the Environmental Impact Assessment Directive¹, or

2) A plan or programme referred to in sub-article (1) which determines the use of a small area at local level or a minor modification to a plan or programme referred to in sub-article (1) shall require an environmental assessment only where the competent authority determines that it is likely to have significant effects on the environment and, for this purpose, the competent authority shall make any necessary determination.

(3) A competent authority shall determine whether plans and programmes other than those referred to in sub-article (1), which set the framework for future development consent of projects, are likely to have significant effects on the environment.

(4) A competent authority shall, in determining on a case by-case basis under sub-article (2) or (3) whether a plan or programme, or modification to a plan or programme, which would or would not be likely to have significant effects on the environment, take account of relevant criteria set out in Schedule 1 and any submission or observation received in response to a notice under sub-article (5).

Following careful review and consideration of the issues concerning the proposed Masterplan, acknowledging its non-statutory status, it was concluded that given its role as the coherent framework for future development of Dublin Airport Central lands, the potential for adverse environmental effects could not be ruled out and as such full Strategic Environmental Assessment should be carried out.

The following document is an Environmental Report prepared as part of the Strategic Environmental Assessment (SEA) of the Dublin Airport Central Masterplan. The purpose of this Environmental Report is to identify, describe and evaluate the likely significant effects on the environment of implementing the proposed Dublin Airport Central Masterplan and should be read in conjunction with the Plan. The aim of the Environmental Report is to identify:

- Existing environmental issues in the Plan area;
- The likely significant effects on the environment resulting from implementation of the Masterplan;
- How the impact(s) on the environment can be prevented or reduced; and
- How to monitor environmental impacts over the lifetime of the Masterplan.

¹ It is noted that Annex II of the EIA Directive references 10. Infrastructure projects (a) Industrial estate development projects; (b) Urban development projects, including the construction of shopping centres and car parks;

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This Environmental Report forms an integral part of the SEA process which is carried out in parallel with the preparation of the Masterplan and of the Appropriate Assessment of the Plan. The SEA review process also comprises a Scoping Report, a Non-Technical Summary and an Environmental Statement. The Scoping Report was prepared in order to determine the baseline environmental parameter data and issues to be considered in the Environmental Report – this is discussed in more detail in Chapter 3.

The purpose of this Environmental Report is to document the process that has been followed in carrying out the SEA. The SEA process has guided the preparation of objectives and development scenarios for the Masterplan with an ultimate goal of achieving sustainable development in the area, and the avoidance of negative impacts on the environment. This Environmental Report provides an explanation of the process of conducting the SEA, identifies the key environmental effects, highlights mitigation and monitoring measures, and provides an opportunity for interested parties to comment on the environmental issues associated with the new Plan.

2.2 The Masterplan Area

Fingal County Council, in consultation with the daa (formerly Dublin Airport Authority) and their consultancy team, has prepared the Dublin Airport Central Masterplan. The Masterplan is a framework for the future development of lands strategically located adjacent to Dublin Airport. The Masterplan lands comprise an area of land identified as Zone 1. The Masterplan specifically focuses on the development of Zone 1 for high quality, high value office accommodation supplemented with ancillary uses. Longer term plans for other zones are not the subject of this Masterplan and will be subject to SEA Screening in the future.

In the Fingal Development Plan 2011-2017, the Masterplan lands are zoned as 'HT' High Technology and are subject to the map based Local Objective 378. The Zoning Objective for the HT zoning is to:

Provide for office, research and development and high technology/ high technology manufacturing type employment in a high quality built and landscaped environment.

The map based Local Objective 378 specifically applies to these lands and seeks to:

Consider within the context of the Masterplan, the nature and scale of appropriate HT uses and enterprise centre related to aviation and airport business, research and development associated with airports or aviation and Air Transport Infrastructure, having regard to the site's strategic location within the Dublin Airport Authority Lands.

While the Masterplan has been prepared in accordance with the Fingal Development Plan 2011-2017, it is likely that the Masterplan will be implementable under subsequent Fingal Development Plans. At the time of preparing this Environmental Report, the Draft Fingal Development Plan 2017-2023 has been prepared. In the Draft Development Plan, the Masterplan lands remain zoned as 'HT' High Technology and are subject to the map based Local Objective 57. Local Objective 57 maintains the intent of Local Objective 378 and seeks to:

Consider within the context of the Masterplan, that nature and scale of appropriate HT uses having regard to the sites strategic and unique location in proximity to an international airport within the Dublin Airport Authority lands

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In this regard, the principles of the Masterplan, in particular relating to use classes, remain consistent with the zoning and objectives of the Draft Fingal Development Plan 2017-2023.

The Masterplan will serve as a coherent framework for the future development of these strategically located lands. The layout of the Masterplan is organised into seven chapters: the initial chapters present the context for the subject lands in relation to the planning policy; existing land uses and environmental conditions; and unique economic factors pertaining to the lands. The subsequent chapters outline the vision and principles which guide the future development framework; present the detailed development strategy for the Masterplan lands with a focus on Zone 1; and a description of the phasing and implementation of the development framework for Zone 1.

The Masterplan framework is formulated and structured on four key guiding principles. These include principles relating to urban design and quality space making; movement and circulation; economic conditions; and environmental and building sustainability.

2.3 Dublin Airport Central Masterplan

The Masterplan consists of a written statement and maps. Once finalised, the Masterplan will provide a framework for guiding development and will assist in ensuring that future development is appropriately managed and occurs in a sustainable manner. The Masterplan area is shown in Map A.

The Masterplan will serve as a design framework for the future development of Phases 1 and 2 of Zone 1 of these strategically located lands. Economic analysis was undertaken to ensure that the framework would identify an appropriate nature and scale for such development. Comparative studies with other similarly sized airports internationally, indicated that Dublin Airport is underperforming.

The Masterplan lands comprise two parcels of land, referred to as Zone 1 and Zone 2. The Masterplan specifically focuses on the development of Phases 1 and 2 of Zone 1 for high quality, high value office accommodation supplemented with ancillary uses.

The Masterplan framework is formulated and structured on four key guiding principles. These include principles relating to urban design and quality space making; movement and circulation; economic conditions; and environmental and building sustainability.

In combination, the principles guiding the development framework ensure the creation of an extremely well connected, unique business destination that is of a high quality design, construction and finish, that will offer a range of high value office accommodation competing with other international locations and supplementing the employment and enterprise opportunities in Fingal.

2.4 SEA Definition and Role

Strategic Environmental Assessment (SEA) is the formal, systematic evaluation of the likely significant effects of implementing a plan or programme. It is undertaken during the preparation period of the plan or programme, and before a decision is made to formally adopt it. The SEA process thereby assists in and improves the quality of the plan making process by:

- Facilitating the identification and appraisal of alternative plan strategies;

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- Raising awareness of the environmental impacts of the plan's implementation; and
- Encouraging the inclusion of measurable targets and indicators to aid monitoring.

The objective of SEA is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development throughout the member states of the EU.

2.5 Legislative and Guidelines Context

In 2001 the European Community passed the Strategic Environmental Assessment (SEA) Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. This piece of legislation established the necessity for SEA to be carried out on plans and programmes, including those of land use planning.

Article 1 of the SEA Directive states:

The objective of this directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment.

The EU Directive on Strategic Environmental Assessment or SEA (Directive 2001/42/EC) came into force in July 2001. The SEA Directive was subsequently transposed into Irish law through S.I. No. 435 of 2004 (European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 and S.I. No. 436 of 2004 (Planning and Development (Strategic Environmental Assessment) Regulations 2004 as amended by S.I. No. 200 of 2011 (European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011) and S.I. No. 201 of 2011 (Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011) respectively.

In terms of guidance relating to this legislation the EPA published "Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland – Synthesis report" in 2003. Further to this in 2004, the Department of the Environment, Heritage and Local Government published "Implementation of SEA Directive 92001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment –Guidelines for Local Authorities and Planning Authorities" and the Environmental Protection Agency "EPA Pack" (updated in 2013) have guided this review process.

2.6 SEA Process

The process of carrying out the Strategic Environmental Assessment of the Dublin Airport Central Masterplan is documented throughout this Environmental Report. The methodology employed is discussed in detail in Chapter 3. The structure of this Environmental Report (from hence referred to as the Report), which is the result of the Strategic Environmental Assessment, is in accordance with Article 1 of the Directive which provides a broad basis for the content of the environmental report. This report therefore identifies, describes and evaluates the likely significant effects on the environment of implementing the plan's objectives and policies. This report also identifies the reasonable alternatives and in broad terms assesses the alternative

'philosophies' guiding the preparation of the Masterplan. Annex 1 of the EU Directive (Directive 2001/42/EC) details the information to be included in the report and in broad terms this Environmental Report provides the following:

- An outline of the content and main objectives of the Masterplan and the relationship between this and other relevant plans or programmes;
- The environmental characteristics of the area affected by the plan;
- Any existing environmental problems which are relevant to the plan including, in particular, those relating to any areas of particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC (Directive for the Conservation of Wild Birds) and 92/43/EEC (Conservation of Natural Habitats and of Wild Fauna and Flora);
- The environmental protection objectives, established at International, Community or Member State level, which are relevant to the plan and the way those objectives and any environmental considerations have been taken into account during its preparation;
- The likely significant effects on the environment, including issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage and landscape;
- The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan;
- An outline of the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;
- A description of the measures envisaged concerning monitoring in accordance with Article 10;
- A non-technical summary of the information provided under the above headings.

2.7 Integration of the Masterplan, SEA and Habitats Directive Assessment

The legislation and guidelines governing the SEA process state that the processes of preparing the Masterplan, SEA and Appropriate Assessment (AA) should be integrated and prepared in an iterative manner. The Environmental Report outlines how the SEA process was carried out in tandem with the preparation of the Dublin Airport Central Masterplan and its accompanying AA Screening Report. The SEA process ensured that the Plan was informed by environmental considerations from the outset. The SEA Team were fully involved in the preparation of policies and objectives and were in a position to make suggestions throughout the process of plan preparation to ensure that environmental considerations and environmental effects were considered in the formulation of strategic goals and development objectives. Figure 1 below summarises the integrated nature of the Masterplan preparation and SEA process.

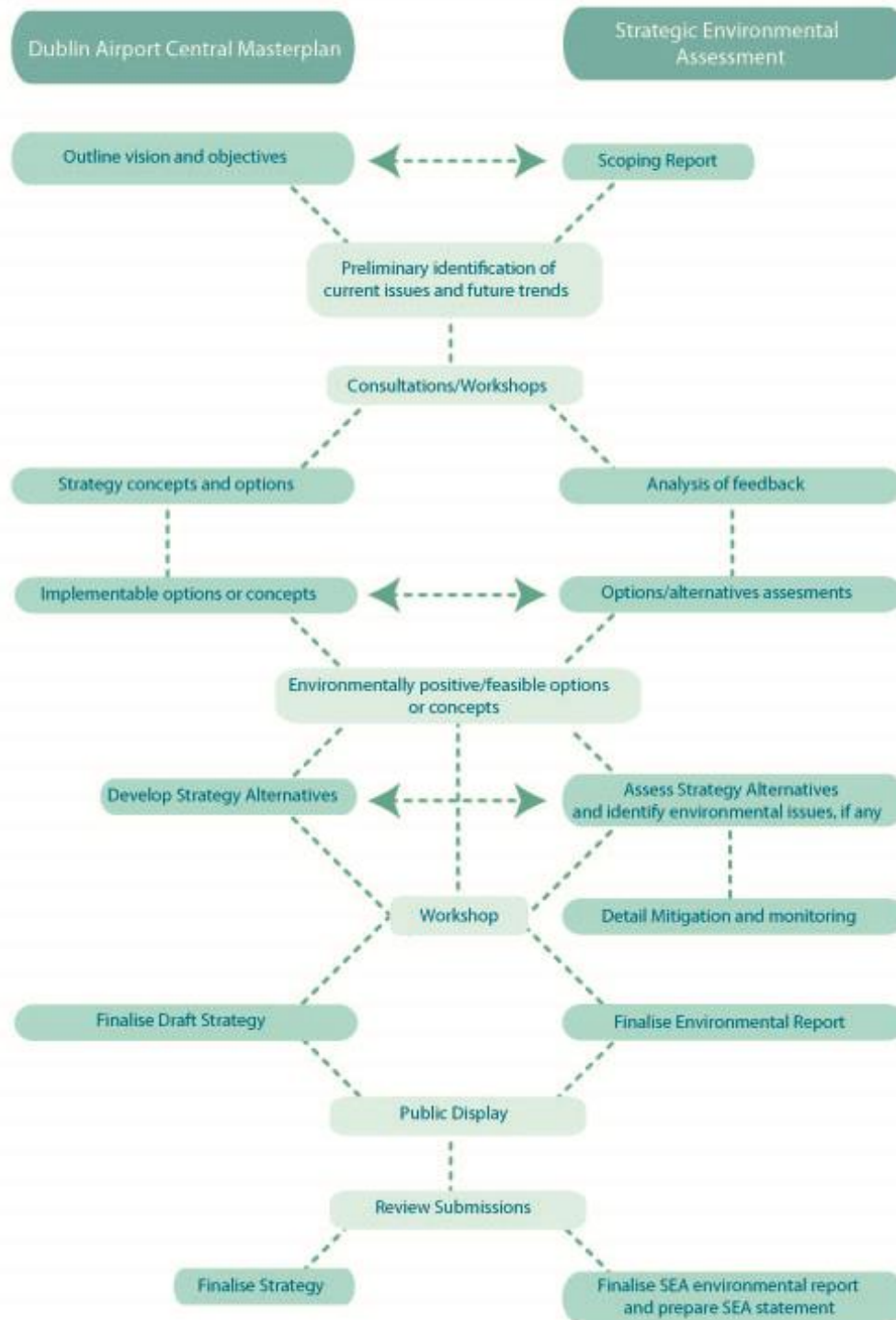


Figure 1: Integrated Masterplan and SEA Process

2.8 Implications of SEA for the Plan

This Environmental Report, which identifies the likely significant effects on the environment of implementing the Masterplan should be read in conjunction with the Masterplan and the AA Screening Report.

3.0 Methodology

3.1 Introduction

Two amending SEA Regulations were signed into Irish law on 3rd May 2011, amending the original SEA Regulations: European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011, (S.I. No. 200 of 2011), amending the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004), and Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011, (S.I. No. 201 of 2011), amending the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. No. 436 of 2004).

The methodology used to carry out the Strategic Environmental Assessment (SEA) of the Dublin Airport Central Masterplan reflects the requirements of the SEA Directive (2001/42/EC) and SEA Regulations (S.I. 435 & 436 of 2004 and as amended by S.I. 200 & 201 of 2011) and other SEA guidance documentation. The requirements of the recent European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), have also been taken into account in implementing the Plan. These Regulations consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in the CJEU judgements.

Guidance documentation utilised in the preparation of this SEA includes *“Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment – Guidelines for Regional Authorities and Planning Authorities”* published by the Department of the Environment, Heritage and Local Government, *“Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland – Synthesis Report”*, published by the EPA in 2003 and the EPA SEA Pack 2013.

This section of the report outlines the key stages in the development of the assessment in accordance with the Directive and the aforementioned regulations.

Stage	Description
Screening	The screening process is the first stage of the Strategic Environmental Assessment. Screening assesses the need to undertake a Strategic Environmental Assessment. As Strategic Environmental Assessment is not mandatory for the Dublin Airport Central Masterplan, screening was undertaken, and concluded that SEA should be carried out.
Scoping	The Scoping of the Dublin Airport Central Masterplan was carried out in accordance with Article 5 (4) of the SEA Directive (2001/42/EC). The principal purpose of the Scoping stage is to decide upon the range of issues and level of detail to be included in the Environmental Report. An overview of the relevant environmental issues requiring further analysis are given and consideration in the

	Environmental Report and ultimately in the Masterplan itself. By highlighting some of the significant issues at an early stage, it ensures that the issues are firmly to the forefront when considering each of the policies and objectives of the Plan and reduces the possibility of relevant issues not being addressed.
Consultation with the Environmental Authorities	Submissions were received: <ul style="list-style-type: none"> • Environmental Protection Agency • Dublin City Council • Meath County Council
Scoping Report	Submissions received from Environmental Authorities were reviewed and incorporated into the process where warranted.
Preparation of ER & Masterplan	<ul style="list-style-type: none"> • A multi-disciplinary team was established to create policy consistent documents and to examine the effects on the environment of implementing the objectives and policies. • Objectives created in Masterplan assessed in ER and Development options examined. • Feedback from on-going Plan preparation process & ER preparation. • Mitigation measures discussed and chosen. • Monitoring incorporated into existing methods.
Monitoring the Masterplan	Monitoring significant environmental effects over the lifetime of the Dublin Airport Central Masterplan.

Table 5: Key Stages of SEA

3.2 Screening

Screening assesses the need to undertake a Strategic Environmental Assessment. As Strategic Environmental Assessment is not mandatory for the Dublin Airport Central Masterplan, screening was undertaken, and concluded that SEA should be carried out.

3.3 Scoping

The Scoping of the Draft Dublin Airport Central Masterplan was carried out in accordance with Article 5 (4) of the SEA Directive (2001/42/EC).

The principal purpose of the Scoping stage is to decide upon the range of issues and level of detail to be included in the Environmental Report. An overview of the relevant environmental issues requiring further analysis are given and consideration in the Environmental Report and ultimately in the Masterplan itself. By highlighting some of the significant issues at an early stage, it ensures that the issues are firmly to the forefront when considering each of the policies and objectives of the Plan and reduces the possibility of relevant issues not being addressed.

The scoping aspect involved consultation with the statutory consultees, providing an opportunity to comment on the highlighted issues and the proposed methodology. Under the

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Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 the list of statutory consultees includes:

- The Environmental Protection Agency.
- The Minister for Environment, Community and Local Government.
- The Minister for Arts, Heritage and Gaeltacht Affairs.
- The Minister for Agriculture, Food and the Marine.
- The Minister for Communications, Energy and Natural Resources.
- Any adjoining planning authority whose area is contiguous to the area of a planning authority which prepared a draft plan, – in this case counties includes Dublin City, Meath, Kildare.

In compliance with the SEA (Amendment) Regulations, Fingal County Council gave notice to the relevant Environmental Authorities of its intention to prepare a Masterplan for the area. A Scoping Report was prepared in order to facilitate consultation with statutory consultees and consultees were requested to review the content of the report and to comment on aspects they believe may require particular emphasis in the Masterplan and associated SEA Environmental Report and Appropriate Assessment documentation.

3.4 Statutory Consultation

Submissions were received from the following statutory consultees:

- Environmental Protection Agency
- Dublin City Council
- Meath County Council

Table 6 below outlines the issues raised and the response or how the issue was addressed within the preparation of the draft Environmental Report:

Consultee and Comments	Response
Environmental Protection Agency	
Acknowledges Scoping for Masterplan and draws attention to EPA Checklist, Guidance on SEA and SEA Scoping Pack as well as updated SEA Regulations / Circulars. The Agency also lists the Environmental Authorities to be notified.	Noted.
<ul style="list-style-type: none"> • The protection, and where possible, the enhancement of surface and groundwater quality. 	Noted.
<ul style="list-style-type: none"> • The integration of the recommendations of the Eastern CFRAM Study upon adoption. 	Noted.
<ul style="list-style-type: none"> • The incorporation of Flood Risk Assessment and SUDS 	Noted.
<ul style="list-style-type: none"> • The protection, and where possible the enhancement, of designated (and non-designated) habitats and species and ecological corridors/linkages. 	Noted.
<ul style="list-style-type: none"> • The inclusion of appropriate and relevant habitat mapping for the Plan area where possible. 	Noted.

<ul style="list-style-type: none"> • The promotion and incorporation of energy and water conservation measures • The integration of the County Green Infrastructure Strategy as appropriate in the Plan area. Appropriate zoning in line with Core Strategy and Regional Planning Guidelines. • The potential for cumulative effects with other plans/programmes. The provision of adequate and appropriate critical infrastructure. Integration of the requirements of other higher level plans including those in areas such as Water (Eastern CFRAMS), Land Use (Regional Planning Guidelines and Core Strategy), Transport (Greater Dublin Area Transport Plan and National Transport Authority Draft Greater Dublin Area Cycle Network Plan and associated SEA), Waste Management (proposed new Regional Waste Management Plans-these may be in place prior to adoption of the Plan). 	<p>Noted.</p> <p>Noted.</p> <p>Noted.</p>
<p>Meath County Council</p>	
<ul style="list-style-type: none"> • Meath County Council support the principle of future development at Dublin Airport given its strategic importance to the Country as a national and international transport hub and to the local economies of Fingal. • Any planned modifications to the existing Dublin Airport Safety zones Map (outlining public safety and noise zones) should be made known to Meath County Council. • Requests that this submission is fully considered in the review of the Masterplan and that a copy of the Strategic Environmental Report and Draft Dublin Airport Masterplan be forwarded for their attention when prepared. 	<p>Noted.</p>
<p>Dublin City Council</p>	
<ul style="list-style-type: none"> • Welcomes the SEA carried out by Fingal County Council • Requests that the area, south-east of the Masterplan known as Clongriffin-Belmayne area be assessed in relation to potential direct/indirect impact in the context of water and Noise/Air. • Wider city issues in relation to the role of Irish Water and Dublin City Council in ensuring adequate water supply and wastewater capacity for the Dublin Region • Consideration of potential flooding impacts on the Mayne River 	<p>Noted.</p>

Table 6: Summary of Scoping Comments

3.5 Draft Masterplan Consultation

The Draft Masterplan was published and placed on display for 4 weeks, from Tuesday 2nd February to Monday 29th February 2016, during which time submissions and observations were invited from the public and the interested parties. A report summarising the issues raised and the Manager’s recommendation was presented to the Elected Members following this and agreed the approval of the Masterplan at the council meeting on 14th March 2016.

The Strategic Environmental Assessment Environmental Report and Appropriate Assessment Screening accompanied the Draft Masterplan during the public display period. Submissions with regards to the SEA were received as follows:

No.1: CG Hotels Limited

Issue Raised in Submission	Response
Clarification sought relating to extent of Masterplan.	Not relevant to SEA Environmental Report

No.2: EPA Submission

Issue Raised in Submission	Response
Plan should consider a reference to the National Mitigation Plan, which is currently being prepared by the DECLG in collaboration with other Government Departments including DITAS, DAFM and DCENR.	Noted. A reference will be made in the final Environmental Report.
Alternatives: The submission notes the two alternatives scenarios considered and suggests considering additional reasonable alternatives relating to assessing possible high, medium and low density development scenarios within the Plan area may be useful. This approach could be used to support the higher tiered alternatives as already provided for in the Plan.	Noted. It is considered reasonable to assess density approaches and this will be included in the final Environmental Report.
Monitoring: The submission suggests it would be useful where possible, to include the frequency over which monitoring is proposed to be carried out for the relevant environmental criteria. The Plan should also include a commitment that the Draft Fingal County Development Plan 2017-2023 and associated SEA related monitoring should be integrated as appropriate.	Noted. The final Environmental Report will include suggested frequency of monitoring. In addition stronger references to the Draft Development Plan will be included.
Where amendments to the Draft Masterplan are proposed, these are screened appropriately	Noted
The EPA submission notes the requirements for SEA following adoption of the Plan and that a copy of the SEA Statement with the above information should be sent to any environmental authority consulted during the SEA process.	Noted

No.3: Dublin City Council

Issue Raised in Submission	Response
Dublin City Council acknowledges that the matters raised in their submission have been noted and considered in the SEA and AA process.	Noted.

No.4: daa

Issue Raised in Submission	Response
The daa submission states that Page vi makes an unsupported reference relating to the over reliance on car based transport and requests that the statement be removed. The submission states that just 33% of passengers travelling to the airport in 2014 were by private car.	Proposed alteration of text to following: <i>The lack of a high-quality public transport system to and from the Airport, and consequential impacts on the surrounding national road network is considered a critical issue.</i>
The submission requests that the statement on Page 66 which highlights that the ' <i>existing wastewater infrastructure is at capacity...</i> ' should be clarified to acknowledge that it refers to a single length of foul sewer, and not to the system as a whole.	Noted. This will be amended in the Final Environmental Report.
Page 70 includes a typographical error in that it refers to the area containing 'a rich coastal landscape'. This should be clarified to confirm that this is within the Fingal region, but not the site which is the subject of the SEA.	Error noted. Will be amended in final Environmental Report

No.5: Department of Arts, Heritage and the Gaeltacht

Issue Raised in Submission	Response
This Department notes that the Draft Master Plan and SEA do not take into account fauna, including bats, buzzards and hares, on the site and in the vicinity, all of which are protected under the Wildlife Acts 1976- 2012.	The masterplan lands, as existing built lands, are entirely artificial in character, comprising existing roads, car parks, buildings and landscape planting. There are a number of treelines, hedgerows and some small areas of amenity grassland. The SEA considered the impact on the wider area which includes the runways where wildlife species can be found but no impact was considered likely. Specific reference to the wildlife outlined in the DAHG submission will be included in the Final Environmental Report.

3.6 Environmental Baseline Data

The baseline data, assists in assessing the current state of the environment, facilitating the identification, evaluation and subsequent monitoring of the effects of the plan. Thus, this information creates a platform whereby existing problems relevant to the Plan area can be quantified (where possible) or qualified thereby ensuring that the implementation of the Plan does not exacerbate these problems.

Baseline data has been collected based on the various broad environmental topics described in the SEA Directive i.e. biodiversity, population, human health, fauna, flora, soil, water, air, climate factors, material assets, cultural heritage including architectural and archaeological heritage and landscape. The Directive requires that information be focused upon relevant aspects of the environmental characteristics of the area likely to be significantly affected by the plan and the likely change, both positive and negative terms where applicable. The baseline data was collated from currently available, relevant data sources the SEA Directive does not require major new research to be carried out. Where deficiencies or gaps in the information available are identified this is noted.

3.7 Environmental Report

The type of information to be provided in the Environmental Report is set out in Annex I of the SEA Directive - reproduced in Schedule 2B of the Planning and Development Regulations 2001 (as inserted by article 12 of the Planning and Development (Strategic Environmental Assessment) Regulations 2004). This report contains the sections as outlined in Table 7.

Section	Description
Non-Technical Summary	A brief summary of the Environmental Report, its main points and conclusions.
Introduction	Provides a description of the type of plan involved and a summary of its key aims and objectives. The purpose of the SEA process, SEA requirements, its benefits and how the Masterplan and Environmental Reports have progressed are outlined
SEA Methodology	Highlights the steps taken in preparation of the SEA, the methods used and technical difficulties encountered.
Relationship of the Plan with Other Relevant Plans and Programmes	The relationship of the Masterplan to other relevant plans and programmes is highlighted.
Baseline	A description of the current environment of the plan area is provided, highlighting any existing environmental problems in the Plan area and outlining evolution of the environment in the absence of the new Plan. This exercise results in a comprehensive baseline against which the likely effects of implementing the new Masterplan can be examined.
Strategic Environmental Objectives	A number of environmental protection objectives which have been established at international, EU or national Level and are relevant to the plan are listed. Following this a description of how

	the objectives and any environmental considerations have been taken into account in the preparation of the Plan.
Alternatives	An assessment of proposed development alternatives in the Plan area are considered at this stage. Scenarios are tested against the environmental objectives and the most appropriate strategy is selected.
Assessment	The proposed Masterplan policies and objectives are examined in terms of their potential effects on the various Environmental parameters.
Mitigation Measures	Where potentially significant adverse effects are discovered, measures to prevent, reduce or offset these effects are proposed and integrated into the Masterplan.
Monitoring	Proposals for monitoring the significant effects of the Masterplan on the environment are put forward. A number of indicators of change and achievable targets are proposed and monitoring arrangements detailed.

Table 7: SEA Report Structure

3.8 Consideration of Alternatives

The SEA Directive (Article 5) recommends that alternative development scenarios for the plan are included for assessment. Alternatives need to be *'realistic and capable of implementation'* and should represent a range of different approaches within the statutory and operational requirements of the particular plan.

The consideration of alternatives is restricted by the extent of land identified for development. On this basis, two alternative approaches were considered for the future development of this area and assessed against the SEOs established in the SEA. Following consideration and assessment of the three alternatives put forward it was concluded that Alternative 2 was the most appropriate and environmentally protective to the future development of Dublin Airport at this time. This approach has formed the basis for the objectives contained with the Masterplan.

3.9 Environmental Assessment of the Masterplan

The assessment described within this Environmental Report aims to highlight the potential conflicts, if they are present, between the stated policies and objectives contained in the Masterplan with the Strategic Environmental Objectives. Furthermore the assessment examines the potential impact arising from the Masterplan implementation of its policies and objectives on sensitive environmental receptors.

Key to assessing the policies and objectives of the Masterplan is setting a specific set of environmental objectives for each of the environmental topics. The objectives are provided in Chapter 6 and include all aspects of the environment such as Human Beings, Flora and Fauna, Soil, Water, Air and Climate Change, Noise, Material Assets, Cultural Heritage including Architectural and Archaeological Heritage and Landscape.

It is worth reiterating that the process of SEA and Masterplan formulation is an iterative process and as such environmental considerations have informed all stages of plan preparation in order for potential for significant adverse effects arising from plan implementation to be minimised. Nonetheless, it is possible that some individual plan objectives will potentially lead to adverse effects of varying severity. Where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts; where this is not possible for stated reasons, to lessening or offsetting those effects.

In accordance with SEA guidelines the assessment identifies 'impact' under the quality of impact using the following terms:

Potential Positive impact:	A change which improves the quality of the environment.
Potential Neutral impact:	A change which does not affect the quality of the environment.
Potential Negative impact:	A change which reduces or lessens the quality of the environment.
Uncertain impact:	The nature of any impact cannot be ascertained at this stage.

The initial stage aims to ascertain the quality, if any, of the potential impact. Each of the Masterplan's policies and objectives have been screened for their impact and where a neutral impact is noted no further discussion is provided within this report. This format allows for the ER to focus on the negative and positive impacts and proceed to a discussion on their significance and duration. Thus it is a more robust, more focused approach to understanding the potential impact associated with the Masterplan's implementation.

Finally where it has been determined that a policies/objectives may potentially result in a negative impact on an environmental receptor appropriate level mitigation measures are proposed.

Preparation of the Masterplan has followed an iterative process to date, involving the environmental and forward-planning team of Fingal County Council, statutory consultees and the SEA and AA team.

3.10 Mitigation

Section (g) of Schedule 2B of the SEA Regulations require information on the mitigation measures that will be put in place to minimise/eliminate any significant adverse impacts due to the implementation of the Masterplan. Chapter 9 of this document highlights the mitigation measures that will be put in place to counter identified significant adverse impacts due to the implementation of the Masterplan. As stated previously the formulation of the Masterplan and the development of the SEA is an iterative process and therefore many of the potential negative aspects of the Masterplan have been removed.

Thus the objectives and policies contained within the Masterplan are considered robust and environmentally sustainable. However some unavoidable residual issues may remain and therefore mitigation measures are required. Chapter 9 details the mitigation measures necessary to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Masterplan.

3.11 Monitoring

Article 10 of the SEA Directive sets out the requirement that monitoring is to be carried out of the significant environmental effects of the implementation of the Dublin Airport Central Masterplan in order to identify at an early stage any unforeseen adverse effects and to be able to undertake appropriate remedial action.

This section outlines the monitoring requirements for the Dublin Airport Central Masterplan. Methods of monitoring and indicators of change in the environment have been proposed with set targets to be reviewed over the duration of the Masterplan.

3.12 Report Preparation

This report has been prepared by Brady Shipman Martin, Planning and Environmental Consultants on behalf of Fingal County Council.

4.0 Review of Relevant Policies Plans and Programmes

4.1 Introduction

The Dublin Airport Central Masterplan is framed within a hierarchy of spatial plans which range from the international to a site specific context. These plans are formed by International, National and Regional level policy guidelines. This hierarchy of plans, programmes, policies, strategies, etc. sets out the legislative and policy framework by which the Masterplan must be formulated. The National, Regional and County strategies and policies play a central role in establishing higher level agendas and the county level plan objectives. The Dublin Airport Central Masterplan has been prepared to be consistent with the objectives of these higher levels plans, in particular the Fingal County Development Plan 2011-2017, and the next Development Plan 2017-2023.

The SEA Directive requires that the SEA process should include a review and discussion of other plans or programmes, which are associated to and concern the assessment of the Masterplan. This could include plans or programmes in the same geographical area or in the same sector at different levels. Paragraph (e) of Schedule 2B of the Planning and Development (SEA) Regulations 2004 states that the SEA Report must contain: 'the environmental protection objectives, established at International, European Union or National level, which are relevant to the plan, and the way those objectives and any environmental considerations have been taken into account during its preparation'.

This chapter summarises the International, National, Regional and local legislative, policy documents, strategies and guidelines that are relevant to this SEA process and the Dublin Airport Central Masterplan. The purpose of this review is to take into consideration the contextual legislative and policy framework to which the Masterplan must comply. The key issue relevant to this section of the SEA is to ascertain whether the plan has taken due consideration of the objectives set out in the legislative and policy framework.

4.2 National Plans and Policy

4.2.1 National Spatial Strategy 2002-2020

The National Spatial Strategy (NSS) is a coherent national planning framework for Ireland for the next 20 years. The Strategy aims to achieve a better balance of social, economic and physical development across Ireland, supported by more effective planning. The NSS aims to achieve this by setting out a range of measures to be implemented at the national, regional, county and local level.

In relation to Dublin Airport located in the Greater Dublin Area (GDA), the focus of the NSS is primarily on it being an international gateway into the country, as a vital centre in the national transportation network and as an entity at which connections, both transport and economic, are created.

Strategically, the NSS proposes that the spatial structure for development across the country must be supported by a national transport framework. This framework will comprise of an improved network of roads and public transport services that will enhance access and

connections throughout the country. The NSS intends for this framework to be internationally connected through vital centres such as airports, with Dublin Airport to the fore, and ports.

The NSS notes that Dublin Airport serves the city, region and country and offers the greatest number of international connections. For Ireland to have a globally competitive but regionally integrated economy, effective connections to the world are vital. The NSS guides that expanding the level of services available from Dublin Airport to an increasingly wider range of destinations is essential in the interests of underpinning Ireland's future international competitiveness. The national and regional benefits of expanded services from Dublin Airport can be enhanced through improved connections with public transport network, the national roads network and the regional airports. The NSS stated position is to ensure Ireland remains effectively linked to international markets and priorities in this regard include enhancing the role of Dublin, Cork and Shannon airports as international airports through efficient terminal facilities and effective land-side access by road and public transport.

At a regional focus, the NSS highlights that the continuing health of the Dublin area is critically dependent on creating an efficient and high quality system of public transport connections within the GDA to improve access to employment, education, services and amenities, and also to ensure good international access particularly through Dublin Airport and Dublin Port

It is noted that in Feb 2013 the Department of the Environment, Heritage and Local Government announced their intention to abandon the National Spatial Strategy and replace it with a revised strategy.

4.2.2 National Aviation Policy, 2015

The Department of Transportation, Tourism and Sport (DTTAS) published its National Aviation Policy in August 2015. The DTTAS Policy document has three key goals: to enhance Ireland's connectivity; to grow and support the aviation sector in Ireland; and to maximise the aviation sector's contribution to the country's economic growth and development.

Of the three State airports, the DTTAS highlights their critical role in supporting economic development by facilitating trade, tourism and inward investment. Specifically in relation to Dublin Airport, the Policy states that its strategic importance extends far beyond its geographic catchment area and its future is critically bound up with the Irish economy with regard to inward investment, tourism, and trade.

The Policy highlights that while access to global hubs is of key importance to inward investment, Dublin Airport's development as an interconnecting hub is itself also of great importance to the Irish aviation sector and the broader economy. The Policy concludes with commitments to support the development of Ireland's airports, including the development and promotion of Dublin Airport as a European Secondary Hub Airport.

4.2.3 Smarter Travel – A New Transport Policy for Ireland (2009-2020)

Smarter Travel: A New Transport Policy for Ireland 2009 - 2020 sets out Government's policy objectives with respect to promoting a significant modal shift from private transport to public transport and sustainable transport modes over the period up to 2020. Although the Policy contains 49 actions, they can be grouped into essentially four overarching objectives:

- Actions to reduce distance travelled by private car and encourage smarter travel, including focusing population growth in areas of employment and to encourage people to live close.
- proximity to places of employment and the use of pricing mechanisms or fiscal measures to encourage behavioural change,
- Actions aimed at ensuring that alternatives to the car are more widely available, mainly through a radically improved public transport service and through investment in cycling and walking,
- Actions aimed at improving the fuel efficiency of motorised transport through improved fleet structure, energy efficient driving and alternative technologies, and actions aimed at strengthening institutional arrangements to deliver the targets.

Of relevance to the development framework envisaged in the Masterplan, the report recommends a number of actions including those relating to focusing population growth in areas of employment and to encourage people to live in close proximity to places of employment; and actions aimed at ensuring that alternatives to the private car are more widely available, mainly through a radically improved public transport service and through investment in cycling and walking.

4.2.4 Investing in our Transport Future: A Strategic Framework for Investment in Land Transport, 2015

In April 2015, the Department of Transportation, Tourism and Sport (DTTAS) published Investing in our Transport Future: A Strategic Framework for Investment in Land Transport. This document seeks to determine the optimal strategy for the development and management of Ireland's land transport network over the coming decades.

In the accompanying Final Steering Group Report, key priorities for and principles to frame transport investment are set out. In relation to Dublin Airport, the Report highlights that the airport is fundamental to providing good international access both for passengers and freight (in 2011, 79% of all passengers into and out of Ireland and 85% of air freight went through Dublin Airport). The Report refers to a study on future aviation demand growth which suggests a doubling of aviation demand by 2050. The Report suggests that such significant demand growth will manifestly have implications for land transport provision to the country's airports and for the need for the balance to be struck between private car and public transport access to them. This, the Report notes, is particularly in the case of Dublin Airport, where increased demand levels over time should positively impact on the potential to deliver value for money investment in public transport options.

4.2.5 National Climate Change Strategy (2007-2012)

The National Climate Change Strategy 2007 - 2012 sets out a range of measures, building on those already in place under the first National Climate Change Strategy (2000) to ensure Ireland reaches its target under the Kyoto Protocol. The Strategy provides a framework for action to reduce Ireland's greenhouse gas emissions

The Framework for Climate Change Bill published in December 2009 provides for a statutory obligation on the Minister to propose to the Government a National Climate Change Strategy on a 5 year cycle and to review the previous Strategy at the end of this time. The Strategy will set an overall reduction target for the 5-year period within the context of the long-term and

annual reduction targets set out in the Bill (as subject to review by the Minister). It will also set the policy context for the Carbon Budget and set out requirements in terms of policy objectives for the various sectors in the economy.

4.2.6 National Renewable Energy Action Plan, (NREAP) 2010

Submitted under Article 4 of Directive 2009/28/EC this plan sets out Ireland's renewable energy targets to be achieved by 2020. Ireland's overall target is to achieve 16% of energy from renewable sources by 2020. Member states are to achieve their individual target across the heat, transport and electricity sectors and apart from a sub-target of a minimum of 10% in the transport sector that applies to all Member States, there is flexibility for each country to choose how to achieve their individual target across the sectors.

4.2.7 The Planning System and Flood Risk Management Guidelines (and Technical Appendices) for Planning Authorities (DoEHLG, OPW), 2009

These guidelines require the planning system at national, regional and local levels to:

- Avoid development in areas at risk of flooding, particularly floodplains, unless there are proven wider sustainability grounds that justify appropriate development and where the flood risk can be reduced or managed to an acceptable level without increasing flood risk elsewhere;
- Adopt a sequential approach to flood risk management when assessing the location for new development based on avoidance, reduction and mitigation of flood risk; and
- Incorporate flood risk assessment into the process of making decisions on planning applications and planning appeals

In relation to planning, the guidelines require planning authorities to:

- Introduce flood risk assessment as an integral and leading element of their forward planning functions at the earliest practicable opportunity.
- Align strategic flood risk assessment (SFRA) with the SEA process.
- Establish flood risk assessment requirements as part of the preparation of statutory land use plans.
- Assess planning applications against the guidance set out in the Guidelines.
- Ensure development is not permitted in areas of flood risk except where there are no suitable alternative sites.

4.2.8 National Mitigation Plan

In anticipation of enactment of the Climate Action and Low Carbon Development Bill, the Department of the Environment, Community and Local Government (DECLG), in conjunction with Departments with responsibility for key sectors, is currently preparing the National Mitigation Plan (NMP), a national plan setting out Ireland's first statutory low carbon development strategy for the period to 2050.

The NMP will specify the manner in which it is proposed to achieve the national transition objective and will outline the sectoral mitigation measures that are committed to within the plan.

4.3 Regional Plans and Policies

4.3.1 Regional Planning Guidelines for the Greater Dublin Area (2010-2022)

The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 gives effect to the national planning framework put forward in the National Spatial Strategy (NSS) and National Development Plan (NDP) at a regional level. The Guidelines aim to enhance the unique national position of the Greater Dublin Area (GDA) and defines a Metropolitan and a Hinterland Area. The RPGs promote development adjacent to multi-modal transport facilities.

The RPGs expand on the proposed spatial structure contained in the NSS. As with the NSS, the RPG focus on Dublin Airport's role as a vital point in the region's transportation network, additionally however are more detailed policies recognising and supporting the airport as a driver of economic development in and for the region.

The RPG refers to the key nodes within the region's transportation network, including the international standing of Dublin Airport. The RPG state that despite significant investment in the region's transport system, there continue to be impediments such as road congestion and long travel times, and the need for greater integration of public transport services. The RPG raise that an efficiently functioning, well connected airport is a key competitiveness factor for Dublin, the wider region and the state, and that an area requiring ongoing attention is the airport's connections to the city and the region with public transport connections to the airport requiring significant development.

In relation to economic connections, the RPG state that identifying priority targets for investment in transport infrastructure at locations which can support economic and critical mass, and support structures and ease of access to do business is essential to the economic success of the region. Additionally, the RPG support and promote the role of the GDA as an attractive international destination for business, that the identified strategic economic growth centres continue to be focal points for regional population growth and employment. To this end, the 'critical mass' concept should be employed whereby development density levels are such to justify first class and strategic infrastructure provisions and to take full advantage of international transport hubs such as Dublin Airport and Dublin Port.

The stated policy in the RPG for Dublin Airport is ER7 which seeks to:

Promote and support the role of Dublin Airport as the primary gateway to Ireland and the GDA and as an important employment hub and business location in the region through land use planning which facilitates future airport capacity needs and by improved transport linkages to the city and region.

4.3.2 Draft Transport Strategy for the Greater Dublin Area (2016-2035)

The Greater Dublin Area (GDA) Draft Transport Strategy constitutes a strategic transport plan for the GDA for the period up to 2035. A number of fundamental tenets underlie the draft strategy objectives. These include the adoption of a hierarchy of transport users with pedestrians, cyclists and public transport users at the top of the hierarchy and consequently these users should have their safety and convenience needs considered first. A second key principle is the requirement that land use planning and transport planning need to be considered together in the overall development of the GDA region.

With regards to Dublin Airport the Strategy identifies that *'Protecting and enhancing access to the ports and Dublin Airport is a strategic priority'* as congestion currently presents the greatest risk to its functionality. It acknowledges that *'serving Dublin Airport with a high-capacity, reliable and frequent public transport service to Dublin City Centre and improved public transport network connectivity at a national level is, therefore, a priority for the transport strategy'*.

A study to identify the optimum longterm public transport solution to connect Dublin City Centre, Dublin Airport and Swords identified a New Metro North as being the best solution. Subsequently, Metro North was included in the Government's Capital Investment Plan 2016-2021. It will run from St Stephen's Green via the Airport to Swords. The exact location of the Metro stop for the Airport is likely to be at the Ground Transportation Centre, just north of Terminal 2.

4.3.3 Eastern River Basin District River Basin Management Plan (2009 – 2015)

The Eastern River Basin District (ERBD) covers the majority of Fingal and is one of eight river districts within the island of Ireland formed to aid the implementation of the requirements of the EU Water Framework Directive 2000/60/EC. The Directive requires the preparation of management plans for each district.

The ERBD River Basin Management Plan (RBMP) sets out the objectives for the water bodies within the plan area and outlines actions necessary to achieve these objectives. In compliance with the WFD these are to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwaters which:

- a) Prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems;
- b) Promotes sustainable water use based on a long-term protection of available water resources;
- c) Aims at enhanced protection and improvement of the aquatic environment, including through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances;
- d) Ensures the progressive reduction of pollution of groundwater and prevents its further pollution, and
- e) Contributes to mitigating the effects of floods and droughts.

4.3.4 Eastern Midlands Waste Management Plan (2015-2020)

The Eastern Midlands Regional Waste Management Plan (RWMP) provides a framework for waste management for the next six years and sets out a range of policies and actions in order to meet the specified mandatory and performance targets. Most importantly, the plan seeks to assist and support the community and local business to develop resource efficiency and waste prevention initiatives. The Plan comprises a framework for the prevention and management of wastes in a safe and sustainable manner and acknowledges the use of waste at cement kilns as taking on an increasingly significant role.

4.4 Local Plans and Policies

4.4.1 Fingal Development Plan (FDP) 2011-2017

As outlined in Chapter 1, the planning context for the preparation of this Masterplan emanates from the current Fingal Development Plan 2011-2017. In the Development Plan, the Masterplan lands are zoned as 'HT' High Technology and are subject to the map based Local Objective 378, which commits the Council to:

Consider within the context of the Masterplan, the nature and scale of appropriate HT uses and enterprise centre related to aviation and airport business, research and development associated with airports or aviation and Air Transport Infrastructure, having regard to the site's strategic location within the Dublin Airport Authority Lands.

As the Masterplan is being prepared in the context of the current Development Plan, it is required to comply with the policies and objectives contained in the Plan. Of particular relevance for the Masterplan, are the stated policy requirements relating to the operation of Dublin Airport, the 'HT' High Technology land use zoning, Green Infrastructure, and Transportation policy for the County.

The Development Plan highlights both the international and national importance of Dublin Airport in the country's transportation network, but also its paramount significance as an economic entity in Fingal and the region, and its ability to drive economic development and generate direct and indirect forms of employment.

The Development Plan contains broad objectives relating to the development, operation, and management of Dublin Airport and its surrounding environs. The Plan contains objectives in the following areas: strategic operational issues, runway and terminal facilities; noise controls and abatement measures; safety standards and provisions; air and water quality standards and provisions; best practice measures for building design quality and accessibility; optimising surrounding land uses; controls and measures relating to employment development.

The Development Plan contains a specific 'DA' Dublin Airport zoning objective covering an extensive area at and surrounding the airport. The Zoning Objective for the DA zoning is to: Ensure the efficient and effective operation and development of the airport in accordance with the adopted Dublin Airport Local Area Plan.

The Objective is accompanied by the Vision for lands zoned as DA, which is to:

Facilitate air transport infrastructure and airport related activity/uses only (i.e. those uses that need to be located at or near the airport). All development within the Airport Area (as designated by the Dublin Airport Local Area Plan) should be of a high standard reflecting the status of an international airport and its role as a gateway to the country and region. Minor extensions or alterations to existing properties located within the Airport Area which are not essential to the operational efficiency and amenity of the airport may be permitted, where it can be demonstrated that these works will not result in material intensification of land use.

Air Transport Infrastructure includes: aircraft areas, air traffic control/tower, ancillary health, safety and security uses, aprons, cargo handling, maintenance hangers, meteorology, retail – airside/duty free, runways, taxiways, terminals and piers.

This DA zoning objective applies to the vast majority of lands surrounding the HT zoned Masterplan site. Fingal County Council is committed to facilitating future growth and development at the airport whilst safeguarding the surrounding environment and communities. These objectives have informed the preparation of the Masterplan.

4.4.2 Draft Fingal Development Plan 2017-2023

While the Masterplan has been prepared in accordance with the Fingal Development Plan 2011-2017, it is likely that the Masterplan will be implementable under subsequent Fingal Development Plans. At the time of preparing this Environmental Report, the Draft Fingal Development Plan 2017-2023 has been prepared. In the Draft Development Plan, the Masterplan lands remain zoned as 'HT' High Technology and are subject to the map based Local Objective 57. Local Objective 57 maintains the intent of Local Objective 378 and seeks to:

Consider within the context of the Masterplan, that nature and scale of appropriate HT uses having regard to the sites strategic and unique location in proximity to an international airport within the Dublin Airport Authority lands

In this regard, the principles of the Masterplan, in particular relating to use classes, remain consistent with the zoning and objectives of the Draft Fingal Development Plan 2017-2023.

4.4.3 Fingal East Fingal Flood Risk Assessment and Management Study 2012 (FEM FRAMS)

Fingal County Council along with project partners Meath County Council and the Office of Public Works (OPW) commissioned the Fingal East Fingal Flood Risk Assessment and Management Study (FEM FRAMS) in 2008 to investigate the high levels of existing flood risk in the Fingal area. The study included detailed hydraulic modelling of 23 rivers and streams, 3 estuaries and the Fingal and Fingal coastline. The watercourses are defined as High Priority Watercourses (HPW) or Medium Priority Watercourses (MPW) and modelled in according detail.

The FEM FRAMS models consist of 1D river models, 1D-2D linked models and 2D coastal models. The model results were used to map flood outlines for a range of scenarios, including the current and future, defended and undefended scenarios.

4.4.4 Fingal North Dublin Transport Study (Nov 2014)

The NTA reviewed six options to link Swords and the airport with Dublin city centre. They included a revised Metro North, two different DART links, a Luas link, a BRT system or a combination of DART and LUAS. The overall objective of this Study is to identify the optimum long term public transport solution to connect Dublin City Centre, Dublin Airport and Swords. As part of the Draft Transport Strategy 2016-2035 for the Greater Dublin Area the NTA has determined that a revised Metro North will be progressed.

4.4.5 Dublin Airport LAP 2006

The Masterplan lands are also included within the wider area subject to the Dublin Airport Local Area Plan 2006-2015. The Local Area Plan (LAP) was prepared in 2006, and prior to its expiration in 2012, the lifetime of the LAP was extended by three years up to June 2015. In the Dublin Airport LAP, the Masterplan lands are zoned as 'Core Aviation Development Zone'.

Through the adoption of the Development Plan in 2011, the HT zoning and map based Local Objective 378 applicable to the Masterplan lands supersedes the zoning designation of the LAP.

Importantly however, the overriding objectives and principles in the LAP and Development Plan continue to pertain to the future development of the Masterplan lands. Specifically, that the functionality of the aviation business of the airport shall be given priority in any future development framework and that the nature and scale of potential commercial development shall be appropriate to its location and where it positioning within the hierarchy of employment centres in the County.

4.5 Environmental Legislation and Plans

4.5.1 Water Framework Directive (2000/60/EC) as amended

The Water Framework Directive (WFD) (2000/60/EC) seeks to improve or maintain the ecological and physio-chemical quality of all waterbodies – rivers, lochs, groundwater, transitional waters (estuaries) and coastal waters. When fully operational, the WFD will achieve the level of protection afforded by a number of existing directives, including the Shellfish Waters Directive (and Freshwater Fish Directive), which is scheduled to be repealed in 2013. These objectives will be achieved through the operation of River Basin Management Plans (RBMPs), which incorporate the improvement actions specified within the Shellfish Water PRPs. Its ultimate objective is to achieve “good ecological and chemical status” for all Community waters by 2015.

4.5.2 Floods Directive (2007/60/EC)

Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007. The Directive aims to establish a common framework for assessing and reducing the risk that floods within the European Union pose to human health, the environment, property and economic activity. This Directive requires Member States to assess if all water courses and coast lines are at risk from flooding, to map the flood extent and assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk. This includes the preparation and implementation of flood risk management plans for each river basin district. This Directive also reinforces the rights of the public to access this information and to have a say in the planning process.

4.5.3 EC Freshwater Fish Directive, (78/659/EEC) 1978

The aim of the EU Freshwater Fish Directive (78/659/EEC) is to protect fish life from pollution discharge into waters and lays out water sampling and monitoring procedures and definitions. The Directive was ratified by Ireland by S.I. No. 293 of 1988, and aims to protect those fresh waterbodies identified by Member States as waters suitable for sustaining fish populations. The Directive is due to be repealed in 2013 by the EU Water Framework Directive.

4.5.4 The Groundwater Directive, (2006/118/EC) 2006

This directive establishes a regime which sets underground water quality standards and introduces measures to prevent or limit inputs of pollutants into groundwater. The directive establishes quality criteria that takes account local characteristics and allows for further improvements to be made based on monitoring data and new scientific knowledge. The directive thus represents a proportionate and scientifically sound response to the requirements of the Water Framework Directive (WFD) as it relates to assessments on chemical status of groundwater and the identification and reversal of significant and sustained upward trends in pollutant concentrations. Member States will have to establish the standards at the most appropriate level and take into account local or regional conditions.

The groundwater directive complements the Water Framework Directive. It requires:

- groundwater quality standards to be established by the end of 2008;
- pollution trend studies to be carried out by using existing data and data which is mandatory by the Water Framework Directive (referred to as "baseline level" data obtained in 2007-2008);
- pollution trends to be reversed so that environmental objectives are achieved by 2015 by using the measures set out in the WFD;
- measures to prevent or limit inputs of pollutants into groundwater to be operational so that WFD environmental objectives can be achieved by 2015;
- reviews of technical provisions of the directive to be carried out in 2013 and every six years thereafter;
- compliance with good chemical status criteria (based on EU standards of nitrates and pesticides and on threshold values established by Member States).

A public consultation on the review of Annexes I and II of the Groundwater Directive was carried out in 2013 with the aim of collecting opinions on different policy options for the review of the Annexes, and to identify missing options and gather data on impacts.

4.5.5 EC Bathing Water Quality Directive, (2006/7/EC) 2006

This Directive strengthens the rules guaranteeing bathing water quality. It supplements Directive 2000/60/EC on water protection and management.

Each year, the Member States are required to identify the bathing waters in their territory and define the length of the bathing season.

They shall establish monitoring at the location most used by bathers or where the risk of pollution is greatest. Monitoring shall take place by means of sampling:

- four samples, including one before the start of the bathing season.
- three samples only if the season does not exceed eight weeks or if the region is subject to special geographical constraints.

Member States shall communicate the results of their monitoring to the European Commission with a description of the water quality management measures. Monitoring may be suspended exceptionally once the Commission has been informed.

4.5.6 EU Directive on the Conservation of Wild Birds, (2009/147/EC) 1979

This Directive ensures far-reaching protection for all of Europe's wild birds, identifying 194 species and sub-species among them as particularly threatened and in need of special conservation measures. There are a number of components to this scheme:

Member States are required to designate Special Protection Areas (SPAs) for 194 particularly threatened species and all migratory bird species. SPAs are scientifically identified areas critical for the survival of the targeted species, such as wetlands. They are part of the Natura 2000 ecological network set up under the Habitats Directive 92/43/EEC.

A second component bans activities that directly threaten birds, such as the deliberate killing or capture of birds, the destruction of their nests and taking of their eggs, and associated activities such as trading in live or dead birds (with a few exceptions).

A third component establishes rules that limit the number of bird species that can be hunted and the periods during which they can be hunted. It also defines hunting methods which are permitted (e.g. non-selective hunting is banned).

4.5.7 EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, (92/43/EEC), 1992

In conjunction with the Birds Directive, the Habitats Directive forms the backbone of EU nature protection legislation.

Known as the Habitats Directive (92/43/EEC) this legislation was transposed into Irish law by the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94 of 1997). The main goal of the Directive is to promote the maintenance of biodiversity by requiring Member States to take measures to maintain, protect or restore natural habitats, animal and plant species to a favourable conservation status, introducing robust protection for those habitats and species of European importance. For Ireland, these habitats include raised bogs, active blanket bogs, turloughs, sand dunes, machair (flat sandy plains on the north and west coasts), heaths, lakes, rivers, woodlands, estuaries and sea inlets. The Directive provides for a network of protected sites known as The Natura 2000 network, which limits the extent and nature of development which may have a detrimental effect on the flora or fauna identified therein. Special Areas of Conservation (SACs) are part of the Natura 2000 Network and as such Ireland is required to propose relevant areas for designation as SACs to ensure the natural habitats and species habitats are maintained and restored if necessary to a favourable conservation status. Animals and plant species that are in need of strict protection are listed in Annexes to the Directive. The Habitats Directive is considered the most important EU initiative to support National and International biodiversity.

4.5.8 European Communities (Birds and Natural Habitats) Regulations 2011

These regulations consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats)(Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in the CJEU judgements.

Articles 6(1) and (2) of the Regulations require Member States to take appropriate conservation measures to maintain and restore habitats and species, for which a site has been designated, to a favourable conservation status. Furthermore the Regulations require Member States to avoid damaging activities that could significantly disturb these species or deteriorate the habitats of the protected species or habitat types. Under these regulations any plan or project likely to have a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects, shall undergo an Appropriate Assessment to determine its implications for the site.

The competent authorities can only agree to the plan or project after having ascertained that it will not adversely affect the integrity of the site concerned. In exceptional circumstances, a plan or project may still be allowed to go ahead, in spite of a negative assessment, provided there are no alternative solutions and the plan or project is considered to be of overriding public interest. In such cases the Member State must take appropriate compensatory measures

to ensure that the overall coherence of the Natura 2000 Network is protected. Article 12 of the Regulations is also important as it affords protection to specific species regardless of their location.

4.5.9 SEA Directive - Assessment of the effects of certain plans and programmes on the Environment, (2001/42/EC) 2001

This Directive requires plan-makers to carry out an assessment of the likely significant environmental effects of implementing a plan or programme before the plan or programme is finalised. There are two statutory instruments which transposed the SEA Directive into Irish Law:

The SEA Directive (2001/42/EEC) came into force in 2004 and was subsequently transposed into Irish law through S.I. No. 435 of 2004 European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 and S.I. No. 436 of 2004 Planning and Development (Strategic Environmental Assessment) Regulations 2004 as amended by S.I. No. 200 of 2011 European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 and S.I. No. 201 of 2011 Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 respectively.

4.5.10 Environmental Impact Assessment Directive (85/337/EEC) (97/11/EC), 1985

The EIA Directive (85/337/EEC) came into force in 1985 and applies to a wide range of defined public and private projects, which are defined in Annexes I and II of the Directive. The Directive has been amended three times, in 1997, 2003 and 2009. Under the Directive Member States are required to carry out Environmental Impact Assessments (EIA) of certain public and private projects, before they are authorised, where it is believed that the projects are likely to have a significant impact on the environment.

The initial Directive of 1985 and its three amendments have been codified by Directive 2011/92/EU of 13 December 2011.

4.5.11 Appropriate Assessment of Plans and Projects in Ireland. Guidelines for Planning Authorities (2009)

Formulated to assist with compliance with Article 6 of the Habitats Directive Article 6(3) states that:

Any plan or project not directly connected with or necessary to the management of a Natura 2000 site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.

Appropriate Assessment is a focused and detailed impact assessment of the implications of the plan or project, alone and in combination with other plans and projects, on the integrity of a Natura 2000 site in view of its conservation objectives.

4.5.12 Wildlife (Amendment) Act 2000

The Wildlife Act is Ireland's primary national legislation for the protection of wildlife. It covers a broad range of issues, from the designation of nature reserves, the protection of species,

regulation of hunting and controls in wildlife trading. It is implemented by a series of regulations. The Act provides strict protection for nearly all birds, 22 other animal species, and 86 plant species. These species are protected from injury, or from disturbance / damage to their breeding or resting place wherever these occur. The 2000 Act was amended in 2010.

The main objectives of the Wildlife (Amendment) Act, 2000 are to:

- provide a mechanism to give statutory protection to NHAs;
- provide for statutory protection for important geological and geomorphological sites, including fossil sites by designation as NHAs;
- improve some existing measures, and introduce new ones, to enhance the conservation of wildlife species and their habitats;
- enhance a number of existing controls in respect of hunting, which are designed to serve the interests of wildlife conservation;
- broaden the scope of the Wildlife Acts to include most species, including the majority of fish and aquatic invertebrate species which were excluded from the 1976 Act;
- introduce new provisions to enable regulation of the business of commercial shoot operators;
- ensure or strengthen compliance with international agreements and, in particular, enable Ireland to ratify the Convention on International Trade in Endangered Species (CITES) and the African-Eurasian Migratory Waterbirds Agreement (AEWA).
- increase substantially the level of fines for contravention of the Wildlife Acts and to allow for the imposition of prison sentences;
- provide mechanisms to allow the Minister to act independently of forestry legislation, for example, in relation to the acquisition of land by agreement;
- strengthen the provisions relating to the cutting of hedgerows during the critical bird-nesting period and include a requirement that hedgerows may only be cut during that period by public bodies, including local authorities, for reasons of public health or safety;
- strengthen the protective regime for Special Areas of Conservation (SACs) by removing any doubt that protection will in all cases apply from the time of notification of proposed sites;
- and give specific statutory recognition to the Minister's responsibilities in regard to promoting the conservation of biological diversity, in light of Ireland's commitment to the UN Convention on Biological Diversity.

5.0 Environmental Baseline of the Plan Area

5.1 Introduction

The purpose of this section of the Environmental Report is to describe the relevant aspects of the current state of the environment within the Plan area. This baseline information outlines the environmental context within which the Dublin Airport Central Masterplan will be implemented.

The aim of this chapter is therefore to identify the following parameters;

- The key environmental baseline resources and sensitivities;
- The key environmental threats and trends; and
- The likely evolution of the environment in the absence of the Masterplan.

The baseline data allows for the “State” of the environment to be identified in objective terms. Where possible and where data exists, a quantitative measurement of the environmental conditions is provided, however where such information is absent, qualitative descriptions of environmental themes are provided instead. Where important information deficits are noted, recommendations are provided in the mitigation measures section to ensure that any absence of critical information will be addressed as part of the ongoing monitoring and review of the Masterplan.

The headings provided are in accordance with the legislative requirements of the SEA Directive. An emphasis is placed on the strategic elements of each aspect and where potentially relevant to Plan policy.

The topics addressed are:

- Population and Human Health
- Noise
- Biodiversity, Flora & Fauna
- Soil & Geology
- Water
- Air Quality and Climate Change
- Material Assets
- Cultural Heritage
- Landscape

** Human health is not considered directly in this report, but is instead dealt with through consideration of other environmental issues such as air quality, water quality etc.*

5.2 Study Area Overview

Dublin Airport is of national and international importance and represents the most significant single economic entity in Fingal and the Region. The Airport is the principle gateway to Ireland and an important driver of economic development, generating employment both directly and indirectly. Fingal has a unique role in facilitating the sustainable development of the airport and its environs and safeguarding its potential as a national resource.

The Dublin Airport Central Masterplan is a framework for the future development of lands strategically located adjacent to Dublin Airport. The Masterplan lands comprise a parcel of land, referred to as Zone 1. The Masterplan specifically focuses on the development of Phases 1 and 2 of Zone 1 for high quality, high value office accommodation supplemented with ancillary uses.

The nature and scale of development envisaged for the Masterplan lands is not intended to compete with other local or regional employment or business locations, but with alternative international locations that would be considered by companies that look to airport locations and proximities as being key factors in their location selection process.

The delivery and implementation of the development framework for the lands will be achieved in a gradual manner, and will be linked to key infrastructural requirements and services supports; including road network, public transport and water services improvements. The provision of the office buildings will be in coherent clusters with car parking, ancillary uses and access to amenity opportunities.

The Masterplan framework is formulated and structured on four key guiding principles. These include principles relating to urban design and quality space making; movement and circulation; economic conditions; and environmental and building sustainability.

In combination, the principles guiding the development framework ensure the creation of an extremely well connected, unique business destination that is of a high quality design, construction and finish, that will offer a range of high value office accommodation competing with other international locations and supplementing the employment and enterprise opportunities in Fingal.

5.3 Population, Human Health and Quality Of Life

5.3.1 Introduction

This section discusses the impact of the Masterplan on the population of the plan area. An overview of the current and estimated future population and the issues affecting quality of life are discussed. The Dublin Airport Central Masterplan does not have, nor does it propose, to accommodate and residential accommodation and as such the consideration of Human Beings relates to the working population of Dublin Airport.

Impacts on human health and quality of life may be derived from the environmental parameters discussed throughout this Chapter. Ultimately, all of the effects of a development on the environment impact upon human beings and their quality of life. Direct effects relate to matters such as water and air quality, noise, and landscape change. Indirect effects relate to such matters as flora and fauna.

Accordingly, the topic of human beings and their quality of life is addressed by means of an appraisal of the indirect effects, etc. of the Masterplan on the other environment parameters, of which human beings and their quality of life are an integral part. Where appropriate, mitigation measures to reduce/avoid adverse impacts are identified and incorporated into this Report and the Plan under the other environmental parameters.

5.3.2 Noise

Environmental noise is described as unwanted or harmful outdoor sound created by human activities, including road, rail, air traffic and industry. EC Directive 2002/49/EC deals with the regulation of environmental noise. It does not apply to domestic noise. The directive is implemented in Ireland by the Environmental Noise Regulations 2006 (SI 140/2006).

The Regulations allow for action to be taken by each member state, with a view to preventing and reducing environmental noise, particularly where exposure levels can induce harmful effects on human health and to preserving environmental acoustic quality where it is good.

There are important aviation related designations for noise and public safety that are associated with the operation of the airport and apply to the Masterplan lands. These designations are the Inner and Outer Noise Zones and the Inner and Outer Public Safety Zones. These arise from European and national policy and legislation, and have been subsumed into local planning policy.

The designations are indicated on the Fingal Development Plan 2011-2017 zoning maps and the relevant policy is included within the written statement. The Masterplan lands are located within the Inner Airport Noise Zone, outside of the Inner Public Safety Zone and partially within the Outer Public Safety Zone (northwest corner of Zone 1).

The creation of Noise Zones at Dublin Airport arises from compliance with national legislation and the EU Directive on Environmental Noise. The Development Plan policy for the Noise Zones is to restrict inappropriate development within the Outer Noise Zone and to actively resist noise-sensitive uses within the Inner Noise Zone.

As required in the noise legislation, the four Dublin planning authorities have prepared The Dublin Agglomeration: Environmental Noise Action Plan 2013-2018, which includes analysis of Dublin Airport, identified as a major airport. The Action Plan reiterates the stated policy in the Development Plan for the two zones. The Action Plan specifies noise sensitive receptors to be residential developments, hospitals including nursing and convalescence homes, educational institutions, childcare/ crèche facilities, and places of worship.

While in relation to the Public Safety Zones, the Development Plan policy is guided by a report prepared by consultants Environmental Resources Management in 2005 for the Department of the Environment on the topic. While this report has not been formally adopted as Government policy to date, guidance is provided on the potential use and scale of development that may be considered appropriate within these Zones. Applicable to the Masterplan lands, is the guidance relating to the Outer Public Safety Zones. Within the Outer Public Safety Zones, residential, retail/ leisure and employment uses are permissible in principle subject to restrictions in terms of quantum (density per hectare).

5.4 Biodiversity

5.4.1 Introduction

Also referred to as flora and fauna; biodiversity has been defined by the Convention of Biological Diversity as:

The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems

Biodiversity supports life on earth; it is a crucial part of all our lives and its economic value is being increasingly recognised. Not only does it underpin important economic sectors such as tourism and agriculture but it provides many other benefits which can be grouped into four main categories:

- **Provisioning services** (production of food and water, etc.)
- **Regulating services** (e.g. the control of climate and disease)
- **Supporting services** (e.g. nutrient cycling and crop pollination)
- **Cultural services** (such as spiritual and recreational benefits)

The importance of protecting our natural heritage has been recognised at an international level and takes into account that the condition of biodiversity within any particular nation cannot be seen in isolation. Changes to biodiversity in one country can have international transboundary implications. (For instance deforestation in one country can lead to flooding in another or loss of habitats for migratory birds).

Dublin Airport and its immediate environs are entirely artificial in character, comprising existing roads, car parks, buildings and landscape planting. There are a number of treelines, hedgerows and some small areas of amenity grassland.

The following habitats are identified in the airport and environs:

- **Treelines:** These border the main access roads and while they are landscape features they are considered to be of limited ecological value.
- **Amenity Grassland:** There are small areas of amenity grassland which border the main access roads. These areas are of no significant ecological value.
- **Buildings and Artificial Surfaces:** There are a number of buildings, roads and car parks. The majority of these are modern in construction and are of no ecological value.

5.4.2 Designated Habitats

The EU has provided a basis for the legal protection of certain important ecological sites throughout Europe. Natura 2000 was established under the 1992 E.C Habitats Directive and is an EU wide network of protected areas. It provides for the designation and protection of sites that support annexed habitats and species by requiring, among other things, their favourable conservation status to be maintained or restored. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. The Natura 2000 network is comprised of two main designations:

- **Special Areas of Conservation (SAC);** designated by Member States under the Habitats Directive, these sites are established for the protection and conservation of habitats

and species listed in Annex I (habitats) and Annex II (species – not birds) of the EU Habitats Directive.

- Special Protection Areas (SPA); established under the 1979 Birds Directive these sites are designated for the protection and conservation of Annex 1 (rare and threatened bird species) and regularly occurring migratory species, and for bird habitats.

In accordance with the Department of Environment, Heritage and Local Government (DOECLG) guidance (DoEHLG, 2010), an initial distance of 15km from the proposed Masterplan was selected for consideration of European sites. This distance was deemed to be sufficient to cover all likely significant effects which may arise from the implementation of the Masterplan on European sites. Spatial boundary data on the European sites was referenced against the boundaries presented on the NPWS website on 12th January 2016. All European sites which fall within 15km of the Masterplan lands are listed in Table 8 below, and presented in Map C.

Special Areas of Conservation	Special Protection Areas
Malahide Estuary	Malahide Estuary
Baldoyle Bay	Baldoyle Bay
North Dublin Bay	North Bull Island
Rogerstown Estuary	Rogerstown Estuary
South Dublin Bay	South Dublin Bay and River Tolka Estuary
Howth Head	Howth Head Coast
Ireland’s Eye	Ireland’s Eye
Lambay Island	Lambay Island
Rockabill to Dalkey Island	

Table 8: Areas Protected under EU and National Legislation

The qualifying features for the designated sites have been obtained through a review of the Conservation Objectives available from the National Parks and Wildlife Service (NPWS). The importance of these sites is recognised in the existing plan and they will continue to be afforded protection through enforcement of current legislation and through the support of the Local Authority working in conjunction with other state/non-state organisations.

5.4.3 Records of Protected, and Red-Listed Flora and Fauna species

No records for rare / protected species within 2km of the masterplan area were obtained from the online National Parks and Wildlife Service database, from 2015, as provided to the SEA team although bats, buzzards and hares are known to occur in the surrounding Airport area. Records within 2km of the subject lands were also obtained from the online database of the National Biodiversity Centre at www.biodiversityireland.ie.

Bat roost records were provided to the SEA team, from Bat Conservation Ireland (BCI) dated from August 2015 for the proposed development site and environs to a distance of ca. 10km. There were 74 records of bat roosts within 10km of the proposed masterplan area, the nearest of which was an unidentified Pipistrelle bat roost (*Pipistrellus* sp.) located 1.5km to the north of the masterplan area.

5.5.4.1 Existing Environmental Issues

Biodiversity has become an integral part of the conservation of our wild areas. Ireland is one of 193 countries which are party to the Convention on Biological Diversity along with the other

EU Member States and the EU itself. In its recent assessment, the Commission states that Europe is seeing the constant loss, degradation and fragmentation of natural habitats and entire ecosystems are also being pushed to the point of collapse.

Nationally, although significant progress has been made in the past decade, biodiversity loss has not been halted in Ireland. The status of many of our habitats and some of our species is judged to be poor or bad (Ireland's Second National Biodiversity Plan).

There are five main pressures causing biodiversity loss:

- habitat change
- overexploitation
- pollution
- invasive alien species
- climate change

The primary mechanism for conserving, protecting and enhancing biodiversity in Ireland is through the Actions for Biodiversity 2011-2016, Ireland's Second National Biodiversity Plan², of which a key concept is that local authorities (and other agencies) share responsibility for the conservation and sustainable use of biodiversity.

As stated previously, under the Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora), an Appropriate Assessment is required for all plans or projects which may impact on sites designated as either Special Areas of Conservation or Special Protection Areas. The Local Authority will be obliged to seek such an assessment where the need arises. Given the primarily artificial nature of the environment around Dublin Airport, comprising existing roads, car parks, buildings and landscape planting, there are no issues pertaining to biodiversity

5.6 Soil and Geology

5.6.4 Introduction

The upper most layer of the earth's surface is generally termed "Soil". It comprises for the most part organic matter, minerals and fine to course grained weathered rocks. The variability in the constituent parts and the percentage content of each in the soil matrix results in differing characteristics. This has implications for suitable land use and the appropriateness for differing land use practices.

Geology encompasses the understanding and study of the solid and liquid matter that constitutes the earth and the processes by which they are formed, moved and changed. Its understanding is necessary to fully appreciate the geological factors that shape and influence the world and its particular structure.

5.6.5 Soils

Soil can be defined as the top layer of the earth's surface. It consists of fine to course grained rock and mineral particles, organic matter (the remains of plants and animals) and the living organisms that reside in the soil.

² Actions for Biodiversity 2011-2016, Ireland's Second National Biodiversity Plan

The Masterplan area has a varied soil profile, see Map D. The soil around Dublin Airport is generally consists of Limestone Till and Gleys and Aluvium. The Dublin Central lands are identified as made ground with smaller areas identifying Renzinas and Lithosols with Calcareous bedrock at surface.

5.6.6 Geology

The local bedrock consists of three different formations: the Malahide Formation; Waulsortian Limestones; and the Tober Colleen Formation. The Malahide Formation consists of calcareous shales, siltstones and sandstones, and thin limestones. The Waulsortian Limestones consists of Massive unbedded lime-mudstone. The Tober Colleen Formation consists of Calcareous shale, limestone conglomerate. Map E shows the Geology of the plan area.

5.6.7 Existing Environmental Problems

The soil environment is a much overlooked aspect of the natural environment. However soils are an intrinsic part of the environment and perform a range of uses benefitting the wider environment. Soils have an economic value in terms of agricultural production, their type and quality dictating the type and intensity of production.

In addition soils also have an ecological value, their status being a critical factor in determining botanical diversity and ultimately the range of fauna which feed upon or live within those species of plant life.

Changes in soil result from both natural processes and human activities which contribute to their dynamic and evolving nature. Such changes are matters of concern if they result in the physical, biological or chemical degradation of soils. This can result in the impairment of ecologically-essential soil processes, the reduction in productive capacity, the depletion of soil quality and biodiversity and the direct loss of soil. Many of the changes arise as a result of pressures from human activities.

Urban environments have greatly changed in Ireland with the centres of population and towns being subjected to depopulation with growth focused on the periphery of these areas. With urban expansion, agricultural land surrounding towns and settlements as well as green areas within them are subjected to increasing pressures.

The type and depth of soil has direct implications on water movement which can lead to increased pollution threats if not properly considered.

5.7 Water

5.7.4 Introduction

For the purposes of this section of the Environmental Report, the water environment is taken to include natural features such as lakes, rivers, streams and groundwater. In addition flooding is also dealt with in this section. Wastewater treatment and drinking water may be referred to in this section, but are discussed in more detail under the Material Assets section.

Water is fundamental to all life; for humans, plants and animals alike. It is also critical in economic terms in generating and sustaining wealth in a number of key areas such as agriculture, fishing, power generation, industry transport and tourism. However it is also a fragile resource requiring continued protection. In general terms Ireland's waters are of good

quality, however preserving the high standard of water is essential for human health and the natural environment.

Since 2000, Water Management in the EU has been directed by the Water Framework Directive (WFD) 2000/60/EC which was transposed into Irish law under the European Communities (Water Policy) Regulations 2003 (S.I. No. 722/2003). This legislation requires governments to take a holistic approach to managing all their water resources based on natural geographic boundaries, i.e. the river catchment or basin. The WFD establishes a common framework for the sustainable and integrated management of all waters covering groundwater, inland surface waters, transitional waters and coastal waters.

For the purpose of implementing the WFD, Ireland has been divided into eight River Basin Districts or areas of land that are drained by a large river or number of rivers and the adjacent estuarine/ coastal areas. The management of water resources is divided into these River Basin Districts. The plan area is located in the Eastern River Basin District (ERBD).

A River Basin Management Plan (RBMP) for the Eastern River Basin District was prepared and adopted in 2010. The RBMP provides objectives for River Basin Districts in order to implement the requirements of the WFD. Dublin Airport is included as one of nine River Water Management Units (RMU) located within Fingal, which sets out the water quality priorities for the plan area.

5.7.5 Surface Water

There are a number of waterbodies which drain the subject lands, including:

- Wad Stream – this is located outside of the north eastern section of the subject lands and drains the north apron. The stream is buried beneath the Airport Roundabout from where it flows eastwards. It forms part of the Sluice River catchment which flows into Baldoyle Estuary at Portmarnock Bridge.
- Kealy's Stream – this is located in the eastern section of the subject lands and drains the internal road network and car parks in the airport complex on landside, and the DAA controlled long-term car park on the R132. This stream also forms part of the Sluice River catchment which flows into Baldoyle Estuary at Portmarnock Bridge.
- Cuckoo Stream is located to the south of the subject lands. It forms part of the Mayne River catchment. It is the largest surface water system on the wider airport campus and collects runoff from the runway and from the central and southern aprons. This stream joins with the Mayne River beyond the southern boundary of the airport and discharges into the Baldoyle Estuary.

Water quality monitoring is undertaken of these watercourses for the purposes of the Water Framework Directive (WFD) by the DAA and supplied to the EPA. The primary mandate of the WFD is for all waters to achieve 'good' ecological status by 2015.

From records of samples taken between April 2006 and September 2013, which have been analysed and classified on behalf of the DAA, the Wad Stream has shown a trend of improvement since April 2009 and has a 'moderately polluted' status. The Cuckoo Stream and Kealy's Stream have shown no sign of improvement and have a status of 'seriously polluted'. Development at the airport has impacted and will impact on both the quality and quantity of the surface water runoff into these catchments. Under the WFD classification, the status of the Sluice River is classified as 'good' with an overall objective to 'protect' whereas the Mayne

River is classified as 'bad' with an overall objective to 'restore'. Both rivers are also classified as at risk of not achieving the WFD aim of 'good status' by 2015 as a result of diffuse pollution.

New development has the potential to add to flood risk in an area if it increases surface water run-off. In keeping with the Greater Dublin Strategic Drainage Study (2005), Sustainable Drainage Systems (SuDS) techniques will be incorporated into the development of the Masterplan lands. SuDS offer a comprehensive design approach to the management of water on a site, to delay run-off and encourage filtration through the use of porous surfaces, detention ponds, green roofs, rainwater harvesting etc. in ways which enhance amenity and biodiversity and minimise pollution effects. Therefore, the use of SuDS provides benefits in what is described as the SuDS triangle; water quality, water quantity and amenity/biodiversity.

5.7.6 Groundwater

Groundwater is the water stored underground in formations of saturated rock, sand, gravel, and soil. Surface water and groundwater are intimately linked to each other within the hydrological cycle and is an important source of water for streams, rivers and lakes. Groundwater resources are an invaluable source of water supply for the public, industry and agriculture and also perform an important role in sustaining base flows in the rivers within the plan area and their tributaries. In Ireland groundwater provides between 20% and 25% of drinking water supplies. Thus the protection of groundwater quality from the impact of human activities is a high priority; resources are susceptible to pollution with long term consequences both for humans and the natural environment.

Due to the different bedrock conditions, groundwater vulnerability ranges from 'low' on lands to east of the airport and environs (the DAA controlled long-term car park on the R132) to 'moderate – high' in Zone 2 and 'high – extreme' in Zone 1 where there is shallow rock and thin subsoils. The groundwater WFD status for the subject lands is predominantly 'good' with an overall objective to 'protect'. Groundwater is also considered to be at risk of not achieving 'good status'.

As a result of the proposed development in the Masterplan, there will be a significant increase in the area of hardstanding, resulting in a loss of surface water infiltration to the underlying subsoil. Where possible, infiltration SuDS techniques will be implemented to minimise the effect of the development and replicate the natural hydrological process.

5.7.7 Aquifers

Aquifers are underground layers of rock which contain water and which are capable of yielding it to surface waters such as streams and rivers. In relation to hydrogeology, i.e. groundwater conditions, two bedrock aquifers are identified beneath the subject lands; a locally important aquifer which is moderately productive and a poor aquifer which is generally unproductive.

There are no GSI or EPA Source Protection Zones in the vicinity of the Masterplan area.

In relation to hydrogeology, i.e. groundwater conditions, two bedrock aquifers are identified beneath the subject lands; a locally important aquifer and a poor aquifer.

5.7.8 Flooding and Flood Risk

The underlying causes of flooding, heavy rain and high sea levels are, essentially uncontrollable. However, factors affecting the extent and severity of the flood can be addressed. The most

influential of these factors is development, in particular development in flood plains i.e. areas adjacent to rivers that tend to become flooded following periods of heavy rain. Flood risk can be defined as the probability of flooding multiplied by the consequences of flooding.

The Mayne River is the primary river that is directly connected with the Dublin Airport Masterplan lands. While no flood risks have been identified in the Masterplan lands as part of the FEM FRAMS flood maps were produced for the Mayne River for the 1 in a 100 & 1 in 1000 probability of flooding.

5.7.9 Existing Environmental Issues

The principal threat to water is pollution which can adversely impact on all parts of the water cycle from groundwater to rivers, lakes estuaries and coastal waters. In simple terms pollution means the presence of a harmful substance such as a poisonous metal or pesticide, a nutrient or indeed silt.

There are areas of the plan where the groundwater resource is classified as being of low to high vulnerability. This presents challenges in terms of development and the long term protection of vulnerable resources.

This source of flooding can persist over a number of weeks and poses a significant but localised issue that has attracted an increasing amount of public concern in recent years. In most cases groundwater flooding cannot be easily managed or lasting solutions engineered.

There is an increased risk of flooding due to development, climate change and rainfall patterns. Development can exacerbate the problems of flooding by accelerating and increasing surface water runoff, altering watercourses and removing floodplain storage. It is now recognised that flood risk management must be treated as a central issue in the development of the area. Areas of floodplain and wetlands should therefore be recognised and preserved as natural defences against flood risk.

The Planning System and Flood Risk Management guidelines recommends that a precautionary approach to climate change is adopted due to the level of uncertainty involved in the potential effects. Climate change may result in increased flood extents and therefore caution should be taken when zoning lands in transitional areas.

5.8 Air and Climate

5.8.1 Air Quality

Air quality monitoring in Ireland is undertaken largely to implement EC Directives. In 2008 the EC Directive 2008/50/EC on ambient air quality and cleaner air for Europe (the CAFE Directive) entered into force. This piece of legislation placed the previous air quality framework legislation into a single directive. It sets out air quality objectives and targets

The Environmental Protection Agency is involved in air quality monitoring and has installed a number of air quality monitoring stations throughout Ireland. The EPA Report *Air Quality in Ireland 2014* provides an overview of the air quality in the country for 2014 based on data obtained from the 28 monitoring stations. The Dublin Regional Air Quality Management Plan 2009 – 2012 also provides a plan for the preservation of the improvement of air quality in their functional area.

Ambient air quality monitoring is carried out in the Dublin Region by the four local authorities under the direction of the Environmental Protection Agency. This involves monitoring for a range of air pollutants specified under European Union rules to ensure that legal standards for air quality are met. For the purposes of air quality classification, the Dublin conurbation is designated as one Zone i.e. Zone A, which includes the Plan lands.

The overall air quality in Zone A is considered to be 'Good'. (Four bands are used in the Irish index – Good, Fair, Poor and Very Poor). The index is based on the latest available measurements of ozone, nitrogen dioxide, PM₁₀ and sulphur dioxide in Zone A. Monitoring is done using continuous monitors for nitrogen oxides. The closest monitoring station located throughout Fingal is Swords. The current air quality status is 2-Good.

5.8.2 Climate Change

It is now largely recognised that tackling the issue of climate change must take centre stage on policy agendas around the world. The UN's Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (UNEP, IPCC, 2007), concluded that if left unchecked, the world's average temperature could rise by as much as 6°C by the end of the century, causing serious harm to economies, societies and ecosystems worldwide.

Climate Change is a phenomenon that has widespread economic, health and safety, food production, security, and other dimensions. It is also widely recognised that Climate Change is occurring as a result of the build-up of atmospheric Greenhouse Gases (GHG's) such as carbon dioxide. Most GHG emissions are related to the energy generation, transport, agriculture, and industry sectors.

The National Climate Change Strategy 2007-2012 states that there is now scientific consensus that global warming is occurring as a result of manmade greenhouse gases. In order to avoid the devastating effects that climate change is predicted to have, action must be taken to stabilise and reduce these harmful emissions.³ The EPA states that global warming is the primary environmental challenge of this century.⁴ The actions in these documents are considered in the Masterplan.

5.8.3 Existing Environmental Issues

Air Quality

The most relevant aspects of the Plan for assessment in the context of air quality and climatic factors are Traffic Generation and Energy Use. Overall, road traffic has now become the greatest source of air pollution generally. In urban areas, concern has clearly shifted to a range of pollutants associated with this source which may be considered relatively new in the context of air quality control. The most important of these pollutants are NO₂, particulate matter less than 10 microns in diameter (PM₁₀), carbon monoxide (CO) and a wide variety of Volatile Organic Compounds (VOC), including carcinogens such as benzene.

Movement to and around Dublin Airport is a critical consideration. The Masterplan has adopted a sequential approach to development, whereby lands can only be developed to a certain quantum, in the absence of further transport infrastructure upgrades. Efficient use of land by

³ National Climate Change Strategy 2007-2012, Page 7

⁴ www.epa.ie

developing key areas that encourage sustainable movement patterns such as walking, cycling and public transport must also be promoted to reduce traffic generation around the airport.

Climate Change

Land use changes can and will have far-reaching implications for climate change that could include changes to commuter patterns with the building of further housing developments and the resultant increase in GHGs, SO₂, NO_x, VOC and other pollutant emissions.

5.9 Material Assets

5.9.1 Introduction

Material assets can be defined as the critical infrastructure essential for the functioning of society such as: electricity generation and distribution; water supply; wastewater treatment; and transportation. Whilst this infrastructure is essential its usage can lead both directly and indirectly to adverse environmental impacts. This section will discuss the following:

1. Transportation (road and rail)
2. Waste Management
3. Water Supplies
4. Wastewater Treatment Infrastructure
5. Energy

5.9.2 Transportation

Transportation is an essential element to the functioning of Dublin Airport and will continue to be the crucial component to the further sustainable development of the plan area. Nonetheless, the role of the Local Authority is somewhat limited with respect to the provision of transportation infrastructure. Transport Infrastructure Ireland (TII) is directly responsible for the national road network, Iarnród Éireann is directly responsible for the rail network and Bus Éireann and other private operators are responsible for public bus services. The Local Authority will continue to liaise with the relevant authorities in enhancing service provision to the inhabitants of the Plan area.

The National Transport Authority (NTA) is a statutory body formed in 2009 with responsibility for securing the provision of public passenger land transport services; it also has responsibility for the development of an integrated transport system within the Greater Dublin Area (GDA). The NTA has produced a draft Strategic Transport Plan for the GDA up to the period of 2035.

The Strategy considers that *'Protecting and enhancing access to the ports and Dublin Airport is a strategic priority'* as congestion currently presents the greatest risk to its functionality. It acknowledges that *'serving Dublin Airport with a high-capacity, reliable and frequent public transport service to Dublin City Centre and improved public transport network connectivity at a national level is, therefore, a priority for the transport strategy'*.

A study to identify the optimum longterm public transport solution to connect Dublin City Centre, Dublin Airport and Swords identified a New Metro North as being the best solution. Subsequently, Metro North was included in the Government's Capital Investment Plan 2016-2021. It will run from St Stephen's Green via the Airport to Swords. The exact location of the

Metro stop for the Airport is likely to be at the Ground Transportation Centre, just north of Terminal 2.

5.9.3 Waste Management

Fingal County Council promotes waste prevention and minimisation through the Development Plan having regard to 'The Waste Management Plan for the Dublin Region 2005-2010'. The Dublin Region continues to perform well in line with the targets and objectives of the Dublin Waste Management Plan. However, the region remains overly reliant on landfill with 57% of household waste and 49% of commercial waste sent for disposal. There is a definite need to develop recovery alternatives for residual waste (Waste Management Plan for the Dublin Region Annual Progress Report, April 2012).

The Masterplan will seek to implement the objectives of the Waste Management Plan through the development management process, in particular requiring the inclusion or expansion of recycling facilities.

Provision of well-designed and conveniently located bin storage and recycling facilities will be a requirement through the Masterplan. Refuse storage, recycling and composting areas shall also be detailed and agreed at the design stage, with locations for such facilities clearly incorporated into new development layouts.

Developer(s) will be required to submit a *Construction and Demolition Waste Management Plan* setting out a planned programme for the management / recovery / disposal of construction / demolition waste material generated at the site during the excavation and construction phases of development, in accordance with the relevant national waste management legislation at planning application stage. This shall include provision for the management of all construction and demolition waste arising on site, and make provision for the re-use of said material and / or the recovery or disposal of this waste to authorised facilities by authorised collectors. Where appropriate, excavated material from development sites shall be re-used for landscaping, land restoration or for preparation for development on the planning application site.

5.9.4 Water Supply

The provision of safe potable water is a basic human necessity. Within Ireland, drinking water is supplied either by the Local Authority, a Group Water Scheme or by private borehole. Irish Water is now directly responsible for the improvement and maintenance of public water services in the County. The quality of both surface and groundwater reserves are an important element of the area's supply of water and it is critical that resources contributing to the water supply network remain free from contamination.

While there is sufficient capacity within the Dublin Airport Reservoir to serve development envisaged in the Masterplan, the potential for increased demand must be considered and conservation measure to limit water usage but be considered. In addition it is considered that Water Supply to the Dublin Region remains a wider issue.

5.9.5 Waste Water

The safe treatment and disposal of sewerage is fundamental to the sustainable development of our society. The treatment of waste water is either through wastewater treatment plants or individual septic tank units.

The existing foul sewer system draining the Masterplan lands is at capacity. A new gravity sewer, of approx. 800m in length, is required to connect the Masterplan lands with the public foul sewer system and pumping station on the R132 road.

The existing pumping station on the R132 road will require an upgrade in the form of the addition of a holding tank to cater for emergencies. The holding tank must be capable of storing 24hrs of foul sewage at 1 DWF from all the contributing area.

The pumping station on the R132 discharges to the North Fringe Sewer initially and ultimately to the Ringsend WWTP. The North Fringe Sewer only has capacity to cater for Phase 1 of the Masterplan lands.

The Greater Dublin Drainage Project, currently in preparation for planning submission in Nov/Dec 2016, is a regional wastewater project to serve the Greater Dublin Area, with a planned treatment plant at Clonshagh, Fingal. The project includes an orbital sewer and two pumping stations which will divert drainage from the north of Dublin City to the new treatment plant thus freeing up additional treatment capacity at the Ringsend treatment works which is currently treating drainage from this area. Subject to being granted planning approval, it is anticipated that this project will be operational in 2022.

All development shall be drained on completely separate systems, i.e. foul and surface water flows shall be directed to separate pipes. This reduces the possibility of flooding of the foul pipelines during times of extreme rainfall events as the foul network should only contain foul flows and not surface water. All surface water run-off must be attenuated to greenfield run-off rates and a Management Train approach to sustainable drainage systems utilised.

5.9.6 Energy

Electricity is provided in Ireland through a national grid system which is made up of a network of high voltage (110,000 volts, 220,000 volts and 400,000 volts) transmission stations, power lines and cables. The system includes approximately 6,000 km of overhead lines and underground cables and over 100 transmission stations. Power is generated by power plants throughout the country, utilising a variety of fuel or energy sources – including gas, oil, coal, peat, hydro-electricity, wind turbines and other sources including biomass and landfill gas.

Technologically advanced societies such as Ireland have become increasingly dependent on external energy sources for transportation, the production of many manufactured goods, and the delivery of energy services. As the problems of climate change and peak oil production become more prevalent, societies are increasingly turning to renewable energy sources for power. To this end the Government have set a target for 40% of electricity consumed to be generated from renewables by the year 2020.

The Masterplan identifies the potential use of a Combined Heat and Power system as an option for future energy strategy.

5.9.7 Existing Environmental Issues

Transport

One of the key deficiencies of transport infrastructure in relation to Dublin Airport is the lack of a dedicated high capacity service such as a Metro or Light Rail System. The NTA has identified

that *'serving Dublin Airport with a high-capacity, reliable and frequent public transport service to Dublin City Centre and improved public transport network connectivity at a national level is, therefore, a priority....'* This in tandem with capacity issues on the M50 could result in impacts on the transport network.

A transportation assessment was undertaken to inform the Masterplan. The transportation assessment included both an assessment of the potential wider impacts the proposals will have on the National and Regional Road networks and a more detailed assessment of the potential local impacts. The traffic modelling exercise was carried out by consultants for the DAA in conjunction with the NTA and the full suite of NTA traffic models has been used in the preparation of the Dublin Airport Local Area Model. The wider transportation assessment was prepared using SATURN and the local model using VISSIM. The transportation assessment included a number of different scenarios to be tested based on a combination of infrastructure provision and scale of development. The scenarios were defined at an early stage in the production of the Masterplan and informed the decision on the appropriate scale of development in the Masterplan area. For the purposes of the traffic assessment, Phase 1 of Zone 1 comprising some 41,677sqm of office floorspace was tested. Any additional floorspace, including Phase 2 of Zone 1, shall be subject of a further transportation assessment.

Waste Management

All waste collectors have a responsibility with regards to meeting Waste Management targets. Increased facilities for recycling should be provided to reduce the levels diverted to landfill.

Water Supply

New development and/or works will need to demonstrate that the existing network and associated wayleaves are protected from impacts which could put the network at risk of damage. Any proposal to develop site(s) not immediately adjacent to existing water supply infrastructure will have to address the issue of providing a suitable water supply.

Any development with a high water demand will have drawdown conditions attached which may prescribe the time and duration of drawdown. This issue should be dealt with at planning application assessment stage, where applicants will be required to demonstrate capacity.

The delivery of a number of measures to sustainably manage water demand is also important. In order to limit unnecessary water usage, leakage and excessive consumption, new developments should, where feasible, install suitable water conservation measures. The use of rainwater harvesting will be encouraged.

Wastewater

As identified the existing foul sewer system draining the Masterplan lands is at capacity. A new gravity sewer, of approx. 800m in length, is required to connect the Masterplan lands with the public foul sewer system and pumping station on the R132 road.

New development and/or works will need to demonstrate that the existing network and associated wayleaves are protected from impacts which could put the network at risk of damage. Any proposal to develop site(s) not immediately adjacent to existing water supply infrastructure will have to address the issue of providing a suitable water supply.

Urban runoff is the surface runoff of rainwater caused by urbanization. The pollution potential of the surface water run-off is becoming increasingly of concern particularly its cumulative impact over entire catchment areas. Any increase in impervious surfaces such as roads, carparks, and roofed areas will increase the amount of runoff accumulated during precipitation events, and in turn decrease the level of waters percolating naturally through the soil.

5.10 Cultural Heritage

Cultural heritage can be defined as the legacy of physical objects and intangible attributes of a group or society that are inherited from past generations, preserved in the present and maintained for the benefit of future generations.

The archaeological heritage of an area includes structures, constructions, groups of buildings, developed sites, moveable objects, monuments of other types as well as their context, whether situated on or under land or water.

The National Monuments Acts 1930 – 2004 provides for the protection of archaeological heritage. The Record of Monuments and Places (RMP) was established under Section 12 of the National Monuments (Amendment) Act 1994 and structures, features, objects or sites listed in this Record are known as recorded.

Within the Masterplan there are no recorded archaeological monuments within the Masterplan lands, there is a monument, an unclassified castle, recorded immediately to the east of the Terminal 2 building. While not a protected structure, another building of note is the Church of our Lady Queen of Heaven which is listed on the NIAH (NIAH Register No. 11349001), and is rated as being of regional significance. The church is located within the GTC area.

5.10.1 Existing Environmental Issues

Cultural Heritage, including all its various elements, represents a finite resource, one which must be protected in order to enrich future generations. Thus, development which is deemed to adversely impact on structures, features, historical areas etc must not be permitted. A proactive approach needs to be maintained by the Local Authority, working in conjunction with the various state agencies and departments as well as stakeholders to ensure the ongoing protection of this element of the environment.

Currently the most immediate threat to the cultural heritage is development pressure which can lead to a loss or impairment of a feature of importance. Furthermore it is recognized that heritage has an economic value particularly in terms of tourism. However, unsustainable tourism must be avoided and care taken to ensure a balance is achieved between the economic gain that cultural heritage can bring and the preservation of the structures / sites of interest.

5.11 Landscape

5.11.1 Introduction

The concept of landscape encompasses all that can be seen by looking across an area of land, i.e. it is the visible environment in its entirety. Landscape is the context in which all change takes place and helps to create a unique sense of place or identity within an area. The landscape supports a wide range of ecological habitats despite the rapid growth in its development. It is

the interaction of all of these elements that influences landscape character for future generations.

The landscape of Dublin Airport Masterplan lands is a built up and developed environment. It is identified in the Masterplan that landscaped public realms are a key component in contributing to the amenity of the area, and to creating a feeling of wellbeing for employees, visitors and indeed passengers using the terminal buildings.

5.11.2 Landscape Character Types

The Development Plan's Landscape Character Assessment (LCA) provides for the classification of Fingal's landscapes into the following (1) types and values and (2) sensitivities.

The Landscape Character Assessment for Fingal divides the County into 6 Landscape Character Types. Each landscape type is given a value through the consideration of such elements as aesthetics, ecology, historical, cultural, religious or mythological. A value can range from low to exceptional.

- Rolling Hills Character Type
- High Lying Character Type
- Low Lying Character Type
- Estuary Character Type
- Coastal Character Type
- River Valleys and Canal Character Type

The Masterplan lands are classified as 'Low-Lying Agricultural' lands. These have a modest landscape Value and low sensitivity.

Fingal has established principles for new development in these landscape character areas which aims to protect the character of the coastal visual compartment and its special overall character by preventing inappropriate development. The Masterplan encourages the design of high quality public realm centred on three different categories of public open space: the Transition Square, the Green Lung, and the plazas within the development clusters.

5.11.3 Existing Environmental Issues

The Landscape Character Assessment for Fingal identifies the unprecedented population growth experienced in the County as a threat to its landscapes and historic settlement structure. Modern unsympathetic development is also a threat to the landscape quality.

Planning applications in sensitive visual locations shall be accompanied by a Visual Impact Assessment, including cross sections and photomontages to assist the Planning Authority in determining the full visual impact of proposed development on the plan lands and on the high amenity lands adjoining. This should form part of the overall urban design appraisal.

5.12 Interactions

The environment is both complex and dynamic and the various elements of the environment interact in an equally complex and dynamic manner. The permutations can be numerous; however at a simplistic level the principal interactions can be either qualified or quantified in most instances.

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These interactions can be either benign or unfavourable; can be either proportionate or synergistic; can be short lived or permanent. In addition an event, an individual action or an ongoing activity can have an effect on one or more aspects of the environment. This effect may differ in magnitude, type and duration across several different aspects of the environment.

For example the potential exists for discharges of treated effluent from wastewater plants to surface water systems to impact negatively on water quality. Similarly the use of septic tanks can impact negatively on the quality of ground water resources if working inefficiently or inappropriately sited. This report has attempted to deal with the issues at a 'root' level thereby diminishing the necessity to discuss further the possible and numerous interactions between the various environmental receptors.

This environmental report has approached each of the environmental receptors on an individual basis though it is fully cognisant of the relationship between the various elements. The report has therefore attempted to present the data in such a way as to indicate fully the potential for impacts on other aspects of the environment where they may occur or indeed are likely to occur.

To highlight the extent of the relationship between the various elements of the environment the matrix presented in Table 14 provides an indication of the interactions present between environmental receptors.

		Human Beings - Quality of Life	Biodiversity - Flora and Fauna	Soil and Geology	Water Quality - Surface and Ground	Flooding	Landscape and Visual Issues	Material Assets - Wastewater Treatment	Material Assets - Water Supplies	Material Assets - Transportation	Material Assets - Waste Management	Material Assets - Energy	Cultural Heritage	Air Quality	Noise
Is this aspect of the environment likely to interact with other aspects of the environment?	Human Beings - Population	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Biodiversity - Flora and Fauna	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Soil and Geology	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Water Quality - Surface and Ground	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Flooding	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Landscape and Visual Issues	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Material Assets - Wastewater Treatment	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue	Blue
	Material Assets - Water Supplies	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue	Blue
	Material Assets - Transportation	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue	Blue
	Material Assets - Waste Management	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue	Blue
	Material Assets - Energy	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue	Blue	Blue
	Cultural Heritage	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey	Blue
	Air Quality	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Grey
	Noise	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue

Table 9: Environmental Interactions

The significant aspect of the matrix (Table 14) is the relationship between human beings and all aspects of the environment. There are three simple conclusions to be drawn from the matrix; people benefit most from a high quality environment; people are collectively responsible for the adverse impacts that can occur; and people are most seriously affected by deterioration in environmental quality.

6.0 Strategic Environmental Objectives Targets and Indicators

6.1 Introduction

The primary objective of the SEA is to provide for a high level of environmental protection and to contribute to the integration of environmental considerations into the preparation and adoption of the Dublin Airport Central Masterplan.

Article 5 of the SEA Directive requires the identification of environmental protection objectives. These Strategic Environmental Objectives (SEOs) assist in the prediction, description and monitoring of impacts on the environment as a result of the Masterplan. Indicators allow impacts to be assessed and highlighted in a simple and effective manner. Indicators can also be used to form the basis of a monitoring programme for the Plan, (outlined in Chapter 10 of this Environmental Report) the results of which will inform the next Plan Review and other studies.

Thus to achieve the aim of assessing and improving the environmental performance of the Masterplan, a number of Environmental Objectives, specific to each environmental topic have been formulated, see Table 15. These SEOs are a fundamental part of the SEA process. The Objectives are derived through consultation between the Planning Authority, the report authors (guided by SEA guidelines, incorporating where relevant international, national and regional policies which govern environmental protection/conservation) and are based on the overall strategy of the Planning Authority to safeguard the environmental integrity of the Masterplan area and to develop its functional area in a sustainable manner.

SEOs are distinct from the objectives and policies contained in the plan, though the process of preparing the Masterplan in conjunction with the SEA allows for the incorporation of environmental themes at an early stage of the process. The Environmental Objectives are used to assess the proposed development strategies of the Masterplan, its policies and objectives, in order to evaluate and identify where conflicts may occur. The assessment is contained in Chapter 8.

Allied to the development of the Strategic Environmental Objectives are Environmental Indicators and targets. Indicators facilitate the monitoring aspect of the SEA, while targets provide a realistic and achievable target to which the Local Authority can work towards. The indicators are discussed in more detail in Chapter 10.

Environmental Parameter		Objective
Biodiversity	B1	Promote measures to protect biodiversity by creating and improving habitats, where possible
Population	P1	Improve people's quality of life based on high-quality working and environments and on sustainable travel patterns
Human Health	H1	Minimise noise, vibration and emissions from traffic, industrial processes and industry
Soil	S1	Maintain the quality of soils
	S2	Maximise the sustainable re-use of brownfield lands, and maximise and prioritise the use of the existing built environment rather than developing greenfield lands
	S3	Minimise the amount of waste to landfill
Water	W1	Promote sustainable water use based on a long-term protection of available water resources
	W2	To improve water quality of the surface and ground water bodies and support the achievement of the WFD objectives
	W3	Mitigate the effects of floods and droughts including vulnerability to climate change.
Air	A1	Reduce all forms of air pollution
	A2	Minimise emissions of greenhouse gases to contribute to a reduction and avoidance of human-induced global climate change
Material Assets	MA1	Maximise use of the existing built environment
	MA2	To avoid significant negative impacts in terms of traffic levels accessing and exiting the airport
	MA3	Maintain water abstraction, run-off and recharge within carrying capacity (including future capacity) at environmentally sustainable levels.
	MA4	Reduce waste of energy, and maximise use of renewable energy sources
Cultural Heritage	CH1	Promote the protection and conservation of the cultural, including architectural and archaeological, heritage
Landscape	L1	Ensure the provision of high quality built environment and public realm

Table 8: Strategic Environmental Objectives

7.0 Alternatives

7.1 Introduction

The issue of alternatives is a critical function of the SEA process and is necessary to evaluate the likely environmental consequences of a range of alternative development strategies for the Masterplan area within the constraints imposed by surrounding conditions. The alternatives were considered throughout the process and through an iterative process with the Masterplan, SEA and AA teams the most appropriate scenario was selected.

7.2 Legislative context

Article 5 of the SEA Directive requires the consideration of reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme and the significant environmental effects of the alternatives proposed. It states under Article 5(1) that;

Where an environmental assessment is required under Article 3(1), an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated. The information to be given for this purpose is referred to in Annex I.

In accordance with SEA guidelines the alternatives put forward should be reasonable, realistic and capable of implementation. They should also be in line with the appropriate strategic level at which the Plan will be implemented within the national and county planning hierarchy. The Dublin Airport Central Masterplan will be framed within a policy context set by a hierarchy of National, Regional and County level strategic plans as well as the Irish and European legislative framework. Therefore the options for alternatives are limited, and a scenario such as the 'do-nothing' situation has not been included as it is neither appropriate, reasonable nor realistic.

The alternatives proposed have been assessed against the relevant Strategic Environmental Objectives (SEOs) established for the key aspects of the environment likely to be affected by the Plan's implementation. The evaluation process resulted in the identification of potential impacts and informed the selection of the preferred development scenario for the Dublin Airport Central Masterplan. This determination sought to understand whether each alternative was likely to improve, conflict with, or have a neutral interaction with the environment of the plan area.

7.3 Methodology for the Selection of Alternatives

The Masterplan is based on the principles of sustainable development which means that development will be promoted in accordance with the appropriate international, national, regional and county guidelines.

The consideration of alternatives is restricted by the extent of land identified for development. On this basis, it was considered the most realistic alternatives were based upon density and by

the existing airport related constraints imposed by the operating airport surrounding the Masterplan lands and THESE WERE assessed against the SEOs established in the SEA.

The three alternatives assessed were:

- a) Low Density Development
- b) Medium Density Development
- c) High Density Development

Alternative 1: Low Density Development

This approach to the future development of the Dublin Airport Central lands would result in a low density of development akin to the existing airport campus. The overall building heights vary between 2 and 6 levels with strategically positioned signature buildings of 8 levels that form an exception to this rule. This alternative allows for the maximum amount of sunlight penetration on the site. The proposed office clusters are spread out and surrounded by landscaping areas and surface level car-parking. Given the economic potential and significance of the site it was considered that a low density scenario failed to re-use these valuable brownfield lands efficiently and did not optimise infrastructure investment.

Alternative 2: Medium Density Development

The overall building heights vary between 4 and 10 levels with strategically positioned signature buildings of 12 levels that form an exception to this rule. The composition of the variation of height guarantees a pleasant human scale in the public space and a balanced distribution of density over the site. It also allows view lines and an appropriate level of sunlight to penetrate the site. The proposed office clusters are supported by an approach to the public realm that is focused on developing public open spaces that are of a high quality, distinctive and legible. The framework includes three different categories of public open space: the Transition Square, the Green Lung, and the plazas within the development clusters. It was considered that the medium density, supported by infrastructure investment in a phased manner, provided the most

Alternative 3: High Density Development

The overall building heights vary between 8 and 12 levels with strategically positioned signature buildings of 16 levels that form an exception to this rule. Instead of providing for variations in height the established shoulder height would be at the upper level, reducing daylight penetration and providing for an intensified reliance on infrastructure. The approach towards public realm is that of hardscaping and no significant open spaces. In addition high-level of car-parking would be required to meet the demands of employees and airport visitors. The high density scenario would put overbearing pressure on infrastructure investment, was visually intrusive and had significant transportation impacts.

7.4 Consideration against the SEOs of the Masterplan

This assessment is undertaken to identify any potential issues in relation to the alternative development scenarios proposed and to identify which is most suitable. This essentially is a thorough review of the approaches from an environmental perspective. This assessment was used to inform the overall approach towards the future development of Dublin Airport Central lands as would be pursued and facilitated by the Masterplan policies and objectives.

	Human Beings	Soil and Geology	Biodiversity	Surface Water	Groundwater	Flooding	Air Quality	Climate Change	Noise	Landscape	Cultural Heritage	Energy	Wastewater	Water	Transport	Waste Management
Alternative 1	Potential Positive Impact									Potential Positive Impact						
Alternative 2	Potential Positive Impact		Potential Negative Impact		Potential Negative Impact					Potential Positive Impact		Potential Negative Impact		Potential Negative Impact	Potential Negative Impact	
Alternative 3	Potential Negative Impact		Potential Negative Impact	Potential Negative Impact	Potential Negative Impact					Potential Negative Impact		Potential Negative Impact	Potential Negative Impact	Potential Negative Impact	Potential Negative Impact	Potential Negative Impact
	<div style="display: flex; justify-content: space-between; width: 100%;"> Potential Positive Impact Potential Neutral Impact Potential Negative Impact Uncertain Impact </div>															

Table 12: Assessment of Alternatives against SEOs

The potential uncertainties or negative impacts identified in the assessment relate to localised impacts which may occur as a result of development of these alternatives. However these potential uncertainties can be dealt with at planning application stage and are mitigated against by protective policies contained in the draft Plan with regards to transport, biodiversity and landscape etc.

7.5 Conclusions

The alternatives reviewed represent choices that are available to the planning authority in facilitating the balance of growth and environmental protection.

The density and location of future economic development requires a balance between the desires to increase the number of people employed in the Masterplan area through consolidating development clusters, maintaining the operation of the Airport and its supporting infrastructure and the need to protect the natural environment. The selection of Alternative 2 represents an appropriate balance between the competing environmental objectives.

8.0 Strategic Environmental Assessment of Masterplan

8.1 Introduction

The SEA process ensures that the environment is central to all decisions on the future development of the plan area.

The purpose of this section of the Environmental Report is to highlight the potential conflicts, if they are present, between the stated policies and objectives contained in the Masterplan with the Strategic Environmental Objectives. Furthermore the assessment examines the potential impact arising from the Plan's implementation of its policies and objectives on sensitive environmental receptors.

The process of SEA and Masterplan formulation is an iterative one and as such environmental considerations have informed all stages of plan preparation carried out to date in order for the potential for significant adverse effects arising from implementation of the plan to be minimised. Nonetheless, it is possible that some individual plan objectives or policies will create such effects. Where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts; where this is not possible for stated reasons, to lessening or offsetting those effects through mitigation measures outlined in Chapter 9 of this report.

In some instances there is little or no relationship between the various Plan Policies/Objectives and the respective environmental receptor. Where this occurs no further discussion is deemed necessary. This has been determined through an initial screening of the Masterplan policies and objectives which ascertains if policies are likely to have a positive, negative or neutral impact on the environment. This screening process allows the assessment to focus more efficiently on the pertinent issues. The assessment matrices are provided indicating where the screening process has in the first instance identified an impact which may potentially arise due to the implementation of policy/objective contained within the Plan. Similarly where a conflict exists between a Strategic Environmental Objective and an Objective this is noted and discussed.

This initial stage aims to ascertain the quality, if any, of the potential impact. Each of the Plan's policies and objectives have been screened for their impact and where a neutral impact is noted no further discussion is provided within this report. This format allows for the ER to focus on the positive and negative impacts and proceed to a discussion on their significance and duration. Thus it is a more robust, more focused approach to understanding the potential impacts associated with the Plan's implementation.

8.2 Environmental Assessment

The preliminary phase of this assessment identifies the quality of the potential impact on the environment as a result of the policies and objectives of the Masterplan. Table 12 below highlights where the impact may be either potentially positive (green); neutral (white); potentially negative (yellow); or uncertain (blue). Where a neutral impact is identified no further discussion is deemed necessary. However it is acknowledged localised issues may arise depending on site specific issues and the type of development proposed. The assessment

contained herein deals with strategic issues alone, for potential localised impacts the Mitigation section contained in Chapter 9 should be consulted.

It has been determined that there are a number of policies/objectives where the impact is potentially negative. The significant issues are discussed in the following sections. A comprehensive and detailed set of mitigation measures are provided in Chapter 9 which effectively reduces or eliminates identified negative impacts. Similarly, monitoring the implementation of the plan, as discussed in Chapter 10, will ensure that if any negative impact becomes a reality it will be identified at an early stage and appropriate actions taken by the relevant authority/agency to remedy the situation.

In general terms the Masterplan, in its current form will have a positive effect on the environment as a whole.

8.3 Human Beings

The purpose of the Masterplan in broad terms is to promote, manage and control development within the plan area over the lifetime of the plan in order to achieve a balance between economic and environmental considerations thereby benefitting the future employees and visitors of the area both now and in the future. The initial screening aspect of the assessment presented indicates the Plan will impact positively on the area's employees. However the assessment of the Plan's implementation on other receptors fully considers the consequences of the Plan's implementation on Human Beings. For instance where an aspect of the environment relates to or overlaps with the broad issue of human health such as air quality or water quality, this aspect of 'human health' is addressed under that topic.

The potential impacts for Population and Human Health are predominantly positive as it is proposed to provide for new employment facilities, improve infrastructure, and integrate land use and transport.

8.4 Soil and Geology

The assessment reveals that the majority of policies and objectives are neutral on Soils & Geology. A number of the objectives within the Masterplan will result in a positive effect at a strategic level on the soil and geology aspect of the environment.

The essential redevelopment of existing made lands within the plan area reduces the requirement of development on greenfield sites thus protecting potentially valuable agricultural resource. The implementation of these strategic objectives will contribute positive impact on the soil and geology element of the environment.

The screening assessment identified a positive impact on this aspect of the environment due to the implementation of the Plan's policies and objectives in relation to the natural environment.

8.5 Biodiversity

The plan area is situated in a low sensitive environment for flora and fauna and as such in overall neutral towards impacts on biodiversity. The primary concerns relate to the interaction between infrastructure proposals and transport objectives and potential pathways to designated sites. Many of these are screened as uncertain at this stage and would be subject to detailed environmental assessment during the planning process. The possible interactions are dealt with in more detail in the accompanying Natura Impact Report.

8.6 Water Quality

The screening assessment identified a generally neutral impact on water quality (water, groundwater, surface water and flooding) due to the implementation of the Plan's policies. Development will be subject to necessary infrastructure in place to accommodate the needs of that development. This will therefore result in a positive impact on the quality of waters within the plan area.

The Plan provides considerable protection of vulnerable and valuable water resources and thus the effect of the Plan's policies and objectives contained within this section of the Plan will result in a positive impact on water resources.

The Council has provided specific policy and objectives relating to water quality, both ground and surface.

In order to ensure both public health and environmental protection, it is essential that any new dwelling is served by drainage arrangements that meet the Council's requirements and standards. Therefore the following policies are encouraged as they are likely to have profound positive impacts on the water environment of the plan area.

Proposals for mitigation and management of flood risk will only be considered where avoidance is not possible and where development can be clearly justified with the justification test outlined in the "Planning System and Flood Risk Management – Guidelines for Planning Authorities".

In those areas where an Initial Assessment indicated a risk of minor localised flooding, the SFRA recommended that site-specific Flood Risk Assessment be carried out for any proposals for development of these lands. These site-specific assessments should be appropriate to the nature and scale of the development being proposed.

8.7 Material Assets – Transport

Broadly speaking the policies and objectives relevant to the Transport (Material Assets) aspect of the environment are positive and will assist in increasing the sustainable movement of people and goods throughout the County. The promotion of sustainable travel patterns through reduced requirement on cars and the increased provision of cycling and pedestrian routes will have positive impacts.

The adoption of a sequential approach to development of zoned lands will ensure the viability of transport infrastructure and provision of alternatives to the private car.

Implementation of the above policies and the supporting objectives regarding transport will in general have a positive or neutral impact and will have secondary positive impacts on climate change and air quality. There are a number of identified indirect uncertainties with regard to flooding and impact on biodiversity and landscape.

8.8 Material Assets – Waste Services

This section of the assessment ascertains how the policies and objectives of the Masterplan are likely to impact on the supply of water and disposal of wastewater and waste management throughout the Plan Area.

Wastewater

The existing wastewater infrastructure is at capacity and has been identified as a critical requirement to the development of these lands. As a result of the inclusion of policies and objectives to ensure wastewater infrastructure is maintained is a positive for wastewater the assessment has identified a likely neutral to positive impact in this regard through the implementation of said objectives of the Masterplan.

Waste Management

With regard to waste management the policies of the Plan which support the reduction of the amount of waste that ends up in landfill / incineration have a positive to neutral impact on the plan area. Additionally they will have secondary positive impacts on climate change and human beings.

8.9 Noise

In overall terms the policies and objectives of the Plan have been found likely to have a positive to neutral impact on this aspect of the environment. While implementation of policies and objectives contained in the plan are likely to have a positive impact on noise the potential exists for site specific impacts to occur as a result of development. This of course will be dependent on the nature and specifics of that development and where it will be located. Any potential negative impacts will be mitigated for and will be dealt with on a site specific basis through the development management process.

8.10 Air Quality

The Plan acknowledges there is an increase in private car use, however it also aims to promote more sustainable modes of transport which will impact positively on air quality. The plan also promotes a shift towards more sustainable travel modes and seeks to reduce the requirements of car based commuting to the Airport.

The plan is committed to the promotion of sustainable means of travel, and the encouragement of modal change from the private car. The emphasis will be on achieving a situation where the employees of the plan area can access high-quality reliable public transport alternatives.

8.11 Energy

Energy infrastructure is critical for the sustainable development of the plan area. The assessment of the policies and objectives contained within the Plan has resulted in a generally neutral impact on the environment of the plan area.

8.12 Climate Change

The fundamental objective of fostering sustainability and reducing the levels of pollution and emissions caused through development is central to the formulation of the policies and objectives of the Masterplan.

Thus the need to reduce the amount of energy generated as a result of transportation has been to the fore in the proposed transportation and settlement strategies pursued in this Masterplan.

Flooding is a natural phenomenon of the hydrological cycle which is predicted to increase as a result of ongoing climatic changes. An increase in rainfall intensity as a result of climate change could have severe consequences for flooding and in particular the severity of flood events.

Fingal is committed to pursuing sustainable energy policies in accordance with the White Paper, 'Towards a Sustainable Energy Future for Ireland 2007-2020'. Improving energy efficiency is a key step in a sustainable energy policy. Energy efficiency is internationally recognised as the most cost-effective means of reducing dependence on fossil fuels.

8.13 Cultural Heritage

In general the policies and objectives contained within the Masterplan are positive to neutral for impacts on Cultural Heritage however the interaction between extensive development objectives and cultural heritage can result in uncertain or potential negative impacts. Development proposals should therefore consider areas where archaeological findings may be located.

8.14 Landscape

The screening assessment identified potential impacts on the landscape arising from the implementation of the Plan's policies and objectives on this aspect of the environment.

Planning applications in sensitive visual locations shall be accompanied by a Visual Impact Assessment, including cross sections and photomontages to assist the Planning Authority in determining the full visual impact of proposed development on the plan lands and on the high amenity lands adjoining. This should form part of the overall urban design appraisal.

As with Biodiversity and Cultural Heritage potential negatives or uncertainties have been identified from the interaction between recreation and green infrastructure policies and objectives. Additionally Energy and communications and transport infrastructure can and do have an impact on the landscape.

Development proposals that arise as a result of these policies and objectives will be assessed on a case by case basis and any potential negative impacts on this aspect of the environment will be assessed during the planning process.

Table 12: Strategic Environmental Assessment of Policies and Objectives

Masterplan Objective	Human Beings	Soil and Geology	Biodiversity	Surface Water	Groundwater	Flooding	Air Quality	Climate Change	Noise	Landscape	Cultural Heritage	Energy	Wastewater	Water	Transport	Waste Management
MP1	Green															
MP2	Green															
MP3	Green			Blue			Blue	Blue	Blue	Blue			Blue		Yellow	
MP4																
MP5	Green															
MP6	Green															
MP7	Green									Blue						
MP8															Yellow	
MP9								Green								
BDG1	Green															
BDG2	Green									Green						
BDG3	Green									Green						
BDG4	Green		Green							Green						
BDG5	Green									Green						
BDG6	Green															
PR1	Green									Green						
PR2	Green		Green							Green						
MA1															Green	
MA2															Green	
MA3															Green	
MA4															Yellow	
MA5															Green	
MA6															Green	

Potential Positive Impact

Potential Neutral Impact

Potential Negative Impact

Uncertain Impact

Table 12: Strategic Environmental Assessment of Policies and Objectives contd.

Masterplan Objective	Human Beings	Soil and Geology	Biodiversity	Surface Water	Groundwater	Flooding	Air Quality	Climate Change	Noise	Landscape	Cultural Heritage	Energy	Wastewater	Water	Transport	Waste Management
UT1	Green			Green	Green							Green	Green	Green		Green
UT2								Green		Blue		Green				
UT3	Green									Green						
UT4	Green															
UT5			Yellow											Green		
UT6			Yellow										Green			
UT7													Green			
UT8													Green			
UT9		Green		Green	Green											
UT10		Green			Green								Green			
UT11		Green		Green	Green											
UT12		Green		Green	Green											
FL1						Green										
FL2						Green										
EH1			Green													
EH2			Green													
EH3										Green	Green					
EH4										Green	Green					
N1									Green							
WQ1													Green			
AQ1							Green	Green								
C1								Green								Green

Potential Positive Impact

Potential Neutral Impact

Potential Negative Impact

Uncertain Impact

9.0 Mitigation Measures

9.1 Introduction

The quality of the environment within plan area is an important issue for consideration by Fingal County Council. This has been recognised throughout the SEA and Masterplan process and the Plan is framed within ideals of sustainability throughout its vibrant communities, recreation and unique natural heritage.

Article 5 of the SEA Directive requires that mitigation measures be proposed for all significant adverse effects on the environment as a result of the implementation of the Masterplan. The SEA is an iterative process prepared in tandem with the formulation of the policies and objectives of the Masterplan. While not always possible to achieve, it is the aim of the process to ensure that sensitive environmental receptors are given adequate and appropriate consideration throughout.

9.2 How the SEA has Influenced the Masterplan

As environmental considerations have informed all stages of the preparation of the Dublin Airport Central Masterplan, the policies and objectives of the Plan have been framed to ensure that potential adverse impacts are avoided, eliminated or lessened to an acceptable level. As a result of this informed iterative process, it is the finding of the assessment of the Masterplan as presented in Chapter 8 of this SEA Report, that the full implementation of the Plan, will have a neutral to positive impact on the environment as a whole.

Integration between SEA, AA and the preparation of the Plan was achieved through reviews of the emerging Masterplan and through workshop meetings at the key stages with relevant SEA, AA and Plan team members. This process allowed for an iterative and proactive approach to the preparation of the Masterplan with preliminary and on-going assessment and review of the emerging Masterplan.

9.3 Mitigation Measures

Given the plan area's environmental designations and landscape sensitivities there were a number of uncertain and potential negative impacts identified as a result of interactions between the Masterplan policies and objectives and the Strategic Environmental Objectives. In most instances potential uncertainties or negative impacts could be mitigated against by the protective policies already contained within the Masterplan.

A detailed assessment of the Masterplan policies/ objectives was undertaken (as per Chapter 8) and the proposed mitigation is presented in Table 18.

Environmental Report Chapter 9: Mitigation Measures

Table 13: Mitigation Measures

Masterplan Objective	Human Beings	Soil and Geology	Biodiversity	Surface Water	Groundwater	Flooding	Air Quality	Climate Change	Noise	Landscape	Cultural Heritage	Energy	Wastewater	Water	Transport	Waste Management	Mitigation
MP3	Potential Positive Impact			Potential Negative Impact			Potential Negative Impact	Potential Negative Impact	Potential Negative Impact				Potential Negative Impact		Potential Negative Impact		Mitigated by Obj UT9, UT10, AQ1, N1, UT8, PR1, MA3 & MA4
MP7	Potential Positive Impact								Potential Negative Impact								Mitigated by Obj PR1, PR2, MA2, MA3, MA4 & MA5
MP8																	Mitigated by Obj MA1, MA2, MA3, MA4 & MA5
MA4																	Mitigated by Obj MA1, MA2, MA3, MA4 & MA5
UT2							Potential Positive Impact		Potential Negative Impact		Potential Positive Impact						Mitigated by Obj UT2, PR1, PR2 & C1
UT5			Potential Negative Impact										Potential Positive Impact				Mitigated by Obj EH2
UT6			Potential Negative Impact									Potential Positive Impact					Mitigated by Obj EH2

Potential Positive Impact	Potential Neutral Impact	Potential Negative Impact	Uncertain Impact
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In instances where mitigation was not deemed possible through existing policies or objectives mitigation measures were proposed in the form of the insertion of new policies/ objectives and/or amendments to the text of policies/objectives as can be seen in Table 19.

The mitigation included assumes requirements for environmental assessment in accordance with the normal development management process and EIA Directive as a given. These proposed amendments have been incorporated into the Masterplan and as such there are no residual impacts from these policies and objectives.

10.0 Masterplan Monitoring

10.1 Introduction

Given the environment is an evolving and multi-focused environment it is considered that a progress report on the implementation of the Masterplan is considered of critical importance for the ongoing and future development of the Masterplan specific and adjacent lands. The report will include the key findings of the environmental monitoring programme as outlined in this chapter of the Environmental Report.

Monitoring of the Dublin Airport Central Masterplan and its implications on the environment is paramount to ensure that the environment is not adversely affected through the implementation of the Plan. Under Article 10 of the SEA Directive monitoring must be carried out of the significant environmental effects directly related to the implementation of the Plan *“in order to, inter alia, identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action.”* The Department of the Environment, Community and Local Government Guidelines on SEA recommends that monitoring does not require new research activity; existing sources of information can be used and the task of data collection can be shared.

While considerable environmental data is directly available to the Council such as water quality, recycling rates etc, other sources of information will be accessed to provide a comprehensive view of the impact of the Plan. In this regard the Local Authority will work with other agencies with environmental mandates to gather data for the purposes of monitoring the implementation of the Plan. Therefore, while monitoring specific elements of the environment is not strictly the preserve of the Council, the Council will continue to liaise and work with daa, the Environmental Protection Agency and The National Parks and Wildlife Service, as well as others in the pursuit of environmental conservation and protection through existing environmental monitoring procedures.

10.2 Monitoring Indicators

It is proposed to base monitoring on a series of indicators which measure changes in the environment, especially changes which are critical in terms of environmental quality, for example water or air pollution levels. The indicators aim to simplify complex interrelationships and provide information about environmental issues which is easy to understand. A list of environmental indicators is provided in the table overleaf. The indicators are based on the Strategic Environmental Objectives presented in Chapter 6 and have been derived from knowledge of the existing environmental issues within the Plan area and also from legislation, guidelines and higher level Plans.

The Fingal Development Plan is currently under review and the Draft Fingal Development Plan 2017-2023 including Environmental Report is on public display. It is considered appropriate that the monitoring programme for the Dublin Airport Central Masterplan is integrated with the monitoring programme for the adopted Fingal County Development Plan 2017-2023.

Environmental indicator assessment during monitoring can show positive/neutral impacts or negative impacts on the environment. Where an indicator value highlights a positive/neutral impact on the environment, it is likely that the policies and objectives of the Plan are well defined with regard to the environment. Conversely where the objectives of the Plan have a

negative impact on the environment, it may be necessary to review the objectives of the Plan or to take some other form of intervention. For example, if an objective or policy is having a significant adverse impact, a variation may be considered during the lifetime of the Plan.

Table 14: Proposed Monitoring Indicators

Environmental Category	Targets	Selected indicators	Data Sources/ Responsibility	Frequency*
Biodiversity	To avoid impacts on the integrity of European Conservation Sites (SACs and SPAs) and nationally designated sites (NHAs).	Number of rare or threatened species.	Fingal County Council Parks Department/NPWS	Annually
		Project level HDA carried out	Fingal County Council Planning Department	Bi-annually
		Net area of new green infrastructure established through the development management process.	Fingal County Council Planning/Parks Department	Annually
Population & Human Health	To increase accessibility to economic and employment opportunities.	Distance and mode of transport to work	Fingal County Council	Census Periods
	Increase modal shift towards sustainable transport	Travel and Traffic Surveys at individual planning application level.	daa/Fingal County Council/TII	Bi-annually
Soil & Geology	No incidences of soil contamination	Number/severity of recorded pollution incidences	Fingal County Council & EPA	Annually
	Extensive use of SUDs measures in all development	Extent of SUDs systems put in place	Fingal County Council	Annually
Water	Implement fully the recommendations of the three relevant River Basin Districts River Basin Management Plans.	Number of recommendations achieved.	Fingal County Council/EPA/Irish Water	Annually
	Achieve 'good' quality status of surface waters in line with WFD	Percentage increase in the overall quality of ground waters.	Fingal County Council/EPA/Irish Water	Annually
	Maintain and upgrade where necessary water infrastructure	Compliance with discharge parameters.	Fingal County Council/EPA/Irish Water	Annually
Air Quality	Improvement in the concentrations of measured parameters such as Particulate Matter, Sulphur Dioxide and nitrogen oxides.	Measurable reductions in concentrations.	EPA	Annually
Climate change	To contribute to the reduction of greenhouse gas emissions arising from transport-related activities	Levels of Sectoral GHG emissions & Atmospheric Carbon Dioxide Levels	EPA	Annually
		Mode of travel patterns	NTA/ daa	Bi-annually
Material Assets	Increase modal shift towards sustainable transport	Travel and Traffic Surveys at individual planning application level.	daa/Fingal County Council/TII	Bi-annually
	assist with the reuse and regeneration of brownfield sites.	Ratio of brownfield site development to greenfield sites.	Fingal County Council	Annually
	Improved treatment at established wastewater treatment facilities	Compliance with discharge limits	Fingal County Council/EPA	Annually
	Reduction in the tonnage of overall waste produced and an increase in the percentage of waste recycled.	Tonnage of waste produced and recycled.	Fingal County Council/EPA	Annually
Noise	To support the objectives of the Environmental Noise Directive in relation to transport-related noise.	Monitoring and reporting associated with the Noise Action Plan	Fingal County Council	Annually
Cultural Heritage	No loss of features of architectural or archaeological importance	Number of recorded features lost.	Fingal County Council, The Archaeological Survey monitoring programme, Ireland; Buildings at Risk Register - Heritage Council Ireland	Annually
Landscape	To avoid or, where infeasible, minimise impacts on designated and protected landscapes and conservation areas.	Overall area of public realm/open space provided in line with objectives for Green Lung/ Transitional Square etc.	Fingal County Council	Bi-annually
		Consideration of Visual Impact Assessment Studies	Fingal County Council.	Annually

* Recommended frequency however it is suggested that monitoring indicators and frequency be in line with the County Development Plan once approved and therefore these are subject to change.

11.0 Conclusion

The Dublin Airport Central Masterplan and its policies and supporting objectives are key to the future sustainable development of Dublin Airport Central lands and its surrounding area. The Plan aims to balance the future development of Dublin Airport and its working population with the preservation and conservation of the environment as prescribed in the County Development Plan. The Plan has a strong focus towards sustainability.

The Strategic Environmental Assessment process has been carried out in conjunction with the Appropriate Assessment of the Plan and the preparation of the Plan itself. This allows for an early indication of the potential environmental effects likely to occur as a result of the implementation of the Plan. As a result changes or alterations to the Plan are made throughout the course of its preparation. Through this process of assessment and re-assessment, it was identified that particular objectives or policies could potentially have a negative environmental impact on particular environmental receptors or indeed on a number of them simultaneously. The benefit therefore of preparing the Plan, the AA Screening, and the Environment Report ensures that these issues are highlighted at an early stage in the process. This allows the potential negative impacts of the Plan to be addressed early on and effectively eliminated from the Masterplan.

The objectives contained within the Plan were assessed against the Strategic Environmental Objectives and indicate that the full implementation of the Plan will not result in a significant negative or adverse impact on the environmental resources within the Plan area. It has been shown in this report that the Plan's policies and objectives are generally consistent with this summary and as a result the Plan will have a neutral to positive impact on the environment as a whole.

Where the SEA has found potential for negative impacts on the environment as a result of the Plan's implementation, mitigation as well as enhancement measures have been proposed. The implementation of these measures, coupled with the monitoring procedures will ensure the Masterplan is acceptable from an environmental perspective.

In addition AA Screening of the Masterplan was undertaken to give information on and consider the potential of the Masterplan to impact on sites of European-scale ecological importance. It determines that, assuming the successful implementation of the Policies and Objectives, there will be no likely significant effects on the European sites in the zone of influence of the Masterplan in isolation or in combination with other Plans and Projects acting in the same area.

Finally at the outset of the assessment process, a number of environmental issues and challenges were identified and set out in the Masterplan. While these are and remain the key environmental challenges facing the development of Dublin Airport over and above levels permitted under this Masterplan, they also have complex interrelationships with other environmental receptors. Therefore, the imperative is to promote a holistic, all-inclusive response towards the protection of the environment, both within and surrounding the Plan area.

In summary, the assessment of the Plan has concluded that its policies and objectives are acceptable and represent a balanced and fair approach to the sustainable development of Zone 1 of Dublin Airport Central. Monitoring of the Plan throughout its lifetime will ensure that any potential adverse environmental impacts, unforeseen at this stage will be identified early, so as to prevent any deterioration of the environment. This Masterplan, as currently presented, balances

growth with environmental protection and can deliver a sustainable future for the development and expansion of Dublin Airport and its surrounding area.