



NATURE-BASED SOLUTIONS



OVERVIEW

10 PUBLIC PARKS MAINTAINED
BY FINGAL COUNTY COUNCIL

RESPONSIBLE FOR PROTECTING
2,000 HECTARES OF OPEN SPACE

13 BEACHES AT
RISK OF COASTAL
EROSION

TARGET



A CLIMATE-RESILIENT REGION

PREVENTING HABITAT LOSS

PROTECTING NATIVE SPECIES,
PARKS AND TREE COVER

EXAMPLES OF MAIN ACTION TYPES

Develop Green
Infrastructure Strategy



Map access to
green spaces in the County

Prepare a climate
proof biodiversity plan



Identify sites for
woodland planting

Map and protect strategic
agricultural land



Develop climate change initiatives
in partnership with local farmers

STAKEHOLDERS TO WORK WITH AND INFLUENCE

GOVERNMENT
DEPARTMENTS

PRIVATE
CITIZENS

DUBLIN BAY
BIOSPHERE PARTNERSHIP

COMMUNITY
GROUPS

ENVIRONMENTAL
GROUPS

SCHOOLS AND THIRD
LEVEL INSTITUTIONS





Recognising that as a society and economy we depend on nature and natural systems and that we need to sustain this ‘natural capital’ because it provides us with a multitude of benefits (including food, clean water, clean air and raw materials) and functions (such as temperature regulation and flood control).

- Fingal Development Plan 2017-2023

Nature-based solutions are defined by the International Union for Conservation of Nature as “actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits”^[28].

Nature-based solutions are critical in climate change adaptation; they can play an important role not only for biodiversity and ecosystems, in flood prevention and carbon sequestration, but also in temperature regulation, water quality erosion prevention, and filtering pollutants from the air and water. Nature-based solutions are used in a smart, ‘engineered’ way to provide sustainable, cost-effective, and adaptable measures that support climate resilience. Trees and plants reduce water run-off in extreme rain events, taking pressure off the urban drainage system. They also prevent soil erosion. Natural environments, such as wetlands, river banks and beaches form buffers to reduce the impact of climate change events.

All of these solutions have the added value of providing recreation opportunities, while building resilience to climate change.

Of the four local authority areas in Dublin, Fingal is the largest in terms of geographical size. The County is diverse, with several large urban centres, rural villages, agricultural land, river valleys, estuaries, and extensive dunes and beaches. Fingal County Council will work to protect these natural features so that both current and future generations can enjoy their many benefits.

GREEN INFRASTRUCTURE



Develop the green infrastructure network to ensure the conservation and enhancement of biodiversity, including the protection of European Sites, the provision of accessible parks, open spaces and recreational facilities (including allotments and community gardens), the sustainable management of water, the maintenance of landscape character including historic landscape character and the protection and enhancement of the architectural and archaeological heritage

- Fingal Development Plan 2017-2023

The European Commission broadly defines green infrastructure as “a strategically planned network of high quality natural and semi-natural areas with other environmental features, which is designed and managed to deliver a wide range of ecosystem services and protect biodiversity in both rural and urban settings”^[29].

Fingal’s *Keeping It Green Open Space Strategy* emphasises the importance of nature and green infrastructure in the health and well-being of people who live in the County. It is FCC’s goal through this Climate Change Action Plan to plan for a public realm that promotes walkability by creating streets and spaces that are beautiful and inviting with trees and plants, which simultaneously help with flood management and promote biodiversity. Green infrastructure plays a vital role in this and helps in climate change mitigation and adaptation, by reducing CO₂ in the air and absorbing water, and cooling the urban environment.





Fingal County Council is responsible for 2,000 hectares of open space that are managed in a sustainable manner to ensure that future generations can enjoy the benefits of these amenities in terms of recreation, health and well-being. These parks and open spaces are vital in adapting to climate change and mitigating future impacts.

CASE STUDY

Wildflower Meadows

Fingal is responsible for over 2,000 hectares of open space. Much of the open space comprised of short grass that would have been cut every two to three weeks throughout the growing season. About 10 years ago, the Council switched to wildflower meadows in bigger open spaces and regional parks. Local farmers harvest the hay once a year. This has reduced the management input into the meadows, thereby reducing petrol consumption and emissions. The wildflower meadows also have a great wildlife benefit and provide a lot of colour in the parks for the visiting public to enjoy.

AGRICULTURE



Agricultural activity in Fingal includes tillage of cereals and other crops, pasture and dairy and is an important part of the economic life of rural Fingal helping to sustain, enhance and maintain the rural economy. Agriculture will continue to be an important component of Fingal's rural economy. The agricultural sector must adapt to the challenges posed by modernisation, restructuring, market development and the increasing importance of environmental issues

- Fingal Development Plan 2017-2023

Fingal is both an urban and a rural County and as such, agriculture plays a key role in the County's economic, environmental and social activities. North County Dublin produces more than half of all the fruit and vegetables in the country.

In 2016, agriculture accounted for 37 GWh of final energy and 23,100 tonnes of CO₂ within the Fingal region. This is equivalent to 1.2% of total emissions in the County. Emissions from agriculture mainly came from livestock, which accounted for 62% of total agricultural emissions, followed by emissions from crops (22%) and horticulture (16%). It should be noted that emissions from agriculture in the Dublin Region are not as high as in other counties in Ireland. This is mainly due to the amount of built-up areas in Dublin, compared to other counties that have more farmland available for agricultural practices.

The agricultural sector is supported to climate-proof activities through encouraging crop diversification and implementing land-use policies that protect the rural environment. Farmers are supported to diversify crops and potentially lease land for renewable energy projects through the Green Low Carbon Agriculture Environment Scheme (GLAS). FCC is also supporting the efforts of communities and schools to undertake urban farming projects and has provided 885 allotments to date.

TREE MANAGEMENT



Existing tree belts should be retained and managed and older stands of trees restocked. Roadside hedging should be retained and managed. Proposals necessitating the removal of extensive field and roadside hedgerows or trees should not be permitted. Strong planting schemes using native species, to integrate development into these open landscapes, will be required.

- Fingal Development Plan 2017-2023

The Tree Canopy Study, carried out by UCD's School of Geography, estimates that in Fingal, trees cover only 6.5% of the total area^[30], and this figure can be as low as 3% in urban areas. However, this is due to different land-uses in Fingal (i.e. when shrubs and grassland are accounted for, the County has 56.8% green cover). Recognising the value of trees, FCC is actively working to protect existing tree belts and plant more trees by implementing the County's Tree Strategy. This will guide the maintenance and care of the 70,000 trees and 400 hectares of woodland that are currently in the County to ensure that their benefits are guaranteed for years to come.

CONSERVATION AND PRESERVATION

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Sustainable Drainage Systems (SuDS) can best be summarised as offering a “total” solution to rainwater management and is applicable in both urban and rural situations...SuDS can also provide amenity benefits to local communities and benefits for biodiversity simultaneously. In this way SuDS features are not just part of the County’s drainage infrastructure but a vital part of the County’s Green Infrastructure.

- Fingal Development Plan 2017-2023

SuDS and Water-Based Solutions

Wetlands, floodplains, lakes and reservoir ecosystems play an important role in the regulation of floods in inland systems and provide protection from the adverse consequences of natural hazards to humans. They also play a role in temperature regulation.

FCC has developed a range of plans and strategies (*Fingal Development Plan 2017-2023*, *Fingal Biodiversity Action Plan*, *The Forest of Fingal – A Tree Strategy for Fingal*) to protect its biodiversity. As Dublin’s natural ecosystems have a critical role in the international migration of various bird species, it is important to protect and conserve these habitats. The expansion of the Dublin Bay Biosphere to areas between Howth Head and Dalkey is ensuring that the mosaic of ecological systems that make up the biosphere are protected. Furthermore, managing the Dublin Bay Biosphere is a collaborative effort with Dublin City Council and Dún Laoghaire-Rathdown County Council, demonstrating the importance of the area to the environmental, economic and social vitality of the Dublin Region.

Eighty-eight kilometres of Dublin’s coastline are found in Fingal; this coastline is diverse and is characterised by three large estuaries (Rogerstown, Malahide, and Baldoyle), which are the most important nature conservation areas in the Fingal area. Critically, these estuaries are at risk of flooding, coastal erosion and sea level rise. Conserving and preserving these estuaries, along with the sand dunes that act as a natural barrier to coastal flood risk, are a priority for FCC, demonstrated by the creation of the Fingal Coastal Liaison Group to develop and recommend solutions.

CASE STUDY



Dublin Bay Biosphere - UNESCO Site

In 1981, UNESCO recognised the importance of Dublin Bay by designating North Bull Island as a biosphere because of its rare and internationally important habitats and species of wildlife. UNESCO’s concept of a biosphere has evolved to include not just areas of ecological value, but also the areas around them and the communities that live and work within these areas. There have since been additional international and national designations, covering much of Dublin Bay, to ensure the protection of its water quality and biodiversity.

The biosphere was expanded in 2015, and now covers all of Dublin Bay and extends to over 300 km². Over 300,000 people live within the newly enlarged biosphere. The Dublin Bay biosphere contains three different zones, which are managed in different ways:

- The core zone of the Dublin Bay biosphere comprises of 50 km² of areas of high natural value. Key areas include the Tolka and Baldoyle Estuaries, Booterstown Marsh, Howth Head, North Bull Island, Dalkey Island and Ireland’s Eye.
- The buffer zone comprises 82 km² of public and private green spaces, such as parks, greenbelts and golf courses, which surround and adjoin the core zones.
- The transition zone comprises 173 km² and forms the outer part of the biosphere. It includes residential areas, harbours, ports and industrial and commercial areas.



NATURE-BASED SOLUTIONS



NO	ACTION	TIMEFRAME	LEAD DEPT(S)	INDICATORS	TARGET(S) IMPACTED
ACTIONS CURRENTLY BUDGETED					
OPERATIONS					
1	Engage with sectoral adaptation plan on biodiversity to identify key habitats and species at risk from climate change impacts	2019	Planning & Strategic Infrastructure	Workshop carried out, risks and responses identified	
2	Engage with regional working group on nature-based solutions once set up	2019	Planning & Strategic Infrastructure	Working group established	
GREEN INFRASTRUCTURE					
3	Develop Green Infrastructure Strategy that incorporates climate change mitigation and adaptation to increase climate resilience	2021	Planning & Strategic Infrastructure	Strategy completed	
4	Map access to green space in County to identify areas of need	2020	Planning & Strategic Infrastructure	Map showing green space and projects	
AGRICULTURE					
5	Engage with the agri-food sector to gain an understanding of how Fingal might better support more sustainable farming practices	Ongoing	Planning & Strategic Infrastructure	Sector engaged	
6	Develop climate change initiatives in partnership with local farmers and other stakeholders	2019 onwards	Planning & Strategic Infrastructure	Initiatives developed	
TREE MANAGEMENT					
7	Review and implement the Tree Strategy to protect existing trees, increase tree cover, establish guidelines on tree maintenance and investigate feasibility of urban orchards	Ongoing	Planning & Strategic Infrastructure / Operations	Tree Strategy implemented, online map of trees and plants across the County	
8	Identify sites for woodland planting	Ongoing	Planning & Strategic Infrastructure	# of sites and acreage of potential woodland identified	



NO	ACTION	TIMEFRAME	LEAD DEPT(S)	INDICATORS	TARGET(S) IMPACTED
9	Map and protect strategic agricultural land for national food security purposes	2022	Planning & Strategic Infrastructure / Teagasc	Resource mapped	
10	Incorporate SuDS into Constructed Tree Pits provided by the Council and in requirements for Constructed Tree Pits conditioned by the Council in Planning Permissions	Ongoing	Planning & Strategic Infrastructure	SuDS incorporated	

CONSERVATION AND PRESERVATION

11	Develop a map of habitats and species at risk of climate change	2019	Planning & Strategic Infrastructure	Map completed	
12	Develop a monitoring programme of the habitats and species considered at risk of climate change	2019	Planning & Strategic Infrastructure	# of monitoring programmes set up for habitats and species	
13	Prepare a climate proof biodiversity plan	2019	Planning & Strategic Infrastructure	Complete review for climate relevant actions and amend accordingly	
14	Support and promote National Biodiversity Data Centre All-Ireland Pollinator Plan Actions for Councils	Ongoing	Planning & Strategic Infrastructure / Operations	Actions implemented	
15	Increase pollinator areas in public parks and open spaces	2019	Operations	Increased pollinator area	
16	Support the use of allotments as a way communities can grow their own food, and lower food miles and food waste	Ongoing	Operations	Increased awareness	

ACTIONS AWAITING BUDGET

17	Prepare a heathland management plan for Howth	2020	Planning & Strategic Infrastructure	Plan produced	
18	Pilot tree planting projects in areas with hard landscaping	2020-2021	Planning & Strategic Infrastructure	Plan produced	
19	Create multi-functional master plans for Rogerstown and Baldoyle Estuaries and their surroundings	2020	Planning & Strategic Infrastructure	Master plans produced	



NO	ACTION	TIMEFRAME	LEAD DEPT(S)	INDICATORS	TARGET(S) IMPACTED
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RELEVANT LEGISLATION/POLICIES/GUIDANCE

- All-Ireland Pollinator Plan 2015-2020
- Dublin Bay Biosphere Biodiversity Conservation and Research Strategy 2016-2020
- Dublin Tree Canopy Study (2017)
- EU Biodiversity Strategy
- EU Birds Directive 2009/147/EC
- European Communities (Birds and Natural Habitats) Regulations 2011 S.I. 477 of 2011
- EU Environmental Impact Assessment Directive 2014/52/EU
- EU Habitats Directive 92/43/EEC
- EU (Planning and Development) (Environmental Impact Assessment) Regulations 2018 S.I. 296 of 2018
- EU (Invasive Alien Species) (Freshwater Crayfish) Regulations 2018
- EU Regulation on Invasive Alien Species - EU Regulation 1143/2014
- EU Strategy on Green Infrastructure 2013
- Fingal Development Plan 2017-2023 (Objectives GI02; GI03; GI10; GI11; GI12; GI13; GI14; GI15; GI16; GI17; NH21; NH49; PM51; PM64; RF100; SS08; SS10; SS11)
- Fingal Local Economic and Community Plan (LECP) 2016-2021 (Actions A85; A91; A92; A102)
- Green Low Carbon Agriculture Environment Scheme (GLAS)
- National Biodiversity Action Plan 2017-2021
- National Landscape Strategy for Ireland 2015-2025
- The Forest of Fingal – A Tree Strategy for Fingal
- Water Framework Directive 2000/60/EC
- Wildlife (and Amendment) Acts 1976-2012