Comhairle Contae
Átha Cliath Theas
South Dublin County Council

codema
Dublin's Energy Agency

STRATEGIC ENVIRONMENTAL ASSESSMENT ENVIRONMENTAL REPORT

SOUTH DUBLIN COUNTY COUNCIL

DRAFT CLIMATE CHANGE ACTION PLAN

2019-2024

CONTENTS

1.1 Purpose of the Non- Technical Summary

This is the Non- Technical Summary of the environmental report for the Strategic Environmental Assessment (SEA) of the South Dublin County Council Draft Climate Change Action Plan (CCAP) 2019-2024. The purpose of the SEA is to formally and systematically assess the likely significant effects of implementing a plan or programme, in this instance the above Climate Change Action Plan 2019-2024.

The Environmental Report identifies the significant environmental effects of the plan on the environment and where significant effects are identified, recommends appropriate measures to avoid or reduce such effects. As the plan is being prepared the SEA identifies and influences proposals, particularly through avoiding areas of greatest environmental sensitivity. This Environmental Report forms part of the SEA process, documents the SEA process and is the key consultation document in the SEA process as it facilitates interested parties to comment on the environmental issues associated with the plan itself. This Environmental Report has been prepared under the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I 435 of 2004).

1.2 Background and Context

For the first time, Dublin's four local authorities have joined together to develop Climate Change Action Plans as a collaborative response to the impact that climate change is having, and will continue to have, on the Dublin Region and its citizens. While each plan is unique to its functional area, they are unified in their approach to climate change adaptation and mitigation, and their commitment to lead by example in tackling this global issue.

These CCAPs follow on from the publication of A Strategy for Climate Change Action Plans for the Dublin Local Authorities (DLAs), which was published in January 2017. The strategy used a structured approach that focused on seven key areas (Citizen Engagement, Planning, Energy, Transport, Water, Waste, and Ecosystems & Biodiversity), and set out how the DLAs would develop the four climate change action plans. The action plans will be unique to each local authority area but synchronised in their methodology.

This plan concentrates on the two approaches required to tackle climate change. The first, mitigation, consists of actions that will reduce current and future GHG emissions; examples of these include reductions in energy use, switching to renewable energy sources and carbon sinks. The second approach, adaptation, consists of actions that will reduce the impacts that are already happening now from our changing climate and those that are projected to happen in the future.

The actions in this draft CCAP for South Dublin County Council will be continually monitored and updated by a dedicated climate action team working across all Council departments. They will be assisted by the newly established Dublin Metropolitan Climate Action Regional Office, which will ensure that the overall plan is fully updated every five years to reflect latest policy, technology and climate-related impacts. The new office will work with Codema, as technical support and research partner, to ensure that the plans continue to be informed by national and international best practice.

The actions in the CCAP are presented around a number of themes as follows:

- Energy and Buildings
- Transport
- Flood Resilience
- Nature Based Solutions
- Resource Management.

Collectively, these address the four targets of this plan, which are:

- A 33% improvement in the Council's energy efficiency by 2020
- A 40% reduction in the Council's greenhouse gas emissions by 2030
- To make Dublin a climate resilient region, by reducing the impacts of future climate change - related events
- To actively engage and inform citizens on climate change.

2 Contents of SEA Environmental Report

2.1 Approach to the SEA.

The SEA has been carried out alongside the CCAP preparation. Table 1 below sets out the stages in the SEA process and how these relate to the plan preparation so far.

Table 1 Stages in the SEA and Plan preparation process

Stage of SEA	Plan
Stage 1 Screening	Screening is the first stage of SEA to determine if the plan requires full SEA. A SEA and Screening for Appropriate Assessment were carried out in December 2018 and it was determined that the CCAP needed to progress to full SEA and Stage II Appropriate Assessment.
Stage 2 Scoping	The purpose of this stage is to work out what environmental topics and issues should be included in the SEA. The Scoping report was issued to statutory bodies including the EPA and National Parks and Wildlife Service to discuss the potential environmental issues, baseline information, and approach to the SEA.
Stage3 Environmental Report-Current Stage	*This is the current stage of the SEA and the CCAP 2019-2024. The Environmental Report tells the story of the CCAP and how environmental considerations have been addressed and included during the draft plan preparation process.* *The screening for appropriate assessment and Natura Impact Report is also discussed in the Environmental Report.* *This report is the main consultation document of the SEA process and hence is on display alongside the plan along with supporting reports.* *Following the public display period there may be changes to the plan and the SEA will also assess these and update the Environmental Report as required.*
Stage 4 SEA Statement	This stage is the final output of the SEA process and tells the story of the SEA process. It is prepared once the plan is finalised and adopted.

2.2 Relationship to other relevant plans and programmes.

Under the SEA Directive, the relationship between the plan and other relevant plans and programmes must be taken into account. A review of the relevant plans and programmes can be found in Appendix B of the SEA ER and a list of same is presented in Chapter 3 of the SEA ER.

The preparation of the plan must be considered within the context of a hierarchy of policies, plans and strategies which include international, national, regional and local level policy documents. These documents set the policy framework within which the plan will operate.

2.3 Current Environmental Baseline.

2.3.1 Population and Human Health

This section provides information on the current population and demographic trends in South Dublin and more broadly at Regional Level. Impacts can arise on people's health and quality of life from a range of environmental factors, often through a combination of environmental impacts such as landuse, water quality, air quality, noise and transport patterns. Many of these may be exacerbated from climate change effects and impacts.

When compared with their surrounding regions, urban areas are considered to be particularly vulnerable to these climatic changes. This is due to: the high concentrations of population, infrastructure and economic activities located in these areas, the exacerbation of climate impacts by urban-scale phenomena and dependency on surrounding regions for service provision[1].

Based on the Census 2016 data, population density varies throughout the county, with implications in terms of provision of services, ecological connectivity and maximising sustainable transport and landuse. In terms of broad trends however greater population densities are present in the east and southeast of the county, closer to Dublin city; whilst the more rural areas including the foothills of the Dublin Mountains and around Saggart reflect this rural landuse and lower population densities.

Human health can be adversely affected by a range of environmental factors and these include air quality with emissions from transport a particular issue; noise can also adversely affect human health.

2.3.2 Biodiversity, Flora and Fauna

Within the County there are habitats of high biodiversity and conservation value and a number of designated sites associated within the county which are designated as Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Natural Heritage Areas (NHAs).

As natural habitats become more fragmented as a result of human activity, habitat patches and corridors within a landscape mosaic become increasingly important for species to allow movement between populations. Within the plan area, ecological corridors can include in particular, roadside grassy verges and streams and other waterbodies. Hedgerows and treelines can also function as locally important corridors for a number of species. Hedgerows are also particularly important for facilitating movement through the landscape for flying insects including butterflies, and bees.

Stepping stones relate to small pockets of habitat can be used by species to shelter, rest or food provision. They can play an important role in facilitating longer distanced dispersal as well as refuges for species to breed in. These can provide important links between larger protected areas and corridors, in this context, this could include small areas of wet grassland, ponds, meadow grassland habitats, and treelines. Important ecological corridors include:

- the Liffey Valley, connecting Wicklow, Kildare, South Dublin, Fingal and Dublin City;
- the Dodder Valley and tributaries, connecting South Dublin, Dun Laoghaire-Rathdown and Dublin City, and the
- Grand Canal which connects the River Shannon to Dublin City, through South Dublin.

2.3.3. Water Resources

Water resources and their quality have a clear interaction and impacts with other environmental parameters, therefore its protection and enhancement is of particular importance.

[1] This paragraph is taken from the Urb Adapt Project Summary running till 2019 will use the Dublin Region as a case study that will allow for the integrated assessment and management of current and future climate vulnerabilities within the context of existing climate and non-climate pressures and spatial planning practices. https://urbadapt.com/

The Water Framework Directive is the key overarching water protection framework and it uses a catchment based approach. A catchment is an area where water is collected by the natural landscape and flows from source through river, lakes and groundwater to the sea. South Dublin is situated within the Liffey and Dublin Bay Catchment (code: 09). The area of this catchment covers 1,624,42km^2 and supports a total population density of 777 people per km^2.

A strategic flood risk assessment was undertaken as part of the South Dublin County Development Plan 2016-2022. South Dublin is particularly vulnerable to fluvial and pluvial flooding events which occur as a result of storm events. The Dodder River, due to the short, steep descent between its source in the Wicklow Mountains, and the point at which it flows through built up urban areas, has a history of severe flooding events.

2.3.4 Soil and Geology

The northern half of South Dublin is formed of Carboniferous Limestone rocks deposited in a deep marine basin. These rocks were formed around 340 million years ago and are faulted against the older rocks along the base of the Dublin Mountains. Over the past 2 million years the Ice Age had a big effect on the landscape, eroding the mountains, depositing glacial gravels in places and then rivers such as the Dodder and Liffey have been active in recent times, modifying the sediments at surface. Bedrock geology around the foothills and upper hills of the Dublin Mountains which comprise the southern part of the county are more varied in origin and formation.

South Dublin includes existing areas under agricultural landuse and it is important to both recognise and promote this role in terms of the carbon storage capacity of soil, potential biodiversity and water benefits (subject to agricultural practice) and food security. There are 425 council allotments at four locations across South Dublin, ranging in size from 50 square metres to 250 square metres. These are located at

- Tymon Park, Tallaght – 13
- Corkagh Park, Clondalkin – 39
- Friarstown, Bohernabreena – 297
- Mill Lane, Palmerstown – 76.

2.3.5 Cultural Heritage

The heritage assets which South Dublin possesses are a reminder of the predominantly rural history of the County. These structures and objects store the folk memory of the rural villages, such as Clondalkin, Lucan and Tallaght, now subsumed within the Dublin Metropolitan area. Additionally, preserved buildings, remnant agricultural farm buildings and ancient walls and field systems also help acknowledge the recent past in places such as Saggart, Newcastle and Rathcoole, which are now subject to urban development pressure. The built form, materials and construction methods of older buildings help to illustrate to inhabitants of South Dublin the continuity and adaptation of County both economically and socially.

2.3.6 Landscape

The landscape of the County is varied, ranging from alluvial river valleys, to fertile fields, ancient monastic settlement villages surrounded by suburban residential and office parks, to mixed farming and forestry in the mountainous uplands.

2.3.7 Air Quality and Climatic factors

The Air Quality Index for health (EPA) provides air quality information with health advice for both the general public and people sensitive to air pollution. The index is displayed on a colour-coded map, updated hourly. The index is based on information from monitoring instruments at representative locations in each region. South Dublin is located within the 'Dublin City' region. Air Quality is generally classified as 'good'.

Adaption and responding to climate change is a key objective the CCAP and the following baseline is taken from the SDCC CCAP. The adaptation baseline has identified that the effects of climate change are already impacting South Dublin at a significant rate and are very likely to increase in their frequency and intensity. The number of days with heavy rainfall has increased and the amount of extreme flooding events has also risen in the last 10 years. South Dublin has also experienced extreme temperatures, as witnessed recently in 2018, with Met Éireann issuing its first ever Status Red warning for snow in February, followed by one of the hottest summers on record during June and July. All these extreme weather events clearly highlight the need to reduce the impacts that climate change is having on the environment, the economy and the citizens of Dublin.

The mitigation baseline calculates the greenhouse gas emissions for the council's own activities and also for the entire County (including a breakdown of the residential, transport and commercial sectors). SDCC's emissions decreased from 14,230 tonnes of CO2 in 2009 to 11,800 tonnes of CO2 in 2017. This means that SDCC is now 3,270 tonnes of CO2 (23%) away from the 2030 target of a 40% emission reduction, from its baseline year.

The most recently-available information for total emissions in the entire South Dublin area is based on Census 2016 data. Therefore, using this data, Codema was able to calculate that the total GHG emissions for the South Dublin area amounted to 1,877,910 tonnes of CO2 equivalent in 2016. The sectors that produced the most emissions were the transport, commercial and residential sectors, accounting for 39%, 32% and 24% of the total emissions, respectively. South Dublin County Council's own emissions amounted to only 1% of this total, with social housing contributing another 2%. This highlights the need for collaboration and action from all stakeholders to tackle the remaining 97% of emissions from public and private sector sources in the County.

2.3.8 Material Assets

South Dublin is serviced by 847 km of Roads. Two national primary routes the N4 and N7 traverse the county, and the busiest stretch of road in the country - the M50 between the Red Cow junction and the junction with the N4 is also in the county. A critical issue is that much of the traffic on these arteries is passing through and not stopping in the county. Additional issues include a lack of connectivity within the County both for soft and hard transport methods.

The public transport options in the county include the Luas Red Line, the main Kildare-Dublin Railway Line as well as a number of buses including quality bus corridors. BusConnects will also address connectivity and enhance options for bus travel upon delivery.

Walking and cycling has also seen significant investment and the Greater Dublin Area (GDA) Cycle Network Plan was published in 2013. . SDCC was a central stakeholder in the cycle analysis for the Greater Dublin Area. The aim of the Plan was to identify and prioritise opportunities for investment in the cycle network.

Almost all of the waste water in South Dublin is currently treated in Ringsend Wastewater Treatment Works which discharges into Dublin Bay. The treated waters are treated to a Tertiary standard, which is in compliance with the Urban Wastewater Treatment Directive. The quality of the discharged waters is within the requirements of the Urban Waste Water Treatment Directive.

The Greater Dublin Drainage Scheme will represent a significant wastewater infrastructure development for the Greater Dublin Regional area which will allow for an underground orbital sewer and two pumping stations, a new wastewater treatment plan at Clonshaugh (in Fingal County) and an outfall pipe located 6km out to sea from Baldoyle Bay.

The Greater Dublin Water Supply Area (GDWSA) is served by 5 major water treatment plants, Ballymore Eustace, Srowland, Leixlip, Ballyboden and Vartry, and a number of smaller sources. The total capacity of current sources and treatment plants is 598ML/day and based on proposed capital investment between 2017 and 2024 this water available from existing sites will increase to 656ML/day. It is anticipated that Dublin will need a new major water source by 2025, based on projection of growth in the Greater Dublin Area. Irish Water is currently planning the development of a new major water source for the East and Midlands which will include supplying projected demand in the GDA water supply area. Irish Water is also currently implementing a major water conservation programme in order to maximise the availability of treated water from current sources.

The Regional Waste Management Plan 2015-2024 for the Eastern-Midlands Region encompasses the local authorities: Dublin City, Dún Laoghaire- Rathdown, Fingal, South Dublin, Kildare, Louth, Laois, Longford, Meath, Offaly, Westmeath and Wicklow. The regional plan provides the 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.

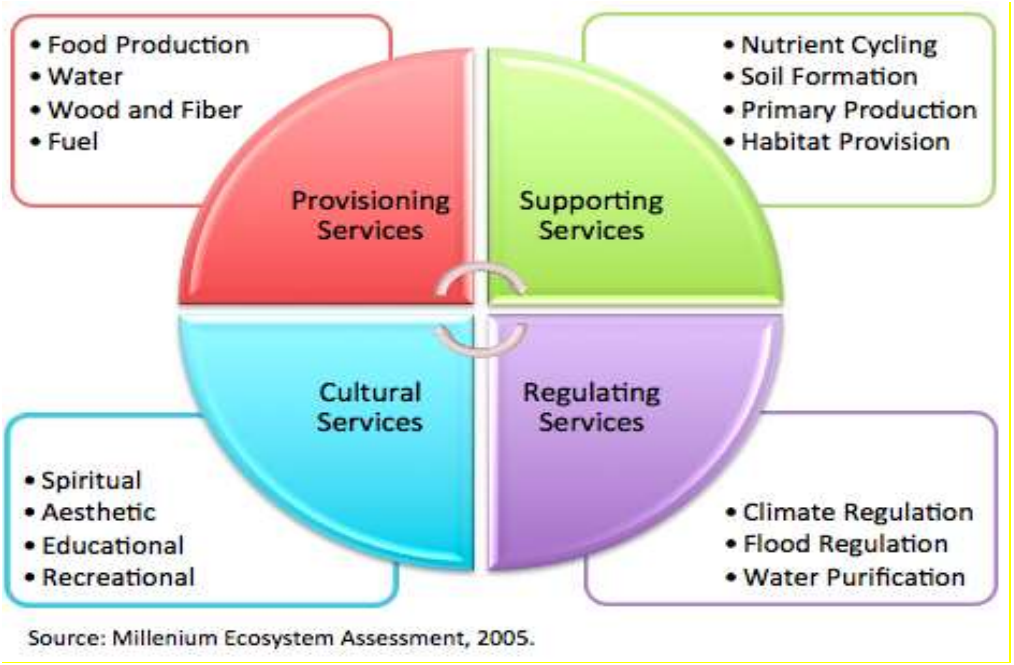
South Dublin County Council will be committing a certain amount of waste to the thermal treatment plant in Ringsend within Dublin City Councils administrative area, the construction and use of which forms a part of the waste management strategy for the Greater Dublin Area.

2.3.9 Inter-relationships

Ecosystem Services

Awareness about the roles and functions of ecosystems has increased in recent years and it can be a useful means to highlight their importance and value services to society. The Economics of Ecosystem Services and Biodiversity (TEEB) study defines ecosystem services as: '*the benefits people receive from ecosystems'*. Humans are ultimately dependant on the natural environment and ecosystem services highlight how these systems provide and interact to create the essential components for human well- being. Four key services are identified for ecosystems and are shown in the following **Figure 1**.

FIGURE 1 ECOSYSTEM SERVICES.

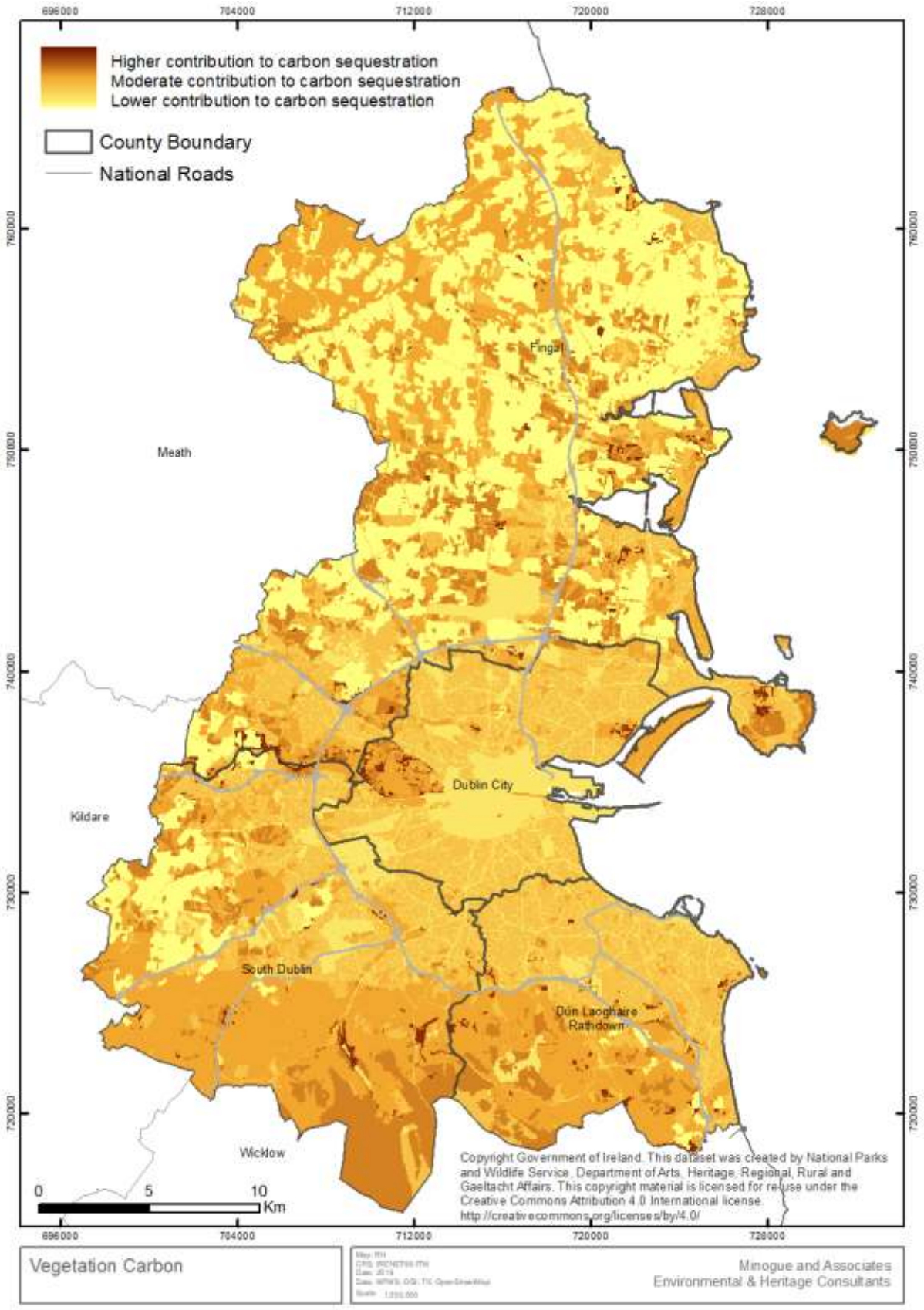


NATIONAL ECOSYSTEM AND ECOSYSTEM SERVICES MAPPING PILOT (NPWS)

The National Parks and Wildlife Service (NPWS) commissioned a short project for a National Ecosystem and Ecosystem Services mapping pilot for a suite of prioritised services based on available data. The project completed in 2016. Maps showing water filtration and storage are included in the SEA ER (chapter Seven) and the map (Figure 2)below shows carbon sequestration.

In the context of South Dublin, the above assessment demonstrates the importance of the foothills and uplands in terms of water storage, filtration and carbon sequestration. The agricultural lands in the lowlying western and southern parts of the county also fulfil an important role in water services.

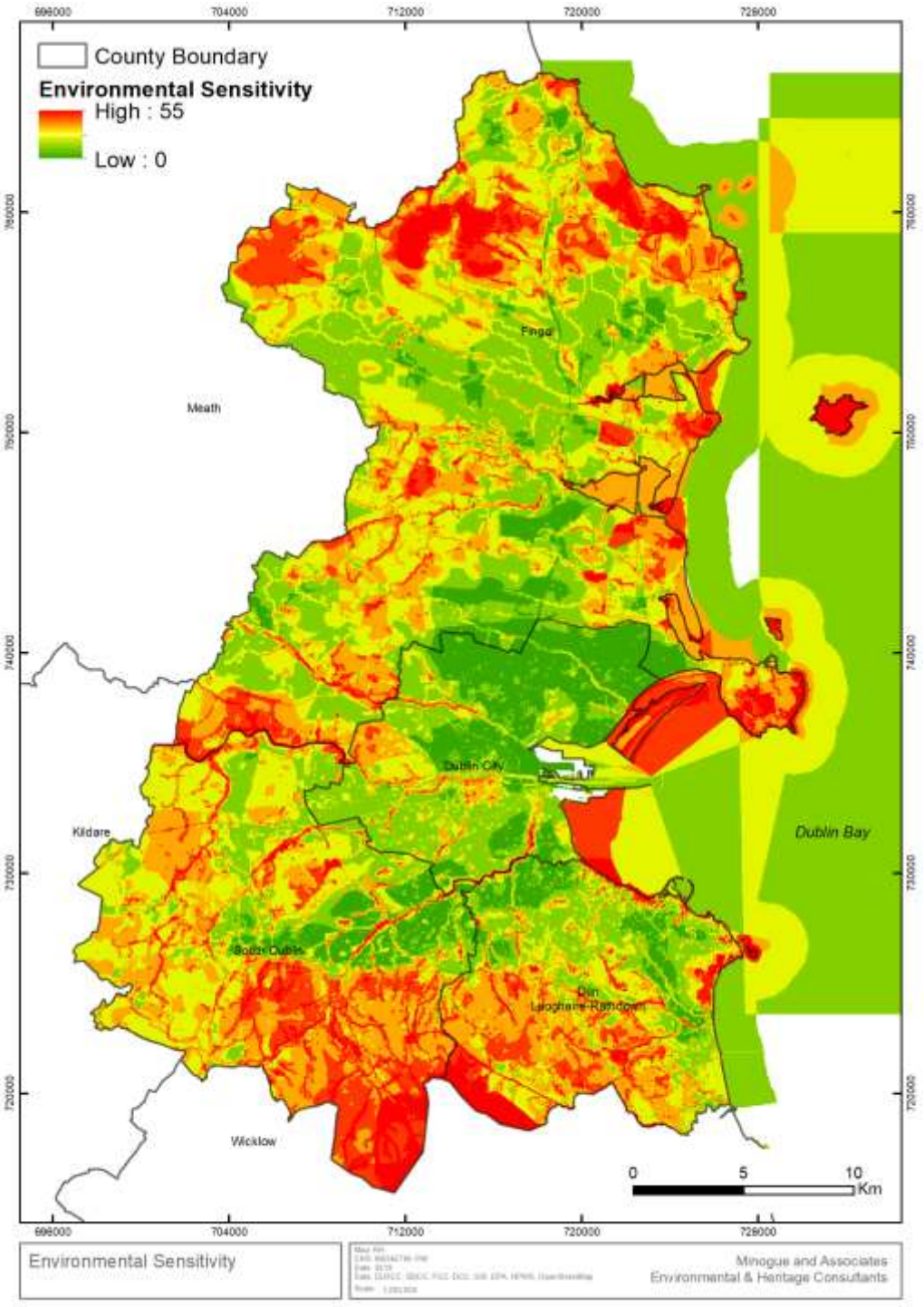
FIGURE 2 ECOSYSTEM SERVICES –CARBON SEQUESTRATION



2.3.10 Environmental Sensitivity.

In accordance with the SEA Directive, the interrelationship between the environmental parameters above must be taken into account. Although all such parameters may be considered interrelated and may impact on each other at some level. The Figure below shows the overall environmental sensitivity for the plan area and sphere of influence, and follows the same approach (i.e.: ranking of environmental parameters) as that used in the SDCC CDP 2016-2022 SEA process.

FIGURE 3 Environmental sensitivity mapping of the four Dublin Local Authorities



3 Strategic Environmental Objectives and Consideration of Alternatives

3.1 Strategic Environmental Objectives

The purpose of the SEA Objectives is to ensure that the assessment process is transparent and robust and that the CCAP considers and addresses potential environmental effects. SEA Objectives have been set for each of the ten environmental topics identified at the Scoping Stage of the SEA process.

These objectives are derived from the principles identified through the plan, policy and programme review and align where possible with the SEOs developed for the SDCC Development Plan 2016-2022. Where they differ from the CDP 2016-2022 objectives, the text is shown in italic bold font. The results of this are summarised in a table, called an evaluation matrix (See Chapter Seven and Annex A of the SEA ER).

TABLE 2 STRATEGIC ENVIRONMENTAL OBJECTIVES

SEA Topic	Strategic Environmental Objectives
Biodiversity Flora and Fauna	To avoid loss of habitats, geological features, species or their sustaining resources in designated ecological sites
	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites
	To sustain, enhance or - where relevant - prevent the loss of ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity
Population and human health 	To protect human health from hazards or nuisances arising from traffic and incompatible landuses.
Water	To maintain and improve, where possible, the quality of rivers, lakes and surface water.
	To prevent pollution and contamination of ground water
	To prevent development on lands which pose - or are likely to pose in the future – a significant flood risk
Air Quality and Climate	To minimise increases in travel related greenhouse emissions to air

	To reduce car dependency within the County by way of, inter alia, encouraging modal change from car to more sustainable forms of public transport and encouraging development which will not be dependent on private transport
Soil and Geology	To maximise the sustainable re-use of brownfield lands and the existing built environment, rather than developing greenfield lands
	To minimise waste production and reduce the volume of waste to landfill and to operate sustainable waste management practices
Material Assets	To maintain and improve the quality of drinking water supplies
	To serve new development under the CDP with appropriate waste water treatment
	To minimise waste production and reduce the volume of waste to landfill and to operate sustainable waste management practices.
Cultural Heritage 	To protect the archaeological heritage of South Dublin with regard to entries to the Record of Monuments and Places - including Zones of Archaeological Potential - and the context of the above within the surrounding landscape where relevant
	To preserve and protect the special interest and character of South Dublin's architectural heritage with regard to entries to the Record of Protected Structures, Architectural Conservation Areas, and their context within the surrounding landscape where relevant
Landscape 	To protect and avoid significant adverse impacts on the landscape, landscape features and designated scenic routes; especially with regard to areas of high amenity, the Dublin Mountain Area, and the Liffey and Dodder Valleys.
	***Interrelationships*** ***Maintain and improve the health of people, ecosystems and natural processes*** ***Actively seek to integrate opportunities for environmental enhancement during adaptation to climate change***

3.2 Consideration of Alternatives

One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative development scenarios, in this case the SDCC CCAP 2019-2024. These alternative development scenarios should meet the following considerations:

- Take into account the geographical scope, hierarchy and objectives of the plan –be realistic
- Be based on socio-economic and environmental evidence – be reasonable
- Be capable of being delivered within the plan timeframe and resources –be implementable
- Be technically and institutionally feasible – be viable.

6.2 ALTERNATIVES CONSIDERED

In a *Strategy Towards Climate Change Actions Plans for Dublin 2017*, seven focus areas were identified as having the greatest potential to help the Dublin LAs move towards a zero-carbon society and adapt to the effects of climate change. These focus areas were as follows:

- Water, Waste, Planning, Transport, Energy, Ecosystems and Biodiversity and Citizen Engagement.

The focus areas can have predominately either mitigation or adaptation solutions, or both. For example, the Energy focus area mainly concerns mitigation (ie. reducing the use of fossil fuels and their associated CO2 emissions), while Water largely focuses on adapting to changes that are occurring or will occur in the near future due to climate change. Meanwhile, the Citizen & Stakeholder Engagement focus area concerns both mitigation and adaptation.

The aim of the CCAP is to work with the other Dublin local authorities in a co-ordinated manner to achieve the actions identified as being capable of implementing over a Five Year Period whilst also contributing to both mitigation and adapting to climate change. The following alternatives were considered:

- Alternative 1: Do-Nothing (rely CDP policies and objectives to address and adapt to climate change)
- Alternative 2: Prioritise largest greenhouse gas emission sectors –Energy and Transport
- Alternative 3: Approach the priority areas in a balanced manner to provide for both responses to climate change impacts (adaptation) and reduce greenhouse gas emissions mitigation).

In terms of all SEOs, Alternative 3 is identified as creating most positive interactions as it provides greater environmental performance overall and also allows for a greater environmental gains, than may be achieved through Alternatives 2 and 1. In addition, the multi- faceted approach contributes to greater co-benefits by providing for a wider range of environmental effects particularly around nature based solutions and resource management. The inclusion of measures for citizen engagement and awareness raising through the CCAP option is also positive for a number of SEOs.

4 Assessment of Significant Effects and Mitigation Measures

4.1 Significant Effects

Population and Human health: Many of the actions identified in the CCAP give rise to long term positive effects on population and human health both by responding and adapting to the impacts of climate change, and also reducing greenhouse gas emissions through a series of measures.

Reflecting the opportunity for co-benefits of the CCAP, measures around energy efficiency and district heating opportunities can help address fuel poverty in relation to vulnerable individuals as well as the chance to reuse energy from within the local area, for example Energy: Action 11 deep retrofitting of housing stock

Biodiversity, Flora and Fauna: The promotion of a nature based measures and resource management in particular along with blue and green infrastructure actions all strengthen overall protection of biodiversity resources and the Biodiversity SEOS.

Mapping habitats, identification and control measures for invasive species, leaf composting, and tree canopy and hedgerow mapping are examples of actions that are long term positive and consistent with these SEOs..

Water Resources: The South Dublin CDP 2016-2022 already includes a range of provisions and measures to address and minimise adverse effects, including measures around green infrastructure, flood risk management and development control.

The CCAP however further enhances and strengthens these through the flood resilience actions and nature based solutions in particular. Additional tree planting and woodland strategy (Actions 12 to 15) provide for positive effects as they reduce soil run off and allow for water attenuation and filtration. Again this provides for longer, positive effects associated with linear habitat creation and ecological connectivity.

Soil and Geology: Soil quality and function may be enhanced through particular measures associated with flood resilience, nature based solutions and resource management in particular.

Awareness raising around illegal dumping and Action 18 leaf composting can generate positive effects on soil through enhancement of the resource and a more sustainable approach to enriching soil. A number of the measures relating to flood resilience including recognition of flood plains and production of Regional Flood Plain Management Guidelines (Action 5) indirectly benefit soil and geology SEOs.

Air Quality and Climate: Overall the CCAP will contribute positively to climate change adaptation through the following:

- Blue and green infrastructure giving rise to increased surface water storage and potential carbon sequestration

- Focus on energy efficiency and innovation as seen through the actions identified in the Energy Theme, examples include

- Action 4 and 5 provides for an evidence based climate change chapter in the County Development Plan and Local Area Plan for Tallaght, both of which will allow for policy responses and in the CDP context, landuse zoning responses based on the evidence prepared.

Key measures relating to behavioural change around transport and the increase in walking/cycling and public transport measures are essential in addressing transport emissions over the lifetime of the CCAP and beyond.

Recognising the ecosystems functions of soil, water and biodiversity is a key element in the Nature Based solutions theme and is an important acknowledgement that also provides for positive effects across a number of SEOs.

The CCAP includes targets relating to 40% reduction in the councils' Greenhouse Gas Emissions by 2030 (primarily through lighting and energy measures), a 33% improvement in the councils energy efficiency by 2020. However the CCAP also acknowledges that the council's outputs are relatively minor given the wider sectoral emissions in the county and this is why many of measures relate to the council leading on climate action, promoting behavioural change, facilitating sustainable transport options, promoting increased energy efficiency and supporting nature based solutions and citizen engagement.

Cultural Heritage: Archaeology and Built heritage features are present throughout the plan area, and in particular those archaeological or built heritage features associated with the rivers or floodplains may be particularly vulnerable to climate change effects.

Material Assets: Transport and Flood Resilience in particular provide for mitigation and adaptation with a view to minimising adverse effects of climate change on material assets, and also responding and facilitating behavioural and modal change in energy use and transport. Examples of these include the following:

- Masterplan for the Dublin Region, and Action 15: Replace 4,000 SOX lights with LED

- Transport: Action 11: Development of pedestrian/cycle greenways, Action 15: Cycle training programme for 6th Class students/ pedal power labs

- Flood Resilience: whilst most of the measures here mitigate and adapt to climate change, with accompanying positive effects on material assets SEOs, Actions 13 and 15 are recommended for mitigation to allow for the inclusion of 'environmental externalities' in any costing exercise, as well as promotion of natural flood measures as a priority in any updated guidelines or policies. Similarly with Action 21 awareness raising, the action is recommended for mitigation to help raise awareness and understanding of more nature based flood measures

Landscape: Long term positive effects are identified for the CCAP and landscape primarily through the nature based solutions, public realm enhancement, green and blue infrastructure, increased tree planting etc.

Many of the measures in the CCAP require a landscape level response such as Regional Flood Plain management guidelines, recognition of green and blue infrastructure and corridors and this an important approach to take when responding to climate change.

In combination and cumulative effects: Cumulatively and in combination, several of the CCAP Actions encourage a modal shift and in turn gives rise to indirect positive effects, for example by creating more physical activity in terms of travel to work and school, positively affecting air quality with accompanying benefits to both population and human health . In addition, this can create a reduction in emissions associated with Particulate Matter and Nitrogen Dioxide. This benefits both human health as well as Biodiversity, flora and fauna and surface water features.

The majority of the Flood Resilient measures are identified as being consistent and positive across all SEOs, in particular measures that promote natural based solutions such as tree planting and SUDs are all positive across all parameters and can provide multi-functional benefits in the landscape.

In combination and cumulative effects are particularly relevant to the Nature Based solutions actions which together create long term positive effects across Population, Landscape, Biodiversity, Soil and Geology, Water and Material Assets whilst responding to climate change effects.

The resource management is also a critical theme as it promotes reduction and reuse and measures around illegal dumping and leaf composting all interact to generate positive effects.

Threaded throughout the CCAP is the theme of citizen engagement and awareness raising and this is critical to both inform, educate and engage citizens in relation to responding to climate change, whilst also identifying positive measures. Many of the engagement actions should increase public awareness and a sense of responsibility, collective and individual action in addressing and adapting to climate change. Positive in combination effects are identified for human health around modal shifts, and green infrastructure, behavioural change, tree planting and responding to flood risk.

4.2 Mitigation Measures

Although most of the actions are identified as being consistent with the SEOs, a small number of actions mainly around Transport and Flood Resilience were identified as meriting additional mitigation measures. These are provided in Table 2 below:

TABLE 2 MITIGATION MEASURES

	Mitigation Measure	*Included in CCAP? Yes/ no*
	An integrated approach to decision making in relation to these climate change actions is recommended.	
	Transport Actions	
5	Strengthen traditional villages by improving the public realm through enhancement of green infrastructure measures and sustainable transport linkages	Yes
	Flood Resilience	
13	Develop template to capture impacts, response and costs (**including ecosystem services/natural capital costs**) for all major climate events	Yes
15	Update DLA urban drainage and flooding policies for current knowledge of flood risk and the latest best practice in drainage design **promoting natural flood measures as a priority**	Yes
20	Minor flood schemes and general maintenance **that are designed and implemented to promote nature based solutions where practical**	Yes
21	Communication and awareness campaigns on flood risk	Yes

	management **and natural flood management measures**	
	Nature Based Solutions	
22	Include native species into local authority plans ~~where appropriate~~ as a key nature based measure where appropriate	Yes

5 MONITORING

It is proposed, in accordance with Article 10 of the SEA Directive, 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 pollution levels. Monitoring will focus on the aspects of the environment that are likely to be significantly impacted upon by the implementation of the CCAP 2019-2024.

The monitoring programme will consist of an assessment of the relevant indicators and targets against the data relating to each environmental component. Similarly, monitoring will be carried out frequently to ensure that any changes to the environment can be identified. This Climate Change Action Plan was developed through the Environment, Public Realm and Climate Change SPC of South Dublin County Council and approved by the full County Council. The Director of Environment, Water and Climate Change will report on progress to the SPC annually and the SPC will monitor progress towards the set targets. Every five years there will be a full review and revision of the plan taking into account demographic, technical and other changes that have occurred and any new targets that have been introduced.

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SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
Biodiversity Flora and Fauna	To avoid loss of habitats, geological features, species or their sustaining resources in designated ecological sites	Percentage of relevant habitats lost as a result of implementation of the CCAP	No losses of relevant habitats, species or their sustaining resources in designated ecological sites as a result of implementation of the CCAP	Designated ecological sites mapping, CORINE Mapping, National Parks and Wildlife Service Records & Development Management Process in SDCC.
	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites.	Number of significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites	No significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development	Designated ecological sites mapping, Development Management Process in SDCC Council & Consultation with the National Parks and Wildlife Service Primary ecological corridors mapping, CORINE mapping and Development Management Process in SDCC.

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
		by development within or adjacent to these sites as a result of implementation of the CCAP	within or adjacent to these sites as a result of implementation of the CCAP	
	To sustain, enhance or - where relevant - prevent the loss of ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity.	Area of Biodiversity Network (County's primary ecological corridors which has been lost without mitigation)	No ecological connectivity provided by the area' s primary ecological corridors to be lost without mitigation as a result of implementation of the CCAP.	
		Percentage loss of functional connectivity without remediation resulting from development provided for in	No significant ecological networks or parts thereof which provide functional connectivity to be lost without remediation	

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
		the CCAP	resulting from development provided for in the CCAP	
Population and human health Noise	To protect human health from hazards or nuisances arising from traffic and incompatible landuses in particular noise and light pollution.	Number of occasions that PM^{10} limits have been exceeded in at Air Monitoring stations closest to CCAP lands[2]. Number of complaints from the CCAP re; noise, light and air quality.	Reduce number of people exposed to traffic noise and air quality levels which endanger health and quality of life.	South Dublin County Council, EPA
Air Quality and Noise	To minimise air, noise and light pollution where possible.	Number of air, noise and light pollution measures including in each phase (may be in conjunction	Air, noise and light pollution measures designed into CCAP	South Dublin County Council

[2] Currently air quality monitoring closest station is at Tallaght.

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
		with green infrastructure measures)		
Water	To maintain and improve, where possible, the quality of rivers, lakes and surface water.	Biotic Quality Rating (Q Value) and risk assessment.	To maintain a biotic quality rating of Q4, in line with the requirement to achieve good water status under the Water Framework Directive, by 2027. To improve biotic quality ratings, where possible, to Q5.	Environmental Protection Agency. Environmental Protection Agency As noted under Section 2.3.1, data may not be available for this indicator when the monitoring evaluation is being prepared.
	To prevent pollution and contamination of ground water.	Groundwater Quality Standards and Threshold Values under	Compliance with Groundwater Quality Standards and	SDCC Irish Water EPA

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
		Directive 2006/118/EC.	Threshold Values under Directive 2006/118/EC.	
	To prevent development on lands which pose - or are likely to pose in the future – a significant flood risk	Implementation and monitoring of Strategic Flood Risk Assessment for CCAP	No significant flood events associated with development activities on CCAP.	Development Management Process in South Dublin County Council
Soil and Geology	To conserve soil resources where possible.	Area of greenfield land developed. Number of contaminated sites identified and remediated. Volume of waste recycled and volume of waste sent to landfill.	S1ii: To reduce the amount of Greenfield lands developed subject to CCAP Objectives To meet national and EU targets on the recycling of municipal waste and its diversion from landfill	Development Management Process in SDCC As above Environmental Services Dept. SDCC Annual Waste Arisings Report from Environmental Services Dept. SDCC
Material Assets	To maintain and improve the quality of drinking water supplies.	Drinking water quality standards,	To maintain and improve drinking water	SDCC Irish Water EPA

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
		(Microbiological, Chemical and Indicator parameters)	quality in South Dublin County to comply with requirements of the European Communities (Drinking Water) Regulations 2000	
	To serve new development under the CCAP with appropriate waste water treatment	Phasing Programme of CCAP	All new developments to require appropriate waste water systems.	SDCC Irish Water EPA
	To reduce car dependency within the CCAP by way of, inter alia, encouraging modal change from car to more sustainable forms of public transport and encouraging development which will not be dependent on private transport.	Extent of developments built within the CCAP lands of high quality public transport accessibility. Percentage of population within the CCAP	An increase in the percentage of the population within the County travelling to work or school by public transport or non-mechanical	SDCC CSO Census

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
		lands travelling to work or school by public transport or non-mechanical means	means. A decrease in the average distance travelled to work or school by the population of the County.	
	To minimise waste production and reduce the volume of waste to landfill and to operate sustainable waste management practices	Volume of waste recycled and volume of waste sent to landfill	To meet national and EU targets on the recycling of municipal waste and its diversion from landfill	Development Management Process in SDCC As above Environmental Services Dept. SDCC Annual Waste Arisings Report from Environmental Services Dept. SDCC
Cultural Heritage	To protect the archaeological heritage of South Dublin with regard to entries to the Record of Monuments and Places - including Zones of Archaeological Potential - and the context of the above within the surrounding landscape where relevant.	Percentage of entries to the Record of Monuments and Places - including Zones of Archaeological	Protect entries to the Record of Monuments and Places - including Zones of Archaeological Potential (and	SDCC Development Control

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
		Potential (and the context of the above within the surrounding landscape where relevant) - protected	their context of the above within the surrounding landscape where relevant)	
		Number of archaeological surveys required as part of planning applications	Protect unknown archaeological resources within CCAP area.	
		Conditions attached to permissions on archaeological monitoring during excavations.		
	To preserve and protect the special interest and character of the CCAP lands architectural heritage with regard to entries to	Percentage of entries to the Record of Protected	Protect entries to the Record of Protected Structures	SDCC

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
	the Record of Protected Structures, the Architectural Conservation Area and their context within the surrounding landscape where relevant.	Structures (and/or their context within the surrounding landscape where relevant) protected. Number of architectural condition surveys attached to planning applications.	(and/or their context within the surrounding landscape where relevant) Renovate and reuse architectural heritage structures and features	
Landscape	To protect and avoid significant adverse impacts on the landscape, landscape features and designated scenic routes; especially with regard to areas of high amenity**.**	The creation of a sense of place and coherence/ appreciation for the overall setting and context of the CCAP. Number of	Creation of sense of place with all phases of development associated with CCAP	SDCC

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
		development applications with landscape and habitat plans and Design Statements. Amount of land allocated to temporary greening measures.		
Climate Change and energy	To integrate climate change adaptation to the CCAP process	Number of SUDs measures included and developed as part of CCAP Number/extent of additional tree planting as part of applications.	Integrated blue and green infrastructure through the CCAP	***SDCC***
	Interrelationships Maintain and improve the health of people, ecosystems and natural processes	***Blue and Green Infrastructure measures implemented***	Integration of blue and green infrastructure measures	***SDCC***

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
	Actively seek to integrate opportunities for environmental enhancement during adaptation to climate change	***over lifetime of plan*** Number of Blue infrastructure features included in development.	including in approved planning applications within South Dublin including SUDS, Integrated Wetlands, Hedgerows, Native tree planting scheme	

5.2 CONCLUSION

This SEA Environmental Report demonstrates how environmental parameters have been addressed in the plan preparation process. Consultation has been undertaken for the Scoping of this Environmental Report and further opportunity to comment on the CCAP will be possible over the forthcoming weeks.

The SEA and Appropriate Assessment processes have been undertaken in line with the Planning and Development (Strategic Environmental Assessment) Regulations 2004 to 2011 (as amended). Subject to the full and proper implementation of the mitigation measures outlined in this SEA Environmental Report and the Proposed CCAP, it is considered that significant adverse impacts on the environment will be avoided.

SOUTH DUBLIN COUNTY COUNCIL

Strategic Environmental Assessment Environmental Report- South Dublin County Council Climate Change Action Plan 2019-2024

Prepared under the Planning and Development (Strategic Environmental Assessment) Regulations 2004. (S.I. 435/2004)

Minogue and Associates

February 2019

This report has been prepared by Minogue & Associates with all reasonable skill, care and diligence. Information report herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is prepared for South Dublin County Council and we accept no responsibility to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

Version	Prepared by	Reviewed
Draft 21.01.2019	R Minogue MCIEEM	
Draft 2 05022019	RM	

CONTENTS

1 INTRODUCTION

1.1 PURPOSE OF THIS SEA ENVIRONMENTAL REPORT

This Environmental Report has been prepared as part of the Strategic Environmental Assessment (SEA) of the Climate Change Action Plan 2019-2024 (CCAP) prepared by Codema, the Dublin Energy Agency and South Dublin County Council.

It sets out how the SEA has been undertaken and presents the findings of the assessment of the actions on the CCAP together with its' reasonable alternatives.

The Environmental Report complies with the requirements of the Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive) as implemented in Ireland through Statutory Instrument (SI) No.435 of 2004 European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (as amended).

These regulations are a statutory requirement for plans or programmes which could have significant environmental effects, and the assessment process aims to identify where there are potential effects and how any negative effects might be mitigated.

The Environmental Report is required to include information that may be reasonably required, taking into account the following:

- Current knowledge and methods of assessment;
- Content and level of detail in the draft CCAP;
- Stage of the proposed CCAP in the decision-making process and
- The extent to which certain matters are more appropriately assessed at different levels in the decision-making process in order to avoid duplication of environmental assessment.

It is important to note that many of the actions included in the CCAP for South Dublin are identified as generating positive effects across a number of SEA parameters. The SEA Screening report included in the SEA Scoping Report of December 2018 supported this assessment. A small number of actions, primarily around transport proposals were identified through the screening for Appropriate Assessment as potentially giving rise to likely significant effects in the absence of mitigation, and this therefore triggered the requirement for a Stage II Appropriate Assessment and full Strategic Environmental Assessment.

1.2 SCALE, NATURE AND LOCATION OF SOUTH DUBLIN CCAP

For the first time, Dublin's four local authorities have joined together to develop Climate Change Action Plans as a collaborative response to the impact that climate change is having, and will continue to have, on the Dublin Region and its citizens. While each plan is unique to its functional area, they are unified in their approach to climate change adaptation and mitigation, and their commitment to lead by example in tackling this global issue.

These CCAPs follow on from the publication of A Strategy for Climate Change Action Plans for the Dublin Local Authorities (DLAs), which was published in January 2017. The strategy used a

structured approach that focused on seven key areas (Citizen Engagement, Planning, Energy, Transport, Water, Waste, and Ecosystems & Biodiversity), and set out how the DLAs would develop the four climate change action plans. The action plans will be unique to each local authority area but synchronised in their methodology.

This plan concentrates on the two approaches required to tackle climate change. The first, mitigation, consists of actions that will reduce current and future GHG emissions; examples of these include reductions in energy use, switching to renewable energy sources and carbon sinks. The second approach, adaptation, consists of actions that will reduce the impacts that are already happening now from our changing climate and those that are projected to happen in the future.

The actions in this draft CCAP for South Dublin will be continually monitored and updated by a dedicated climate action team working across all Council departments. They will be assisted by the newly established Dublin Metropolitan Climate Action Regional Office, which will ensure that the overall plan is fully updated every five years to reflect latest policy, technology and climate-related impacts. The new office will work with Codema, as technical support and research partner, to ensure that the plans continue to be informed by national and international best practice.

The actions in the CCAP are presented around a number of themes as follows:

- Energy and Buildings
- Transport
- Flood Resilience
- Nature Based Solutions
- Resource Management.

Collectively, these collectively address the four targets of this plan, which are:

- A 33% improvement in the Council's energy efficiency by 2020
- A 40% reduction in the Council's greenhouse gas emissions by 2030
- To make Dublin a climate resilient region, by reducing the impacts of future climate change -related events
- To actively engage and inform citizens on climate change.

As such, this CCAP encompasses the functional and administrative area of South Dublin County.

1.3 Strategic Environmental Assessment

Under Directive 2001/42/EC - Assessment of Effects of Certain Plans and Programmes on the Environment, certain plans and programmes require an environmental assessment. This is known as the Strategic Environmental Assessment (SEA) Directive. Article 1 of this Directive states that its objective 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.'*

1.3.1 Structure and Preparation of this Environmental Report

Regulations contained in Schedule 2B of Statutory Instrument (S.I.) 436 of 2004(as amended) details the information to be contained in an Environmental Report. The following Table 1 lists the information required and details where this information is contained in this Environmental Report.

TABLE 1 INFORMATION REQUIRED TO BE CONTAINED IN AN ENVIRONMENTAL REPORT.

Schedule 2B of Statutory Instrument 436 of 2004	**Addressed in this SEA ER**
(a) an outline of the contents and main objectives of the plan and relationship with other relevant plans	Chapter One Introduction and Chapter Two Methodology outlines contents and main objectives Chapter Three details the relationship with other relevant plans
(b) the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan	Chapter Four Baseline Environment provides this information
(c) the environmental characteristics of areas likely to be significantly affected	Chapter Four Baseline Environment provides this information
(d) any Issues and Threats problems which are relevant to the plan including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or Habitats Directive	Chapter Four Baseline Environment provides this information
(e) 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	Chapter Five: SEA Objectives provides this information

considerations have been taken into account during its preparation	
(f) the likely significant 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	Chapter Seven, Significant Effects on the Environment provides this information
(g) the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan	Chapter Eight, Mitigation Measures provides this information
(h) an outline of the reasons for selecting 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	Chapter Six, Alternatives Considered provides this information and difficulties encountered are listed at the end of Chapter Two, Baseline Environment.
(i) a description of the measures envisaged concerning monitoring of the significant environmental effects of implementation of the plan	Chapter Nine, Monitoring provides this information
(j) a non-technical summary of the information provided under the above headings	This is provided as a separate document to this Environmental Report but is also available

1.4 Report Preparation

The SEA Team worked with the SDCC technical staff team and other specialists. The following consultants prepared this SEA ER:

- Ruth Minogue MCIEEM, AILI, (BSoc Sc) Social Anthropology, University of Manchester 1996, MA (Econ) Environment and Development, University of Manchester 1998, Dip Field Ecology, University College Cork 2003, ongoing CPD including certificate in Health Impact Assessment (2012) and diploma in Planning and Environmental Law (2017);

- Pat Doherty MCIEEM, MSc in Applied Environmental Science (Ecology), University College Dublin, 2003;BSc (Honours) in Environmental Earth Science, University of Wales, Aberystwyth, 2000; ongoing CDP including Habitat Assessment (NVC) and flora and fauna identification through IEEM, and
- Dr Ronan Hennessey, PhD Earth and Ocean Sciences, Higher Diploma in Remote Sensing and Geographical Information Systems, BSc Earth Sciences.

2 Approach to Strategic Environmental Assessment

2.1 Introduction

This chapter presents the SEA methodology in detail and outlines the steps required for SEA. The methodology used to carry out the SEA of the plan reflects the requirements of the SEA regulations and available guidance on undertaking SEA in Ireland, including:

- SEA Methodologies for Plans and Programmes in Ireland – Synthesis Report Environmental Protection Agency (EPA), 2003;
- 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, 2004;
- Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI 436 and SI 435 of 2004);
- Planning and Development (Strategic Environmental Assessment) Regulations 2011 (S.I. No. 201 of 2011);
- Planning and Development (Environmental Assessment of Certain Plans and Programmes) (S.I No 200 of 2011);
- SEA Process Checklist Consultation Draft 2008, EPA 2008;
- Circular Letter PSSP 6/2011 Further Transposition of EU Directive 2001/42/EC on Strategic Environmental Assessment;
- Guidance on integrating climate change and biodiversity into Strategic Environmental Assessment European Union 2013;
- SEA Resource Manual for Local and Regional Authorities, Draft Version, 2013;
- Integrating Climate Change into Strategic Environmental Assessment in Ireland – A Guidance Note, EPA, 2015;
- Developing and assessing alternatives in Strategic Environmental Assessment, EPA, 2015 and
- SEA of Local Authority Land Use Plans - EPA Recommendations and Resources (Version May 2018).

2.2 Stages in the SEA Process

The steps involved in SEA are as follows:

- Screening (determining whether or not SEA is required).
- Scoping (determining the range of environmental issues to be covered by the SEA).
- The preparation of an Environmental Report (***current stage***)
- The carrying out of consultations.
- The integration of environmental considerations into the Plan or Programme.
- The publication of information on the decision (SEA Statement).

2.2.1 Screening

The SEA Regulations state that SEA is mandatory for certain plans while screening for SEA is required for other plans. A Screening assessment was undertaken and it determined the requirement to progress to full SEA. In conjunction with the SEA Screening, a screening under Article 6 (3) of the EU Habitats Directive has also been prepared and should be read in conjunction with the CCAP and this SEA ER.

2.2.2 SCOPING

The purpose of the SEA Scoping report is to identify the scope of the SEA and ensure that relevant data and environmental topics are included in the SEA. The Scoping report was issued to the statutory environmental authorities consultees in December 2018 for comment. The table below summarises the main issues raised by consultees and the SEA response to same.

TABLE 2 SCOPING SUBMISSIONS-

Consultee	Key Issue Raised	SEA Response
Scientific Officer, SEA Section Office of Evidence and Assessment. Environmental Protection Agency, Regional Inspectorate, Inniscarra, County Cork		
	We welcome the preparation of the Plan, which sets out a clear set of actions to be taken by South Dublin County Council, in collaboration with other key stakeholders, over the next five years. The inclusion of clear targets will facilitate monitoring and reporting on the Plan implementation, which should in turn help to drive delivery.	Noted
	We recognise the fundamental importance of ensuring that the National Transition Objective is underpinned by a clean, healthy and well-protected environment. Considering this, it is important to develop and implement the Plan within the context of a wider and more integrated approach to environmental protection. The SEA should play a key role in ensuring that this is achieved and should inform decision-making around assessment and selection of actions and measures.	Noted, the SEA and AA have helped to inform plan preparation and please see Chapter 8 Mitigation in particular
	The SEA should also assist in identifying ways to maximise the potential co-benefits of climate-related measures for air quality, human health, biodiversity, water quality and other interrelated areas (i.e. win-win solutions). A key role of SEA is in assessing and informing the selection and refinement of actions and measures that maximise the co- benefits of climate actions for the wider environment and society, should be highlighted in the SEA Report and the Plan.	Noted, in particular certain actions in each theme already provide co-benefits and the SEA has provided additional mitigation to further enhance certain actions please see CCAP and Chapter 8 Mitigation of this SEA ER

	Relevant Plans and Programmes You should ensure that the Plan aligns with national commitments on climate change mitigation and adaptation. Actions and measures proposed should be consistent with the National Policy Position on Climate Action and Low Carbon Development, the National Mitigation Plan and the National Adaptation Framework, as well as considering any relevant sectoral and regional adaption plans. We recommend including a flow diagram or/ schematic, illustrating where the Plan fits within the hierarchy of land-use, climate and related plans	Noted and agreed, in response to this comment the SEA ER included a table that highlights consistency with these plans and programmes and also provides a preliminary schematic to illustrate the hierarchy of plans and programmes. Please see Chapter 3.
	It would be useful to explain the relevance of the various plans listed in section 2 of the SEA Scoping Report to the CCAP, for example by way of an additional column. Reference to the Draft Regional Spatial Economic Strategy, currently at consultation, should be included.	Noted and agreed. Chapter 3 has been amended to provide this and a more detailed overview of key relevant plans and programmes is provided in Annex B of this SEA ER.
	Greenhouse Gas Emissions In preparing the Plan and SEA, the direct and indirect impacts of the Plan on greenhouse gas emissions and removals should be assessed. The Agency's most recent projections report Ireland's Greenhouse Gas Emissions Projections for 2017-2035 (EPA, 2018) should be taken into account.	Noted. With support from the Sustainable Energy Authority of Ireland (SEAI), Codema developed an energy and emissions baseline, which shows the current level of emissions and energy efficiency for both SDCC's own operations and emissions for the whole of South Dublin. Consideration of significant effects in Chapter Seven of this SEA ER discusses this point.
	The National Mitigation Plan (NMP) identifies 106 actions to decarbonise electricity generation, the built environment and transport and to move towards carbon neutrality for agriculture, forest and land use sectors. The Plan should integrate and align with the relevant actions in the NMP, as appropriate.	Noted, this SEA ER addresses this in Table XX and shows where the South Dublin CCAP actions are consistent with the National Mitigation Plan. Please note that many of the actions in the National Mitigation Plan are identified at central government level rather than local authority.
	Adaptation	Codema carried out an adaptation risk assessment on behalf of SDCC,

	In preparing the Plan and SEA, you should consider how the impacts of climate change, individually and in combination, are likely to influence the implementation of the Plan. The Plan should look to improve resilience of existing and planned critical infrastructure, systems and procedures to the effects and variability of climate change. Recent extreme weather events could be useful to assist in identifying areas where for further work is needed to improve resilience, e.g. the resilience of critical water service infrastructure to flooding and drought. The Plan should include appropriate adaptation measures that can be implemented either directly or through relevant land use plans and/or specific plans e.g. Flood Risk Management Plans, Integrated Coastal Zone Management Plans etc. The Plan will also help inform local authority land use and transport planning within the county. Additional aspects to consider may include changes in native species and habitats and the spread of invasive species, pests and pathogens.	which identifies and assesses the current climate change risks facing South Dublin. Research into people's attitudes and awareness was used in order to inform the stakeholder engagement actions of the plan. A key principle and stage of the CCAP relates to adaptation and responses to same. Noted, this is highlighted in Chapter 4 Baseline as a key issue for biodiversity and human health
	EPA State of the Environment Report 2016 The EPA published our most recent State of the Environment Report in 2016 'Ireland's Environment – An Assessment (EPA, 2016). The recommendations, key issues and challenges described within this report should be considered, as relevant and appropriate to the Plan area in preparing the Draft CCAP and associated SEA. This report can be consulted at: http://www.epa.ie/irelandsenvironment/stateoftheenvironmentreport/	Noted and utilised in this SEA ER. Please see Chapter 3.
	Air quality We welcome that the Plan will take into account the Draft National Clean Air Strategy (DCCAE), due to be finalised in 2019. Recent EPA reports on air quality should also be considered, in preparing the Plan and SEA. This includes the Air Quality in Ireland 2017 Report (EPA, 2018) which sets out the most recent status in each of	Noted this is used in Chapter 4 Baseline Environment

	the four air quality zones in Ireland. Data on levels of atmospheric pollutants from the EPA's national ambient air quality monitoring network (http://www.epa.ie/air/quality/monitor/), should also integrated as appropriate. The pollutants of most concern are traffic-related, including Particulate Matter and Nitrogen Dioxide	
	Noise The Plan should take into consideration available noise action plans prepared within and adjacent to the Plan area. Noise action plans are designed to act as a means of managing environmental noise through land use planning, traffic management and control of noise sources. The third round of noise mapping is currently underway in Ireland and will be completed in 2018. http://noise.eionet.europa.eu/help.html.	Noted and included in Chapter Four.
	Available Guidance & Resources Climate The EPA has published guidelines to support Local Authorities in developing local climate adaptation strategies (EPA, 2016). The DCCAE have incorporated this EPA guidance into national level Guidelines, to also assist local authorities prepare adaptation strategies. (DCCAE, 20185). The 'Climate Ireland' website provides information, support and advice to help local authorities, sectors and government departments to adapt to climate change and includes a Local Authority Adaptation Support Wizard. It can be consulted at http://www.climateireland.ie/#/ Renewable Energy The recently published Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change (DHPCLG, 2017) should be taken into account, where relevant. Water Quality Our WFD Application provides a single point of access to water quality and catchment data from the national WFD	

	monitoring programme. The Application is accessed through EDEN https://wfd.edenireland.ie/ and is available to public agencies. Publicly available data can be accessed via the Catchments.ie website	
	SEA Our website contains SEA resources and guidance, including: - SEA process guidance and checklists - list of relevant spatial datasets - topic specific SEA guidance, such as consideration of alternatives in SEA. You can access these resources at: http://www.epa.ie/pubs/advice/ea/ Best practice guidance on Integrated Biodiversity Impact Assessment is also available at: http://www.epa.ie/pubs/reports/research/biodiversity/strivereportno90.html	Noted and used where appropriate in this SEA.
	SEA WebGIS Search and Reporting Tool The EPA SEA WebGIS Search and Reporting Tool is a GIS based web application that allows users to explore, interrogate and produce an indicative report on key aspects of the environment in specific geographic areas. These reports are indicative and will provide an overview of key aspects of the environment within a specific plan area. This may be used to inform the SEA screening and scoping stages for Plans and Programmes with reference in the first instance to the land use sector, though it is also applicable to other sector plans. It may be accessed via www.edenireland.ie	Considered at SEA Screening stage of this CCAP.
	State of the Environment Report – Ireland's Environment 2016 In preparing the Plan and SEA, the recommendations, key issues and challenges described within our State of the Environment Report Ireland's Environment – An Assessment 2016 (EPA, 2016) should be considered, as relevant and appropriate to the Plan. Opportunities for selecting 'win-win' solutions when developing climate-related measures, to address multiple environmental challenges (air,	Noted, please see Chapter 3 for review of this and how the SEA and CCAP relates to the State of the Environment Report. Noted, and agreed, where possible the preparation of the CCAP and SEA have sought to prioritize "win-win" actions.

water etc.) should be prioritised.

2.3 Baseline Data

The baseline data assists in describing the current state of the environment, facilitating the identification, evaluation and subsequent monitoring of the effects of the plan. It helps identify Issues and Threats problems in and around the plan area and in turn these can be quantified (for certain environmental parameters) or qualified. This highlights the environmental issues relevant to each SEA parameter and ensures that the plan implementation does not exacerbate such problems. Conversely this information can also be used to promote good environmental practices and opportunities for environmental enhancement, thereby improving environmental quality where possible.

Baseline data was gathered for all parameters. Other data was gathered from the SEA ER of the South Dublin County Council Development Plan 2016-2022, Irish Water, the EPA, Met Eireann and other sources as appropriate. Project level environmental assessments where available in relation to transport proposals and/or flood risk management proposals were also reviewed. Footnotes throughout the document, particularly in Chapter Four present the reference and source.

The SEA has also used a Geographical Information System (GIS) in the following ways:

- To provide baseline information on a range of environmental parameters;
- To assist in assessment of alternatives;
- To help assess in-combination or cumulative impacts, and
- To provide maps to illustrate environmental parameters in the SEA Environmental Report.

2.4 Approach to assessment of significant environmental impacts

The principal component of the SEA involves a broad environmental assessment of the objectives/actions of the CCAP. A methodology that uses the concept of expert judgement, public consultation, GIS and matrices, both to assess the environmental impact and to present the conclusions has been adopted in this SEA.

Key to assessing the above is setting a specific set of environmental objectives for each of the environmental topics. The objectives are provided in Chapter Five and include all aspects of the environment such as Cultural Heritage, Population and Human health, and Biodiversity, Flora and Fauna.

The assessment described within this Environmental Report aims to highlight the potential conflicts, if they are present, between the aims and proposals contained in this South Dublin CCAP with the Strategic Environmental Objectives. Furthermore the assessment examines the potential impact arising from the plan's implementation on sensitive environmental receptors.

The SEA 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***, where applicable.

Chapter Seven provides a discussion, where relevant, on the significance and

type of the identified impact in accordance with current guidelines.

The SEA legislation and guidelines highlight the importance of the integration between the preparation of the CCAP and the SEA and AA processes. The iterative nature of the SEA process is such that the CCAP is informed by environmental considerations throughout the preparation of the CCAP and development of actions as relevant. The Screening Statement in support of Appropriate Assessment Report and Natura Impact Report are separate documents to the Environmental Report both of which accompany this South Dublin CCAP 2019-2024.

2.5 Mitigation

Section (g) of Schedule 2B of the SEA Regulations requires information on the mitigation measures that will be put in place to minimise/eliminate any significant adverse impacts due to the implementation of the CCAP. Chapter Eight of this SEA ER highlights the mitigation measures that will be put in place to counter identified significant adverse impacts due to the CCAPs implementation.

The CCAP has been prepared having regard to the environmental protection objectives contained within the South Dublin County Council Development Plan 2016-2022. However, some unavoidable residual issues may remain and therefore mitigation measures are required. Chapter Eight details the mitigation measures necessary to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the CCAP.

2.6 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 CCAP in order to identify at an early stage any unforeseen adverse effects and to be able to undertake appropriate remedial action. Chapter Nine presents the monitoring requirements for the plan, aligned where possible with those of the SEA of the South Dublin County Council Development Plan 2016-2022.

2.7 Strategic Flood Risk Assessment

The Planning System and Flood Risk Management Guidelines (DoEHLG 2009) provide a methodology to incorporate flood risk identification and management into land use strategies. It also requires the alignment and integration of flood risk into the SEA process. The core objectives of the Guidelines are to:

- Avoid inappropriate development in areas at risk of flooding;
- Avoid new developments increasing flood risk elsewhere, including that which may arise from surface water run-off;
- Ensure effective management of residual risks for development permitted in floodplains;
- Avoid unnecessary restriction of national, regional or local economic and social growth;
- Improve the understanding of flood risk among relevant stakeholders; and
- Ensure that the requirements of EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management.

The Strategic Flood Risk Assessment of the South Dublin CDP 2016-2022 has been used in this SEA ER as well as an

assessment of any flood related actions and proposals. These findings have been integrated into the CCAP and this SEA ER (See Chapters Four and Seven in particular).

2.8 Data Gaps

Data gaps are present in terms of human health and population at county level.

3 RELATIONSHIP TO RELEVANT PLANS AND PROGRAMMES

3.1 INTRODUCTION

Under the SEA Directive, the relationship between the CCAP and other relevant plans and programmes must be taken into account. A review of the relevant plans and programmes has been prepared as part of the SEA ER. The preparation of the CCAP must be considered within the context of a hierarchy of policies, plans and strategies which include international, national, regional and local level policy documents. These documents set the policy framework within which the proposed CCAP will operate.

The South Dublin County Development Plan 2016-2022 (CDP) operates as the primary land use framework for the county and as such, key policies/objectives and environmental protective objectives and policies of the CDP will be applied during CCAP implementation stage.

A list of the key relevant international, national, regional and county policies included in the review are listed below in Sections 3.2 to 3.4. Please see Annex B for a summary of these plans and programmes and their relevance to the CCAP and SEA.

Section 3.5 of this Chapter provides a focused consistency check between Actions in the National Mitigation Plan and key policies of the Eastern Regional and Economic Spatial Strategies that are considered to be particularly relevant to this CCAP[1].

Finally, Section 3.6 identifies key principles that will inform the SEA process arising from this review.

The plans and programmes of particular relevance to this CCAP are highlighted in the review of plans and programmes which can be found in Annex B of this SEA ER[2].

3.2 INTERNATIONAL

- UN Convention of Biological Diversity, 1992
- The Convention on Wetlands of International Importance (The Ramsar Convention) 1971 and subsequent amendments
- EU Environmental Action Programme to 2020
- SEA Directive - Assessment of the effects of certain plans and programmes on the Environment, (2001/42/EC) 2001
- Environmental Impact Assessment Directive (85/337/EEC) (97/11/EC), 1985 and Environmental Impact Assessment Directive (2014/52/EC)
- EU Biodiversity Strategy to 2020
- EU Directive on the Conservation of Wild Birds, (2009/147/EC) 1979. Known as the Birds Directive
- EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, (92/43/EEC), 1992 known as the Habitats Directive
- European Communities (Birds and Natural Habitats) Regulations 2011
- EU Green Infrastructure Strategy 2013

[1] This table was prepared on foot of the EPA Scoping submission which recommended aligning actions in the CCAP with those of the National Mitigation Plan. This opportunity was also used to check consistency with relevant policies/objectives of the Draft Eastern Regional Economic and Spatial Strategy

[2] Annex B was amended to reflect a recommendation by the EPA at Scoping Stage to provide a means to highlight relevance of plans to the CCAP.

- The Stockholm Convention 2001
- EU Soil Thematic Strategy
- Water Framework Directive (2000/60/EC) as amended
- Floods Directive (2007/60/EC)
- The Drinking Water Directive (DWD), (98/83/EC) 1998
- Groundwater Directive, (2006/118/EC) 2006
- EC Bathing Water Quality Directive, (2006/7/EC) 2006
- Paris (Climate Change) Agreement
- Kyoto Protocol
- The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive
- EU Directive on Waste, (2006/12/EC), 2006
- EU Directive on Waste (2008/98/EC), 2008
- EU Urban Waste Water Treatment Directive (91/271/EEC), 1991
- Directive 2009/28/EC on the promotion of the use of energy from renewable sources
- European Convention on the Protection of the Archaeological Heritage,
- 1992 (The Valletta Convention)
- Convention for the Protection of the Architectural Heritage of Europe, 1985 (Granada Convention)
- The European Landscape Convention 2000
- The Aarhus Convention
- Environmental Liability Directive 2004/35/EC

3.2.2 NATIONAL

- National Planning Framework 2018
- National Adaptation Framework 2018
- Water Framework Directive River Basin Management Plans 2018
- National Mitigation Plan
- Sectoral Climate Adaptation Plans 2018
- Local Authority Adaptation Strategy Development Guidelines, EPA 2016
- Our Sustainable Future A framework for sustainable development in Ireland (2012)
- The National Spatial Strategy 2002 -2020
- National Landscape Strategy (2015-2025)
- 3rd National Biodiversity Action Plan, 2017-2024
- The Wildlife Acts 1976 to 2012
- National Heritage Plan (2002)- to be replaced by Heritage Ireland 2030 (issues paper out now)
- All-Ireland Pollinator Plan 2015-2020
- European Union (Invasive Alien Species) (Freshwater Crayfish) Regulations 2018
- Irish Water's Capital Investment Programme
- Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas (Cities, Towns & Villages) (2009)
- Geological Heritage Sites Designation (under the Wildlife Amendment Act 2000)
- Water Services Act (2007)
- Water Services (Amendment) Act (2012)
- Irish Water Services Strategic Plan SEA and AA (2015)
- Irish Water Capital Investment Programme (2017-2024) including forthcoming planning application for Ringsend WWTP upgrade.
- Waterways Ireland Heritage Plan 2014-2020
- The Planning System and Flood Risk Management Guidelines (and Technical Appendices) for Planning Authorities (DoEHLG, OPW), 2009
- National Climate Change Strategy (2007-2012)
- Review of Ireland's climate change policy and Climate Action and Low Carbon Bill 2013
- Smarter Travel, A Sustainable Transport Future, A New Transport Policy for Ireland 2009-2020
- Spatial Planning and National Roads Guidelines
- National Transport Strategy for Greater Dublin Area 2016-2023[3]
- Design Manual for Urban Roads and Streets (DMURS)
- Electric Vehicle Grant Scheme and VRT Relief
- National Monuments Act 1930 with subsequent amendments
- Architectural Heritage Protection - Guidelines for Planning Authorities (2011)
- National Inventory of Architectural Heritage (NIAH)
- Draft Landscape and Landscape Assessment Guidelines, (2000)
- Planning and Development Act 2000 (as amended).
- Planning Policy Statement, 2015
- Green Low Carbon Agriculture Environment Scheme (GLAS)
- National Cycle Policy Framework 2009-2020

- National Transport Authority's Permeability Best Practice Guide
- Public Transport Act 2016

3.2.3 Regional and County

- A Strategy towards a Climate Change Action Plan for Dublin 2017
- Eastern and Midland Assembly (Draft) Regional Spatial and Economic Strategy (2018)
- Eastern-Midlands Regional Waste Management Plan 2015
- Greater Dublin Area Transport Strategy 2016-2035
- South Dublin County Council Development Plan 2016-2022
- South Dublin Local Economic and Community Plan 2016
- South Dublin Local Biodiversity Action Plan 2010 – 2015 (replacement plan in preparation).
- Catchment-Based Flood Risk Management Plans (CFRMP)
- Eastern Catchment Flood Risk Assessment and Management (CFRAM) Study 2011-2016
- Greater Dublin Strategic Drainage Study
- Living with Trees - South Dublin County Council's Tree Management Policy 2015-2020

3.4 Summary of Key Actions from the National Mitigation Plan and policies from the Draft Regional Economic and Spatial Strategies that are relevant to this CCAP.

TABLE 3 CONSISTENCY WITH ACTIONS IN THE NATIONAL MITIGATION PLAN RELEVANT TO THIS CCAP.

	National Mitigation Plan 2017	Climate Change Action Plan 2019-2024
Action 9	Develop proposals to establish regional climate action offices to coordinate Local Authority response to climate action.	Established and has co-ordinated CCAP for each of the Dublin Local authorities
Action 10	Ensure climate considerations are fully addressed in new National Planning Framework.	Indirectly through the Regional Spatial and Economic Strategy once adopted and requirement for Variations to CDP to incorporate the RSES.
Action 30	Housing Assistance Package – Local Authorities signed up to participate and scheme operational.	Yes but awaiting budget Action 11 of the Energy Section *Expand housing assistance programme to include tenant energy awareness*
Action 31	Warmth & Wellbeing Scheme – 1,500 homes will be upgraded for occupants who qualify for the scheme	Recommended as a Mitigation Measure in this SEA ER as follows: Promote and highlight the Warmth and Wellbeing Scheme in conjunction with HSE
Action 51	Investment in infrastructure and behavioural change interventions to encourage and support a shift to sustainable modes of transport.	Actions 1 to 14 of the Transport section identify a comprehensive range of actions to encourage and support modal shifts
Action 89	Continue to support climate and land based research at national and international levels	The role of the Dublin Metropolitan CARO (which will oversee implementation of the CCAP) is to: • Assist the local authorities within the region in preparing their own Climate Change Action Plan • Develop education and awareness initiatives for the public, schools, NGOs and other agencies engaged in driving the climate change agenda and contributing to the National Dialogue on Climate Action on a local and regional basis • Link with third-level institutions in developing a centre of excellence for specific risks – in the case of the Metropolitan Region this will be for urban climate effects • Liaise and interact with the Dublin energy agency Codema

	National Mitigation Plan 2017	Climate Change Action Plan 2019-2024
105	Analyse the barriers to the diversification of farm incomes related to supply of materials and residues for renewable energy and adoption of AD.	Existing CDP promotes Farm diversification: *Proposals for farm diversification that involves the development of sustainable business initiatives that are subsidiary to, and directly linked to the primary use of a property for agriculture will generally be favourably considered. - County Development Plan 2016-2022*

TABLE 4 RELEVANT POLICY OBJECTIVES FROM THE DRAFT REGIONAL SPATIAL AND ECONOMIC STRATEGY EASTERN AND MIDLANDS REGION

Please note the Regional Spatial and Economic Strategy is currently in draft form so the Regional Policies Objectives listed below may be subject to change prior to adoption.

Relevant Policy Objectives from the Draft Regional Spatial and Economic Strategy Eastern and Midlands Region		
Low Carbon Economy RPO 6.20	Support enterprise development agencies and LEOs on the development of industries that create and employ green technologies and take measures to accelerate the transition towards a low carbon economy and circular economy.	In partnership with Enterprise Ireland, Smart Dublin runs Small Business Innovation Research (SBIR) competitions, which challenge smart technology providers, researchers and citizens to come up with solutions that will improve the operation and resilience of the Dublin Region.
RPO 7.15:	Local Authorities shall take opportunities to enhance biodiversity and amenities and to ensure the protection of environmentally sensitive sites and habitats, including where flood risk management measures are planned.	Actions 8,9, 10 and 11 under Flood Resilience are consistent with this RPO 8: Tree planting for water attenuation 9 Develop demonstration sites to show how to combine SuDS/flood attenuation systems with existing land uses 10 Protect and conserve floodplains, wetlands, rivers and watercourses subject to flooding 11 Integrated constructed wetlands for water attenuation and purification
RPO 7.17	: Facilitate cross boundary co-ordination between Local Authorities and the relevant agencies in the Region to provide clear governance arrangements and coordination mechanisms to support the development of ecological networks and enhanced	Actions including Actions 1,2,3 and 5 in Nature Based Solutions are consistent with this as follows: 1. Establish regional working group to identify areas and priorities for actions 2 Establish a cross- departmental Trees and SUDS Working Group to

Relevant Policy Objectives from the Draft Regional Spatial and Economic Strategy Eastern and Midlands Region		
	connectivity between protected sites whilst also addressing the need for management of alien invasive species and the conservation of native species.	promote and pilot water- sensitive urban design (WSUD) incorporating 3 Workshop to develop Dublin Risk Assessment for nature and climate change 2018 Multi-departmental Workshop conducted, assessment developed 5 Produce regional floodplain management guidelines - use Santry River as a demonstration
REGIONAL POLICY OBJECTIVES: Green Infrastructure RPO 7.21	Local authority Development Plan and Local Area Plans, shall identify, protect, enhance, provide and manage Green Infrastructure in an integrated and coherent manner and should also have regard to the required targets in relation to the conservation of European sites, other nature conservation sites, ecological networks, and protected species.	SDCC County Development Plan 2016-2022 includes a large number of GI policy and objectives such as ET6; G2; G4; HCL8; HCL9; HCL10; HCL17. Actions in the Nature Based Solutions theme include a number of GI actions such as Actions 7,8,9 and 10 for example: 7 Develop Green Infrastructure Strategy that identifies areas and priorities for green infrastructure and investment 8 Develop Public Open Space and Parks Strategy that incorporates climate change mitigation and adaptation
RPO 7.22	:Support the further development of Green Infrastructure policies and coordinate the mapping of strategic Green Infrastructure in the Region.	See Action 7 above
Greenways, Blueways and Peatways RPO 7.23:	Promote the development of a sustainable Strategic Greenway Network of national and regional routes, with a number of high capacity flagship routes that can be extended and /or linked with local Greenways and other cycling and walking infrastructure.	See Action 11 in Active Travel under Transport Theme
Climate Change RPO 7.28	Within 1 year of the adoption of the RSES, the EMRA shall seek with other stakeholders to carry out an assessment of transport emissions in the Region to identify GHG forecasting and to analyse the emissions impacts of development in the Region.	This can be supported through the baseline study of Greenhouse Gas Emissions for the local authority undertaken for 2016 by Codema with support from SEAI.

Relevant Policy Objectives from the Draft Regional Spatial and Economic Strategy Eastern and Midlands Region		
RPO 7.31:	Local Authorities shall develop, adopt and implement local climate action strategies which shall assess local vulnerability to climate risks, quantify the emissions produced within their jurisdictions, and identify, cost and prioritise adaptation actions in accordance with the guiding principles of the National Adaptation Framework	The CCAP is the draft action plan that will meet this objective.
RPO 7.32:	Climate Action Regional Offices shall provide guidelines and support to the Local Authorities on the development, adoption and implementation of local climate action strategies (both mitigation and adaption). These guidelines shall include the specific actions and obligations and timescales for same that must be undertaken by the Local Authorities to comply with national policy.	As above, this Draft Climate Change Action Plan has been prepared by the Dublin energy agency Codema, in partnership with the Environment, Public Realm and Climate Change Policy Committee and the Elected Members of South Dublin County Council. The Draft Action Plan was also prepared having regard to A Strategy towards Climate Change Action Plans for the Dublin Local Authorities, published in 2017.
RPO 7.33:	EMRA supports the National Policy Statement on Bioeconomy (2018) and supports the exploration of opportunities in the circular resource-efficient economy including undertaking a bio-economy feasibility study for the Region to identify the area of potential growth in the Region to inform investment in line with the national transition objective to a low carbon climate resilient economy.	Action 18 in Energy: Assess feasibility of additional low carbon district heating networks: Clonburris and Grange Castle
Building Standards RPO 7.38:	Local Authorities shall report annually on energy usage in all public buildings and will achieve a target of 33% improvement in energy efficiency in all buildings in line with the requirements of the National Energy Efficiency Action Plan (NEEAP).	Stated target of the CCAP is a 33% improvement in council's energy efficiency by 2020. Baseline section of the CCAP provides a bre
RPO 7.39:	Local Authorities shall include policies in statutory land use plans to promote high levels of energy conservation, energy efficiency and the use of renewable energy sources in existing buildings,	

Relevant Policy Objectives from the Draft Regional Spatial and Economic Strategy Eastern and Midlands Region		
	including retro fitting of energy efficiency measures in the existing building stock and energy efficiency in traditional buildings. All new buildings within the Region will be required to achieve the Nearly ZeroEnergy Buildings (NZEB) standard in line with the Energy Performance of Buildings Directive (EPBD).	
RPO 7.40:	Support and promote structural materials in the construction industry that have low to zero embodied energy & CO2 emissions.	
Decarbonising Transport RPO 7.41	Local Authorities shall include proposals in statutory land use plans to facilitate and encourage an increase in electric vehicle use, including measure for more recharging facilities and prioritisation of parking for EVs in central locations.	

3.3 KEY PRINCIPLES IDENTIFIED FROM REVIEW.

Following the review of the relationship between the above plans, policies and programmes the following key principles have been identified and this have been considered through the SEA and helped to inform the CCAP development.

Table 5 Principles from plan, policy and programme review.

SEA Topic	Principles/Implications for the CCAP and SEA	EPA State of Irelands Environment 2016 Key Issues	CCAP 2019-2024 Relevant Theme
Biodiversity, Flora and Fauna	• Conserve and enhance biodiversity at all levels • Avoid and minimise effects on nationally and internationally rare and threatened species and habitats through sensitive design and consultation, recognising ecological connectivity where possible • Facilitate species and habitat adaption to climate change • Avoid and minimise habitat fragmentation and seek opportunities to improve habitat connectivity • Ensure careful consideration of non-native invasive and alien species issues	Implementation of legislation Climate change Environment and health and well being Nature and wild places	Nature Based Solutions Citizen Engagement and Awareness Flood Resilience Resource management
Population and Human Health	• Provide for sustainable communities with key services • Energy efficiency in buildings and model transport shift • A high quality environment to live, work	Environment and health and well being Implementation of legislation Climate change Community engagement	Energy Transport Nature Based Solutions Resource Management Citizen engagement

SEA Topic	Principles/Implications for the CCAP and SEA	EPA State of Irelands Environment 2016 Key Issues	CCAP 2019-2024 Relevant Theme
	and play in • Avoid pollution and environmental health impacts (noise and air quality) through mitigation and design • Awareness raising	Sustainable economic activities	
Water	• Maintain and improve water quality • Avoid and minimise effects on natural processes, particularly natural flood management and catchment processes through sensitive design and consultation • Adapt and improve resilience to the effects of climate change • Minimise water consumption/ abstractions • Design SUDS to facilitate ecological improvement/ enhancement where possible	Restore and protect water quality Implementation of legislation Climate change Environment and health and well being	Nature Based Solutions Resource Management Citizen engagement and awareness
Soil and Geology	• Conserve soil resources where possible and avoid waste of soil resources • Maintain productive capacity and prevent erosion of soils • Ensure careful consideration of non-native invasive and alien species issues	Climate change Environment and health and well being Sustainable economic activities	Resource Management Nature Based Solutions Citizen engagement and awareness
Material Assets	• Avoid and minimise waste generation • Maximise re-use of material resources and use of recycled materials • Minimise energy consumption and encourage use of renewable energy	Restore and protect water quality Implementation of legislation Climate change Environment and health and well	Nature Based Solutions Resource Management Citizen engagement and awareness Flood Resilience

SEA Topic	Principles/Implications for the CCAP and SEA	EPA State of Irelands Environment 2016 Key Issues	CCAP 2019-2024 Relevant Theme
	• Promote sustainable transport patterns and modes where possible. • Plan and provide for sustainable water management and wastewater treatment • Modal shifts and sustainable transport • Awareness raising	being Sustainable economic activities	Energy Transport
Air Quality and Climate	• Adapt and improve resilience to the effects of climate change • Encourage reduction in greenhouse gases through transport, energy, built development. • Minimise adverse impacts associated with air and noise quality	Climate change Implementation of legislation Environment and health and well being	Energy Transport Resource Management Nature based solutions Citizen Engagement
Cultural Heritage	• Conserve, preserve and record architectural and archaeological heritage • Avoid and minimise effects on historic environment features through sensitive design and consultation	Environment and health and well being Sustainable economic activities	Nature based solutions Citizen engagement Transport
Landscape	• Integrate green and blue infrastructure considerations • Improve landscape connectivity to surrounding areas	Environment and health and well being Nature and wild places	Nature based solutions Flood resilience Citizen Engagement Resource Management
Climate change and sustainability	• Adapt and improve resilience to the effects of climate change • Promote local/ sustainable sourcing of materials	Environment and health and well being Sustainable economic activities Climate change Implementation of legislation	Nature based solutions Flood resilience Citizen Engagement Resource Management Energy

SEA Topic	Principles/Implications for the CCAP and SEA	EPA State of Irelands Environment 2016 Key Issues	CCAP 2019-2024 Relevant Theme
	Promote sustainable design and innovation to reduce material consumption		Transport
Inter-relationships	• Maintain and improve the health of people, ecosystems and natural processes • Adapt and improve resilience to climate change and extreme weather events • Actively seek to integrate opportunities for environmental enhancement	Environment and health and well being Sustainable economic activities Climate change Implementation of legislation Nature and wild places Restore and protect water quality Community engagement	Nature based solutions Flood resilience Citizen Engagement Resource Management Energy Transport

4 KEY ENVIRONMENTAL RESOURCES

4.1 INTRODUCTION

This chapter describes the environmental baseline for the South Dublin CCAP area. The baseline information presents the environmental context within which the CCAP will operate and the opportunities, constraints and targets placed on the plan in this regard. The environmental data is described in line with the legislative requirements of the SEA Directive and Regulations, as amended under the following environmental parameter headings:

- Population and Human Health
- Biodiversity, Flora and Fauna
- Soil and Geology
- Air and Climate
- Water
- Material assets
- Culture
- Landscape
- The inter-relationship between the above parameters will also be considered in this chapter.

4.1.1 THE PLAN AREA AND SPHERE OF INFLUENCE

The CCAP for South Dublin in the first instance identifies both general actions and more site specific actions. However, given that the four Dublin Local Authorities are preparing thise CCAPs in tandem, there is also a regional aspect to the sphere of influence. This is particularly relevant where plan actions relate to features such as rivers and/or landscapes that can and do cross local authority boundaries. Similarly mobile species may disperse over larger areas of the landscape and require consideration at a different scale.

The potential for cumulative and in-combination effects (both positive and negative) are also a consideration in this SEA ER.

4.2 POPULATION AND HUMAN HEALTH

This section provides information on the current population and demographic trends in South Dublin and more broadly at Regional Level. Impacts can arise on people's health and quality of life from a range of environmental factors, often through a combination of environmental impacts such as landuse, water quality, air quality, noise and transport patterns. Many of these may be exacerbated from climate change effects and impacts.

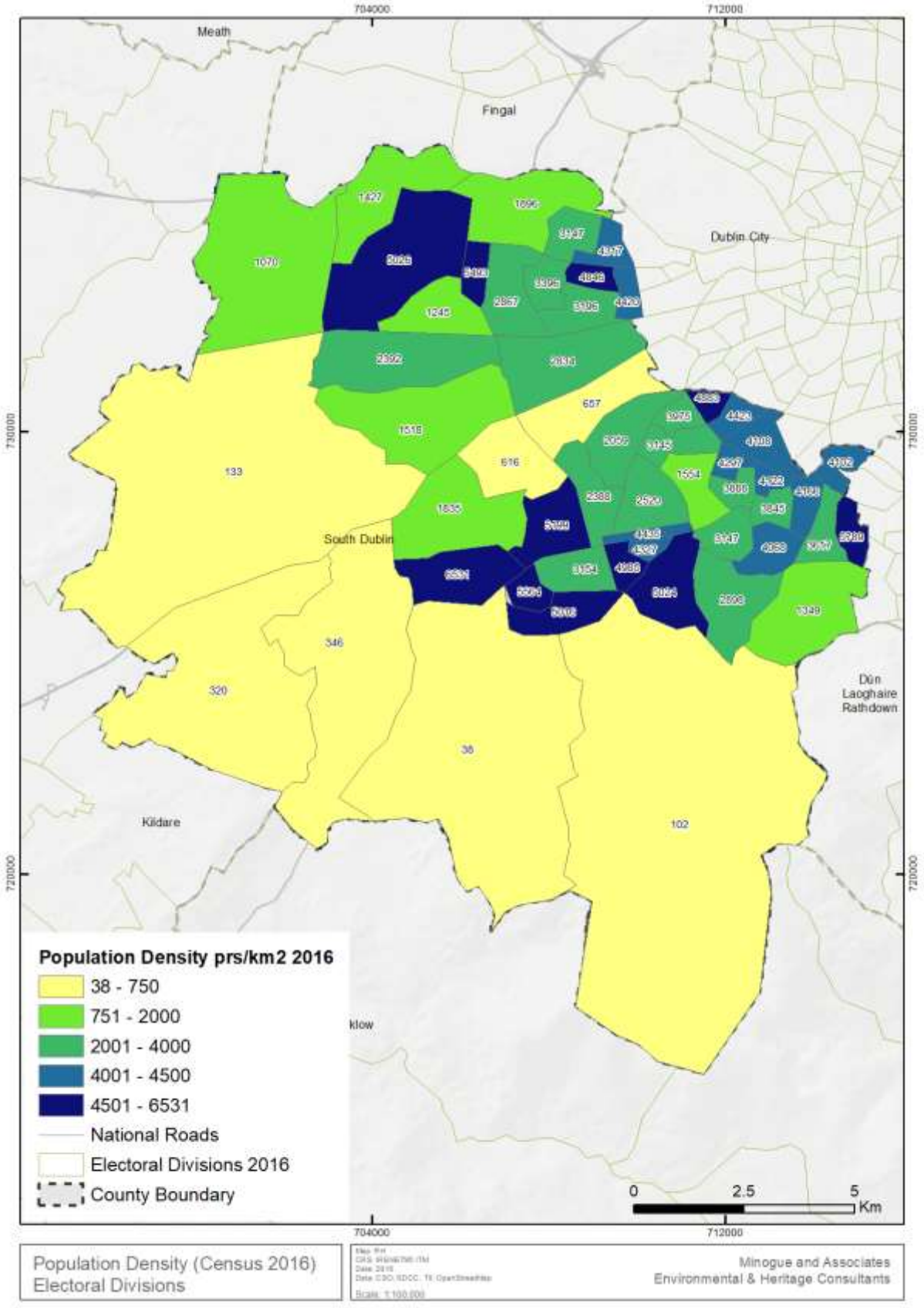
When compared with their surrounding regions, urban areas are considered to be particularly vulnerable to these climatic changes. This is due to: the high concentrations of population, infrastructure and economic activities located in these areas, the exacerbation of climate impacts by urban-scale phenomena and dependency on surrounding regions for service provision[4].

Figure 1 below presents population density for the South Dublin County based on the 2016 Census. The 2016 census data shows that the South Dublin area grew by more than 5% in the period 2011 to 2016. As the figure shows, population

[4] This paragraph is taken from the Urb Adapt Project Summary running till 2019 will use the Dublin Region as a case study that will allow for the integrated assessment and management of current and future climate vulnerabilities within the context of existing climate and non-climate pressures and spatial planning practices. https://urbadapt.com/

density varies throughout the county, with implications in terms of provision of services, ecological connectivity and maximising sustainable transport and landuse. In terms of broad trends however, the figure below shows greater population densities in the east and southeast of the county, closer to Dublin city; whilst the more rural areas including the foothills of the Dublin Mountains and around Saggart reflect this rural landuse and lower population densities.

Figure 1 Population Density of South Dublin County (Census 2016)



4.2.2 HUMAN HEALTH

Human health can be determined by social, environmental and economic factors, among others. Human health may be impacted upon in a variety of ways and by a number of environmental receptors such as water, biodiversity, climate, flooding, air and major accidents, etc. The exposure to contaminants or pollutants can have serious implications for human health. Potential impacts on population and human health include inadequate water and wastewater and waste infrastructure, contamination of soils, excessive noise, flooding and poor air quality in areas where there are large volumes of traffic.

The Institute of Public Health states:

'*Where people live affects their health. There are a number of elements of the living environment that influence health including the built environment, travel choices and the communities in which people live. The design, maintenance and location of buildings influence health. Similarly, public spaces and transport networks can facilitate health by providing opportunities for physical activity, social interaction and access to social goods'*.

Disadvantaged people are more likely to live in poor quality built environments and have limited access to transport and local amenities supporting healthy choices. This has further implications in regard to climate change and CCAP actions such as, retrofitting of houses and potential exposures to air quality emissions. **Figure 2** below identifies key factors that contribute to human health. This is followed by a summary of the key environmental factors that can affect human health.

FIGURE 2 ENVIRONMENTAL DETERMINANTS OF HEALTH[5]

[5] The determinants of health and well-being (Barton & Grant 2006)

4.2.3 Human Health and Noise

Environmental noise is treated in a different way to noise nuisance. A nuisance noise is something that occurs from time to time and is not usually considered to be a feature of life in the local area. For example, a noisy dog or late night parties are short term occurrences. Even if they happen regularly, they are not caused by any long term activities and so they are thought of as nuisance noise. Environmental noise is from long term or permanent sources, like major transport routes and factories. Noise from these sources has a different effect on people and is managed in a different way. The Environmental Noise Directive was written into Irish law in 2006, through the Environmental Noise Regulations (Statutory Instrument No. 140 of 2006). This law relates to the assessment and management of environmental noise. They provide for a common approach intended to avoid, prevent or reduce the harmful effects, including annoyance, due to exposure to environmental noise. These regulations do not apply to nuisance noise which can be dealt with under the Environmental Protection Agency Act.

Noise Action Plans are required under the Environmental Noise Directive (EU 2002/49/EC) transposed in to Irish law by SI 140 of 2006. South Dublin in conjunction with the other three Dublin local authorities have prepared a plan for 2013-2018 and establishes the measures that the councils intend to take to manage environmental noise exposure. The plan also contains an assessment of possible noise hotspots throughout the area. The Dublin Agglomeration Environmental Noise Action plan 2018-2023 is currently on public display until December 2018.

In the context of the CCAP, existing roads operate as the greatest noise generators. Thresholds for desirable low and undesirable high sound levels in the Noise Action Plan are as follows:

- Desirable Low Sound levels • < 50 dB(A) Lnight • < 55 dB(A) Lday
- Undesirable High Sound levels • > 55 dB(A) Lnight • > 70 dB(A) Lday

Figure 3 shows noise mapping for major roads in South Dublin; the deeper colours (purple to orange) representing undesirable sound levels for nightime (greater than 55db). As the map shows in relation to the CCAP lands, the M50 to the west and the Naas Road all exceed desirable sound levels for nightime. The 24 hour mapping for major roads reinforced this finding.

The Dublin Agglomeration Environmental Noise Action Plan 2013-2018 (and the Draft Dublin Agglomeration Environmental Noise Action Plan 2018-2023) sets out a number of potential mitigation measures to address noise issues that are under the local authorities remit.

4.2.4 Human Health and Air Quality

The Air Framework Directive 96/62/EC (CEC, 1996) details how ambient air quality should be monitored assessed and managed. This Directive requires that member states divide their territory into zones for the assessment and management of air quality. South Dublin as part of the Dublin City agglomeration is designated as a Zone A.

The Air Quality Index of health[6] is based on hourly monitoring data from sites around Ireland and is based is based on

[6] http://www.epa.ie/air/quality/

measurements of five air pollutants all of which can harm health. The five pollutants are:

- Ozone gas
- Nitrogen dioxide gas
- Sulphur dioxide gas
- PM2.5 particles and
- PM10 particle

South Dublin is located within the 'Dublin City' region. The two key sectors that predominantly impact negatively on air quality are residential heating and transport[7].

The Air Pollution Regulations (2012) were signed into law by the Minister for Environment, Community and Local Government on 31st August 2012. One of the key elements of the regulations has been the designation of new towns as smokeless zones and the expansion of the ban areas in towns that were previously covered under the old regulations. All of the four local authorities in Dublin have a ban on the sale, marketing, distribution and burning of specified fuel i.e. only smokeless fuel allowed

The EPA State of the Environment Report (2016) has further highlighted the role of environmental quality and health and in turn has highlighted the adoption of the newer more stringent World Health Organization guideline values for air quality. The Clean Air Policy Package (EC 2014) involves a move to tackling air emissions at source with potentially tighter air quality standards from 2020 onwards[8].

[7] Air Quality in Ireland 2016 EPA

[8] SEA ER of National Mitigation Plan 2017.

4.2.5 EXISTING ISSUES POPULATION AND HUMAN HEALTH.

The key issues associated with the Eastern and Midland RSES[9] and population/human health were used for this section, complemented by issues identified in the South Dublin CDP 2016-2022, key relevant issues include:

- Addressing historic settlement pa tterns leading to sprawl and unb alanced regional development;
- Increased capacity/ infrastructural requirements for water and waste water treatment to service popula tion growth;
- Increased requirements for publi c transport services and cycle co rridors to service population gro wth and commuter belts;
- Increasing car dependency and ass ociated emissions to air;

The SEA ER of the SDCC Development Plan 2016-2022 identifies a need to increase population in more established districts of the County where there is both good public transport and community infrastructure. New and existing infrastructural developments are to be utilised to maximum effect. Traffic emissions as the main area of concern in relation to air pollution; and this is also reflected in the Noise Mapping undertaken as part of the Dublin Agglomeration Action Plan that indicated traffic congestion and movement were the issues of concern regarding noise pollution.

- Changes in climate, especially increases in temperature, will impact the concentration of pollutants in the air, as temperatures increase, so too will the concentration of pollutants. This is also the case with the

[9] SEA Environmental Report for the draft Eastern and Midland RSES https://emra.ie/draft-rses-public-consultation/

changing strength and frequency of high wind speeds due to climate change, which may cause pollutant dispersion and could potentially affect a larger area and population

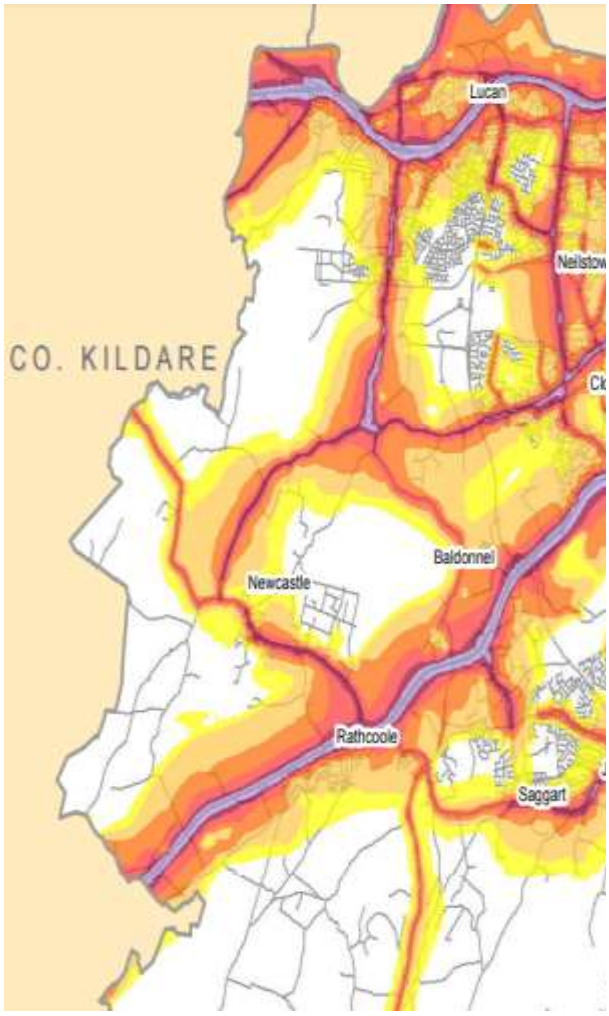


FIGURE 3 NIGHT TIME NOISE LEVELS FROM ROADS, SOUTH DUBLIN COUNTY

4.3 BIODIVERSITY, FLORA AND FAUNA

In general terms biodiversity[10] refers to:

- Different habitats such as woodlands, wetlands, grasslands and estuarine habitats and the range of flora and fauna species they support.
- Different species such as plants, mammals, birds, insects, fish, microbes, mosses and fungi, and their inter-relationships such as food chains and cohabitation.
- Genetic diversity within species which is vital for healthy populations of individual species to survive. Ecosystems diversity which are the relationships between different species, their habitats and their local, non-living environment (geology, hydrology and microclimate).
- Features of the landscape, which by virtue of their linear and continuous structure (such as hedgerows or streams) or their function as links (such as ponds or small woods) are essential for the migration, dispersal and genetic exchange of wild species.
- Flora and Fauna are the plant and animal life, respectively.

A wide range of economic and social benefits and services result from the protection of biodiversity, for example, it forms the basis of our landscapes, provides for food and clean water supplies, opportunities for waste disposal,

[10] Text from draft SEA ER of Clare CDP 2017-2023

nutrient recycling, flood storage and regulation, amenity and recreational opportunities through development of green infrastructure network.

It is increasingly recognised the nature based solutions can offer a further means to adapt and respond to climate change.

4.3.1 Designated Sites

Within the County there are habitats of high biodiversity and conservation value and a number of designated sites associated within the county which are designated as Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Natural Heritage Areas (NHAs).

Whilst Natural Heritage Areas (NHAs) and other designated sites do not form part of the Natura 2000 network they contribute to the network in a supporting role, often by providing stepping stones and ecological connectivity for mobile species in particular. Under the Wildlife Amendment Act (2000), Natural Heritage Areas are legally protected from damage from the date they are formally proposed for designation.

A summary of designated sites in South Dublin is provided below, for further information on European Sites please see the accompanying Natura Impact Report.

SITE NAME: GLENASMOLE VALLEY SITE CODE: 001209 Glenasmole Valley in south Co. Dublin lies on the edge of the Wicklow uplands, approximately 5 km from Tallaght. The River Dodder flows through the valley and has been impounded here to form two reservoirs which supply water to South Dublin. The non-calcareous bedrock (Schist and Quartzite) of the Glenasmole Valley has been overlain by deep drift deposits which now line the valley sides. They are partly covered by scrub and woodland, and on the less precipitous parts, by a herb-rich grassland.

The valley harbours a number of Annex I habitats and species including

Petrifying springs; Orchid-rich grassland; Molinia meadow; Kingfisher; Otter; Pipistrelle Bat and Leisler's Bat; Daubenton's Bat, and Brown Long-eared Bat.

Other rare species, include those located within the Red Data Book such as:-

Green-winged Orchid (*Orchis morio*), Small-white Orchid (*Pseudorchis albida*), Yellow Archangel (*Lamiastrum galeobdolon*), and Yellow Bird's-nest (*Monotropa hypopitys*).

SITE NAME: WICKLOW MOUNTAINS (A section of the SAC is located in South Dublin County. SITE CODE: 002122

This site is a complex of upland areas in Counties Wicklow, South Dublin and Dun Laoghaire- Rathdown, flanked by Blessington Reservoir to the west and Vartry Reservoir in the east, Cruagh Mt. in the north and Lybagh Mt. in the south. Most of the site is over 300m.

The Wicklow Mountains are drained by several major rivers including the Dargle, Liffey, Dodder, Slaney and Avonmore.

Poor mineral soil covers the slopes and rock outcrops are frequent. The vegetation over most of the site is a mosaic of heath, blanket bog and upland grassland (mostly on peaty soil, though some on mineral soil), with stands of dense Bracken (*Pteridium aquilinum*) and small woodlands mainly along the rivers. Mountain loughs and corrie lakes are scattered throughout the site.

Large areas of the site are owned by NPWS, and managed for nature

conservation based on traditional landuses for the uplands. The most common landuse is traditional sheep grazing. In the last 40 years, forestry has become an important landuse in the uplands, and has affected both the wildlife and the hydrology of the area. Amenity use is very high, with Dublin city close to the site. Wicklow Mountains cSAC is important as a complex, extensive upland site. It shows great diversity from a geomorphological and a topographical point of view. The vegetation provides examples of the typical upland habitats

4.3.2 PROPOSED NATURAL HERITAGE AREAS
Five pNHAs are located within South Dublin, as follows:

SITE NAME: LIFFEY VALLEY. SITE CODE: 000128 The Liffey Valley site is situated along the River Liffey between Leixlip Bridge on the Kildare- Dublin border and downstream of the weir at Glenaulin, Palmerstown, Co. Dublin. The river meanders through low hills for much of its course through the site and forms the focus for the site itself. The main terrestrial habitat included within the site is mixed deciduous woodland on fertile boulder clay. This site is part of the Liffey Valley Special Amenity Area Order 1990. The site is important because of the diversity of the habitats within the site, ranging from aquatic to terrestrial. A number of rare and threatened plant species have been recorded from the site.

SITE NAME: GRAND CANAL. SITE CODE: 002104 The Grand Canal is a man-made waterway linking the River Liffey at Dublin with the Shannon at Shannon Harbour and the Barrow at Athy. The Grand Canal Natural Heritage Area (NHA) comprises the canal channel and the banks on either side of it. The bio-diversity of the water channel is particularly high in the eastern section of the Main Line - between the Summit level at Lowtown and Inchicore.

The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species, although a number of rare and protected species do occur.

SITE NAME: DODDER VALLEY. SITE CODE: 000991 This stretch of the River Dodder extends for about 2 kilometres between Firhouse bridge and Oldbawn bridge in the south-west of Dublin city.

The vegetation consists of woodland scrub mainly of Willow (*Salix spp*.). Understorey vegetation contains Early Purple Orchid (*Orchis mascula*) and Bugle (*Ajuga reptans*). Forty-eight species of bird have been recorded recently in the area. Part of the river bank supports a Sand Martin colony of up to 100 pairs. This site represents the last remaining stretch of natural river bank vegetation of the Dodder in the built up Greater Dublin Area.

SITE NAME: LUGMORE GLEN. SITE CODE: 001212 This small wooded glen is located about 2 km south-east of Saggart in Co Dublin. It is quite a narrow valley cut in glacial drift. A small stream winds through the valley.

The rare Yellow Archangel (*Lamiastrum galeobdolon*) occurs at this site and was recorded as being frequent in 1991. The importance of this site is that it is a fine example of a wooded glen with a good representation of woodland plants. This type of semi-natural habitat is now scarce in Co Dublin

SITE NAME: SLADE OF SAGGART AND CROOKSLING GLEN. SITE CODE: 000211

This site is located in the south-west of the county and stretches from Brittas

northwards to approximately 2 km south of Saggart. The northern half of the site comprises a river valleywith steep tree-covered sides, while the southern side is flatter and contains two small lakes, the Brittas Ponds.

The site includes a good example of a wooded river valley and a small wetland system. The presence of a Rare plant, a Rare invertebrate and a variety of wildfowl species adds to the interest of the site.

4.3.3 Aquatic Biodiversity, Flora and Fauna.

The Eastern Regional Fisheries Board noted 3 no. waterbodies within the county which support important fisheries. These are the Grand Canal, and the Rivers Liffey and Dodder5. The latter two support Atlantic Salmon (*Salmo salar*, Annex II of the Habitats Directive), Brook Lamprey (also listed on Annex II of the Habitats Directive) and brown and sea trout. The Dodder also supports an extensive range of rare aquatic flora along its entire length, for example Fools watercress (*Apium nodiflorum*), water mint (*Mentha aquatica*), sharp flowered rush (*Juncus acutiflorus*), iris (*Iris pseudocorus* and blue water speedwell (*Veronica anagallis aquatica*).

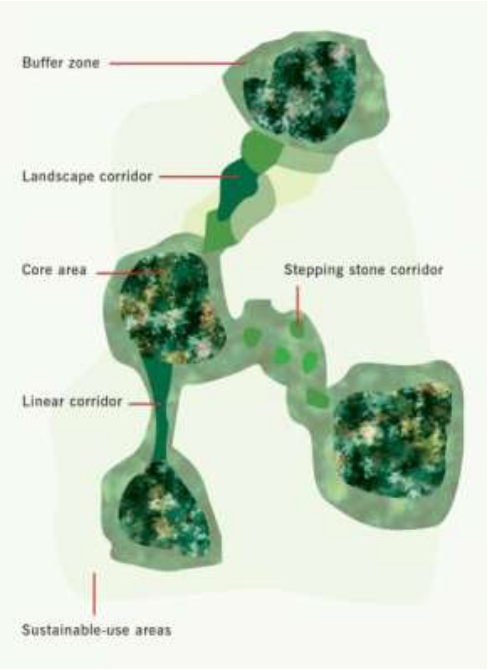
In addition some protected species such as White Clawed Crayfish are to be found in the Grand Canal. The canal also supports a large amount of coarse fish.

It is noted that the River Camac, Owendoher and Greenogue Stream (Newcastle) are known to support brown trout.

4.3.4 Ecological Corridors and Stepping Stones

As natural habitats become more fragmented as a result of human activity, habitat patches and corridors within a landscape mosaic become increasingly important for species to allow movement between populations. **Figure 4** below presents an overview of the landscape mosaic with stepping stones and corridors.

FIGURE 4 OVERVIEW OF LANDSCAPE MOSAIC WITH STEPPING STONES AND ECOLOGICAL CORRIDORS[11]



Within the plan area, ecological corridors can include in particular, roadside grassy verges and streams and other waterbodies. Hedgerows and treelines can also function as locally important corridors for a number of species. Hedgerows are also particularly important for facilitating movement through the landscape for flying insects including butterflies, and bees.

Stepping stones relate to small pockets of habitat can be used by species to shelter, rest or food provision. They can play an important role in facilitating longer distanced dispersal as well as refuges for species to breed in. These can provide important links between larger protected areas and corridors, in this context, this

[11] source: http://www.sicirec.org/definitions/corridors)

could include small areas of wet grassland, ponds, meadow grassland habitats, and treelines
Important ecological corridors include:

- the Liffey Valley, connecting Wicklow, Kildare, South Dublin, Fingal and Dublin City;
- the Dodder Valley and tributaries, connecting South Dublin, Dun Laoghaire-Rathdown and Dublin City, and the
- Grand Canal which connects the River Shannon to Dublin City, through South Dublin.

Figure 7 shows the key hedgerow and water features within South Dublin.

4.3.5 Alien and Invasive Species

The control of invasive species in Ireland comes under the Wildlife (Amendment) Act 2000. Under the European legislation, the Birds and Natural Habitats Regulations 2011 (SI 477 of 2011) , Section 49(2) prohibit the introduction and dispersal of species listed in the Third Schedule (including Japanese Knotweed) whereby "any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow [….] shall be guilty of an offence."

Note some of the alien and invasive species are considered greater risk than others, and the potential for water corridors such as the Dodder, Camac or Grand Canal to be vectors of the dispersal of these species is important; as well as accidental transfer or introduction arising from construction activities or recreational activities.

4.3.6 Existing Issues: Biodiversity, Flora and Fauna

Projected increases in temperature, wind speeds, cold snaps and rainfall will put an increased stress on biodiversity, by causing damage, habitat loss and increasing the prevalence of invasive species.

Flood plains and wetland areas are essential for flood control, pollution control, water quality and supply as well as act as vital carbon sinks, along with peatlands and woodlands, which could help address climate change. Changes in precipitation levels, air and soil temperatures, water availability and sea level rise all have implications in terms of effects on biodiversity. The effects will be cumulative, long-term and often complex. The uncertainty that surrounds climate change and what will occur also adds to the complexity and uncertainty of identifying impacts.

Other key issues relate to the following:

- Enhancing existing ecological resources such as the Grand Canal and River Camac
- Promoting and facilitating ecological connectivity through consideration of green infrastructure and blue infrastructure
- Considering open space provision
- Enhancing ecological considerations within the urban realm
- Addressing and controlling invasive species
- The potential for climate change to increase spread of non-native species, habitat change and increases spread of pathogens
- Using nature based solutions to adapt to climate change
- Ensuring increased walking and cycling proposals minimise adverse effects to flora and fauna.

The SEA ER of the Eastern and Midland RSES identifies further potential issues relating to this CCAP:

- Loss or disturbance of habitats and species from land use change and changes to land management; and
- in combination/cumulative effects without landuse plans and programmes such as forestry, fisheries etc.

Figure 5 Special Area of Conservation sites within 15km of the County

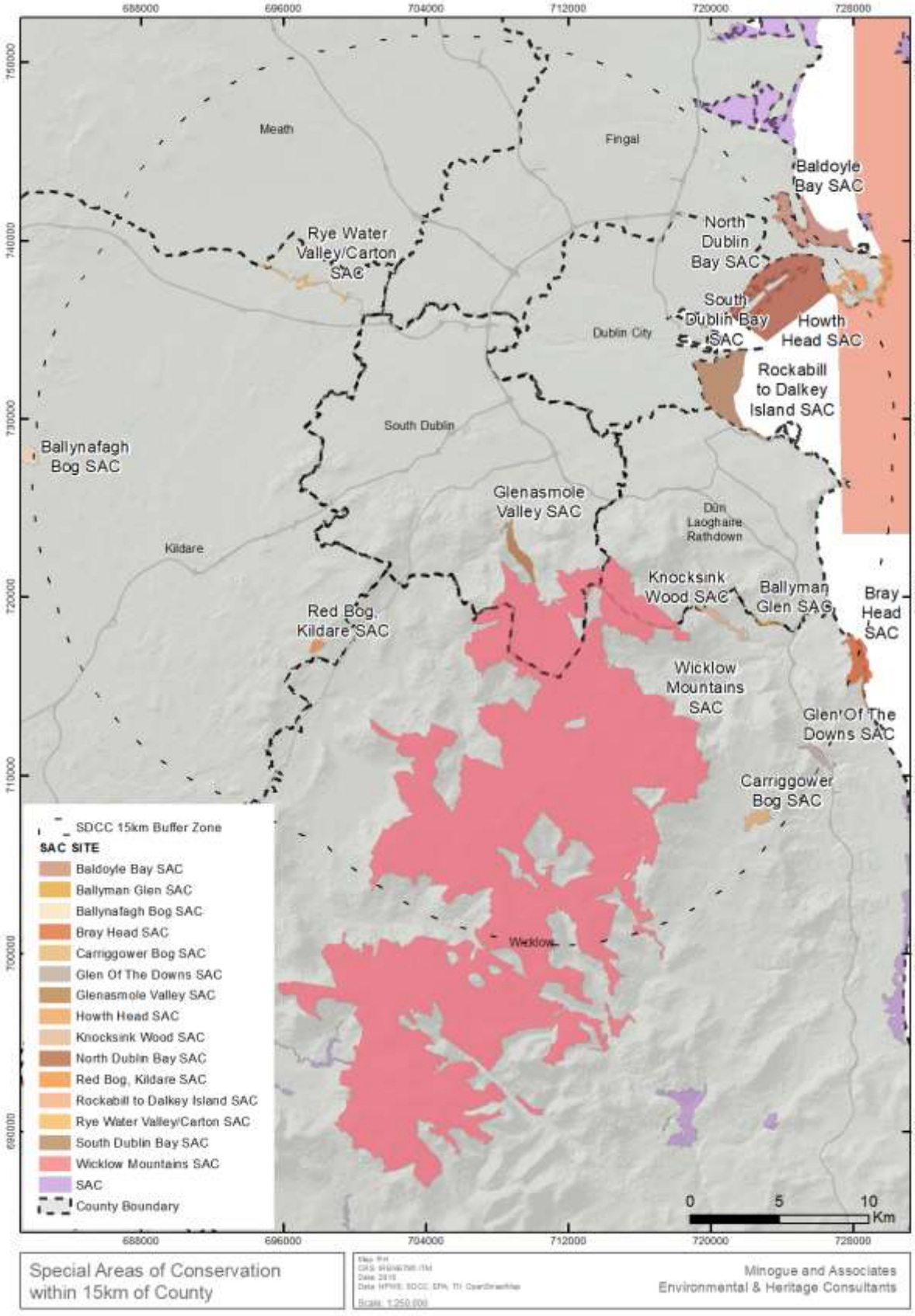


Figure 6 Special Protection Area sites within 15km of the County

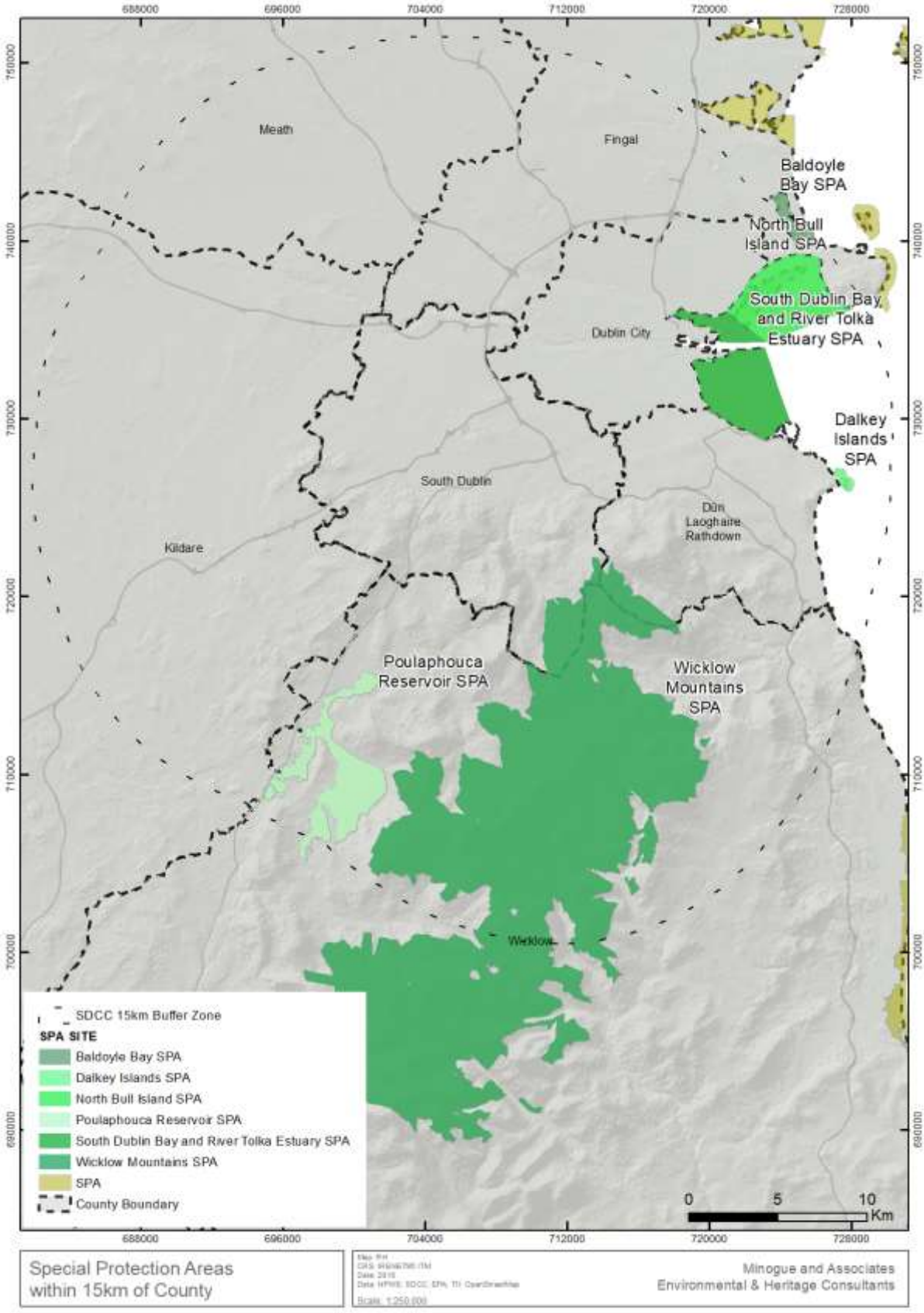
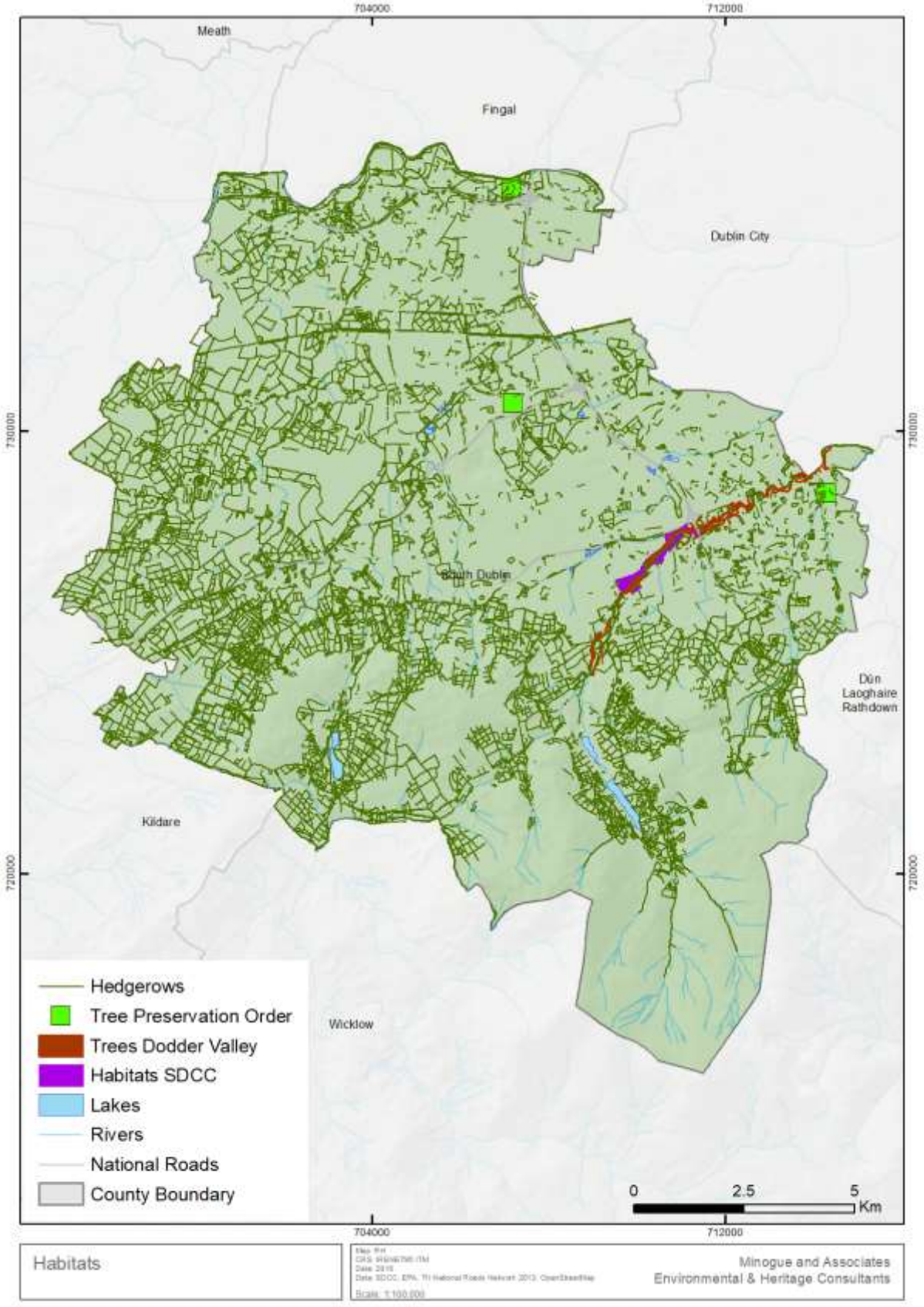


FIGURE 7 HEDGEROW, TREE PRESERVATION ORDERS AND KEY WATER FEATURES IN SOUTH COUNTY DUBLIN



4.4 Water Resources[12] including Flood Risk

Water resources and their quality have a clear interaction and impacts with other environmental parameters, therefore its protection and enhancement is of particular importance.

4.4.1 Water Framework Directive

The Water Framework Directive (WFD) is a key initiative aimed at improving water quality throughout the EU. It applies to rivers, lakes, groundwater, estuarine and coastal waters. The Directive requires an integrated approach to managing water quality on a river basin basis; with the aim of maintaining and improving water quality. The WFD identifies River Basin Districts as the key management units with clearly defined water bodies forming the basis for assessment reporting and management. The first cycle of RBD management plans were from 2009 to 2015. For the second cycle the Eastern, South Eastern, South Western, Western and Shannon River Basin Districts have been merged to form one national River Basin District.

The most recent data for the new plans being prepared is from the catchments.ie website. A catchment is an area where water is collected by the natural landscape and flows from source through river, lakes and groundwater to the sea. South Dublin is situated within the Liffey and Dublin Bay Catchment (code: 09). The area of this catchment covers 1,624,42km^2 and supports a total population density of 777 people per km^2.

4.4.2 Surface Waters

Surface Waters: The main surface water features in South Dublin are The Liffey, the Dodder and the Camac. These are identified in **Figure 8**.

The two main subcatchments present in the county are the Liffey and Dodder sub-catchments, an overview of these are provided below, sourced from www.catchments.ie and are shown in **Figure 9**.

Liffey Sub-Catchment (090): A predominantly urban sub-catchment as it flows through Dublin City from Lexlip, it displays some of the major issues associated with inefficient drainage systems and problems with misconnections. This is a known major issue for the respective Local Authorities and work is underway to further identify sources of these pressures. Combined sewer overflows have also been identified as a significant pressure in Dublin City Council. This data needs to be reviewed before further work can be prioritised.

Dodder Sub-Catchment (010): Ecological status is Good in the upper reaches of the subcatchment, Dodder_010 and Dodder_020 and both water bodies are Not at Risk. Ecological status is Good on Dodder_030 and this water body is in Review. The lower reaches of the Dodder, Dodder_040, Dodder_050 and Owenadoher_010 are all At Risk due to Moderate ecological status. On Dodder_040, Moderate ecological status is driven by invertebrates and chemical status; diffuse urban sources of pollution are the significant pressure. On Dodder_050, ecological status is driven by both invertebrates and fish; nutrients and sediment are the significant issue, and diffuse urban sources of pollution and combined sewer overflows are the significant pressures. On

[12] From Catchments.ie

Owenadoher_010, invertebrates are the metric driving status; physical habitat modifications are the significant issue and embankments are the significant pressures. On the Poddle_010, nutrients are the significant issue and diffuse urban sources of pollution are the significant pressure.

4.4.3 Groundwater:

Groundwater is a further significant resource and refers to water stored underground in saturated rock, sand, gravel, and soil. Surface and groundwater functions are closely related and form part of the hydrological cycle. The protection of groundwater from land uses is a critical consideration and groundwater vulnerability is becoming an important management tool. The entire island of Ireland has been designated as a Protected Area for Groundwater under the WFD.

Groundwater is important as a drinking water supply as well as the supply to surface waters. In addition, groundwater supplies surface waters. Groundwater is exposed to higher concentrations of pollutants that are retained in the layers of rock and soil. The exposure to pollutants lasts much longer as groundwater moves at a slower pace through the aquifer. The quality of our drinking water supply, fisheries and terrestrial based habitats is intrinsically linked with groundwater quality. The Geological Survey of Ireland (GSI) aquifer categories are based on their vulnerability to pollution, i.e. the ease at which it can enter the subsurface layers. The classification of extreme or high vulnerability means that the groundwater in these areas is very vulnerable to contamination due to hydrogeological and soil factors.

The overall status of the Groundwater is good; the main risks are from urban derived pressures.

4.4.4 Register of Protected Areas (RPA)

Protected areas are areas that have been designated as needing special protection because of their particular importance for use as bathing waters, drinking water supply, growing and harvesting of shellfish, conserving sensitive habitats and species or because they are particularly affected by eutrophication due to excessive inputs of phosphorus and/or nitrogen. The River Liffey and Estuary are listed on the RPA for Nutrient Sensitive Waters. Nutrient Sensitive Areas comprise nitrate vulnerable zones designated under the Nitrates Directive (91/676/EEC) and areas designated as sensitive under the Urban Waste Water Treatment Directive (91/271/EEC).

4.4.5 Flood Risk

The Planning System and Flood Risk Management, Guidelines for Planning Authorities, 2009, issued by the DoEHLG and undertaken in conjunction with the OPW, requires Planning Authorities to prepare a Strategic Flood Risk Assessment (SFRA). The primary purpose of the SFRA is to determine flood risk within a particular geographical area. It should be noted the SFRA is an ever evolving document, which is to be reviewed and updated on a regular basis in the light of emerging information, flood data and an improved understanding of flood risk.

A Strategic Flood Risk assessment was undertaken for the County Development Plan. South Dublin is particularly vulnerable to fluvial and pluvial flooding events which occur as a result of storm events. The Dodder River, due to the short, steep descent between its source in the Wicklow Mountains, and the point at which it flows through built up urban

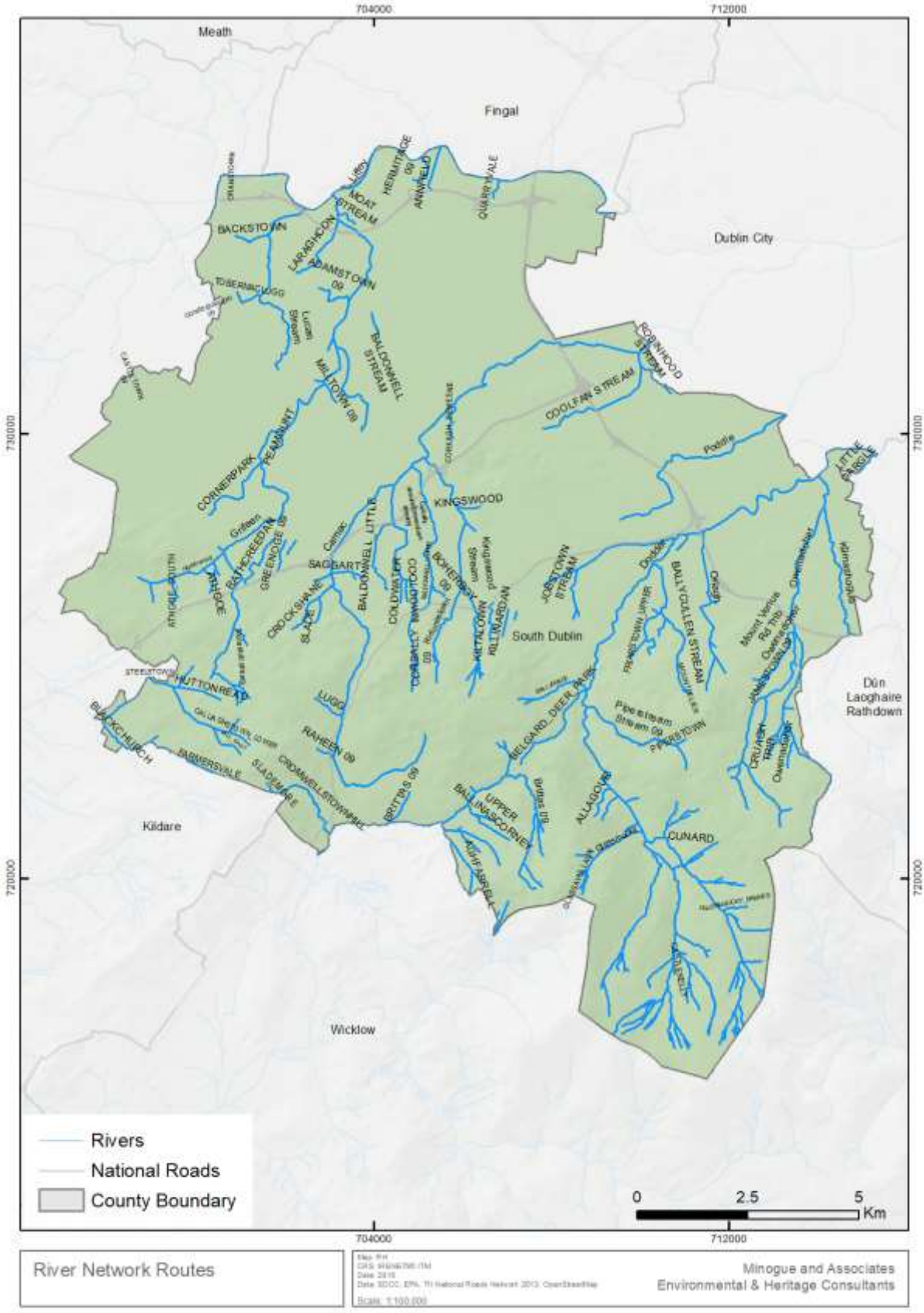
areas, has a history of severe flooding events. **Figure 11** shows the county level flood risk areas.

4.4.6 KEY ISSUES: WATER RESOURCES

- Maintaining and enhancing water quality-both surface water and groundwater
- Ensuring no further deterioration in surface water
- Avoiding the spread of alien and invasive species
- Ensuring flood risk is fully considered and measures to adapt to flood risk take proper consideration of ecological and other environmental parameters.
- Opportunities to integrate blue infrastructure measures through flood risk management

Ensuring that water quality is maintained and enhanced is particularly important. Groundwater in South Dublin currently meets the standards of the WFD; however, it is noted in the Greater Dublin Strategic Drainage Study (GDSDS) that there is a likely possibility of the groundwater in the urbanised northern section of the County being at risk from diffuse sources including inadequate urban sewerage systems and point sources including some contaminated land.

FIGURE 8 RIVERS IN SOUTH DUBLIN COUNTY



River Network Routes

Minogue and Associates
Environmental & Heritage Consultants

FIGURE 9 WATER FRAMEWORK DIRECTIVE SUBMCATCHMENTS OF SOUTH DUBLIN COUNTY

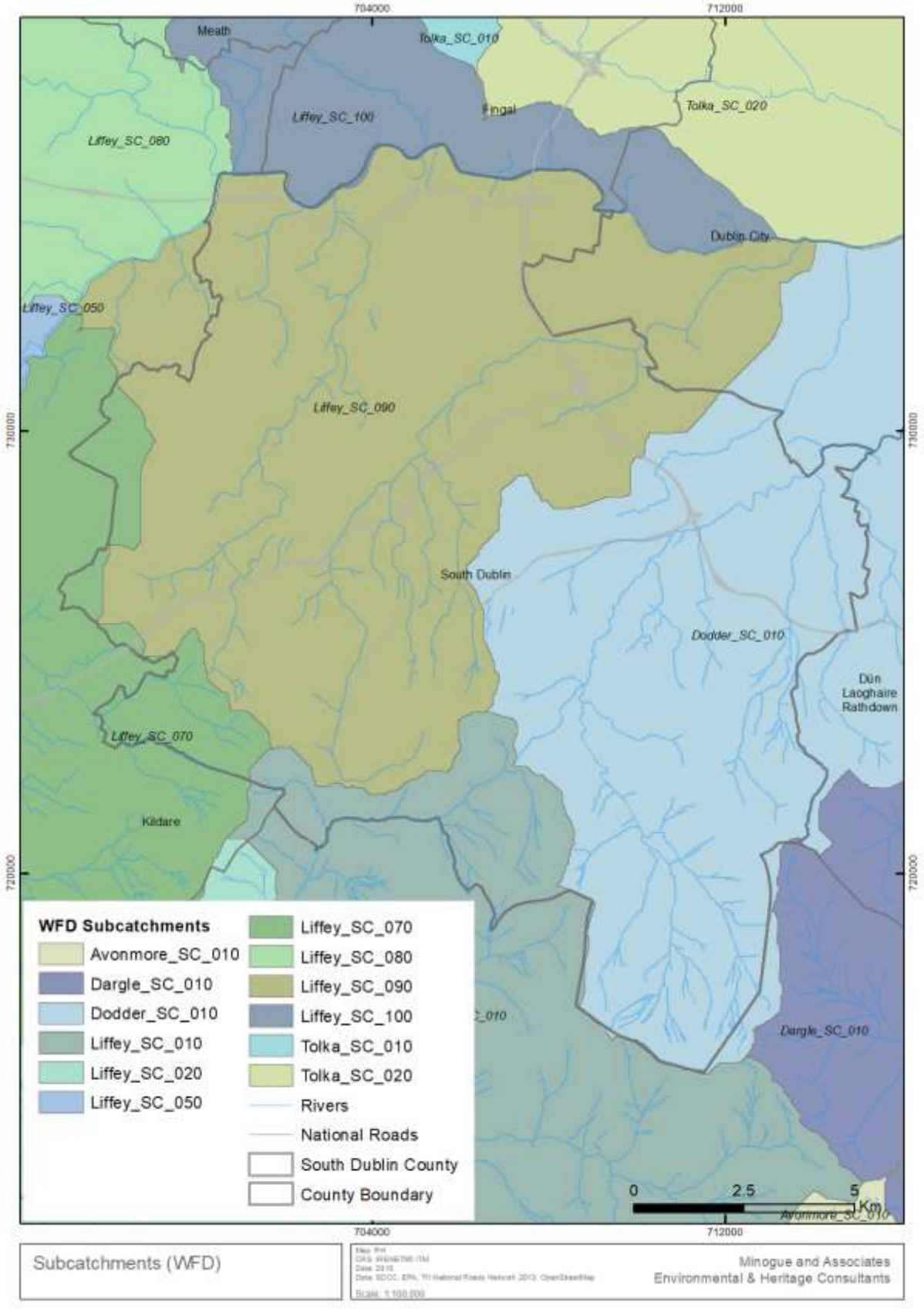


FIGURE 10 WATER QUALITY OF SURFACE WATER SOUTH DUBLIN

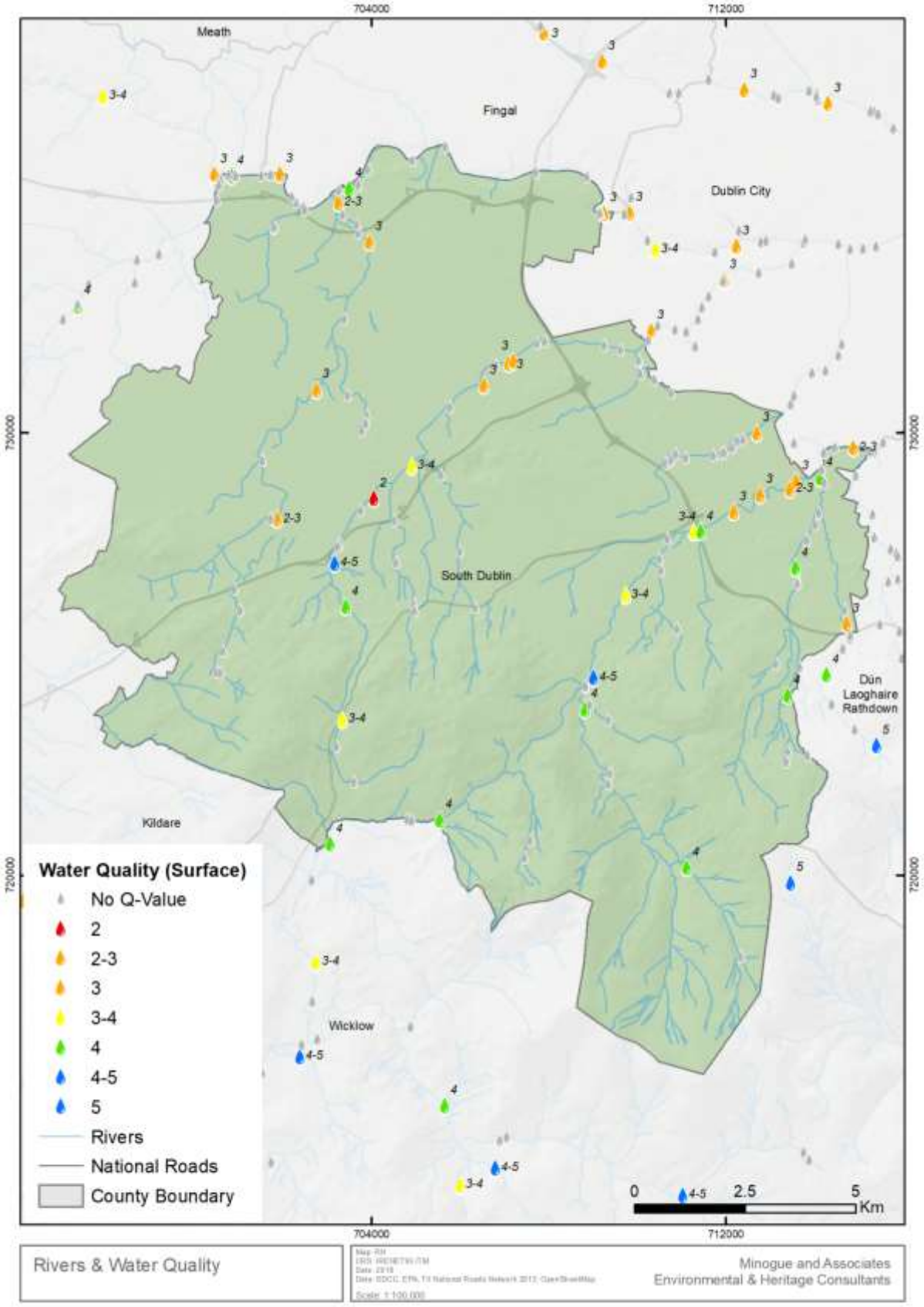
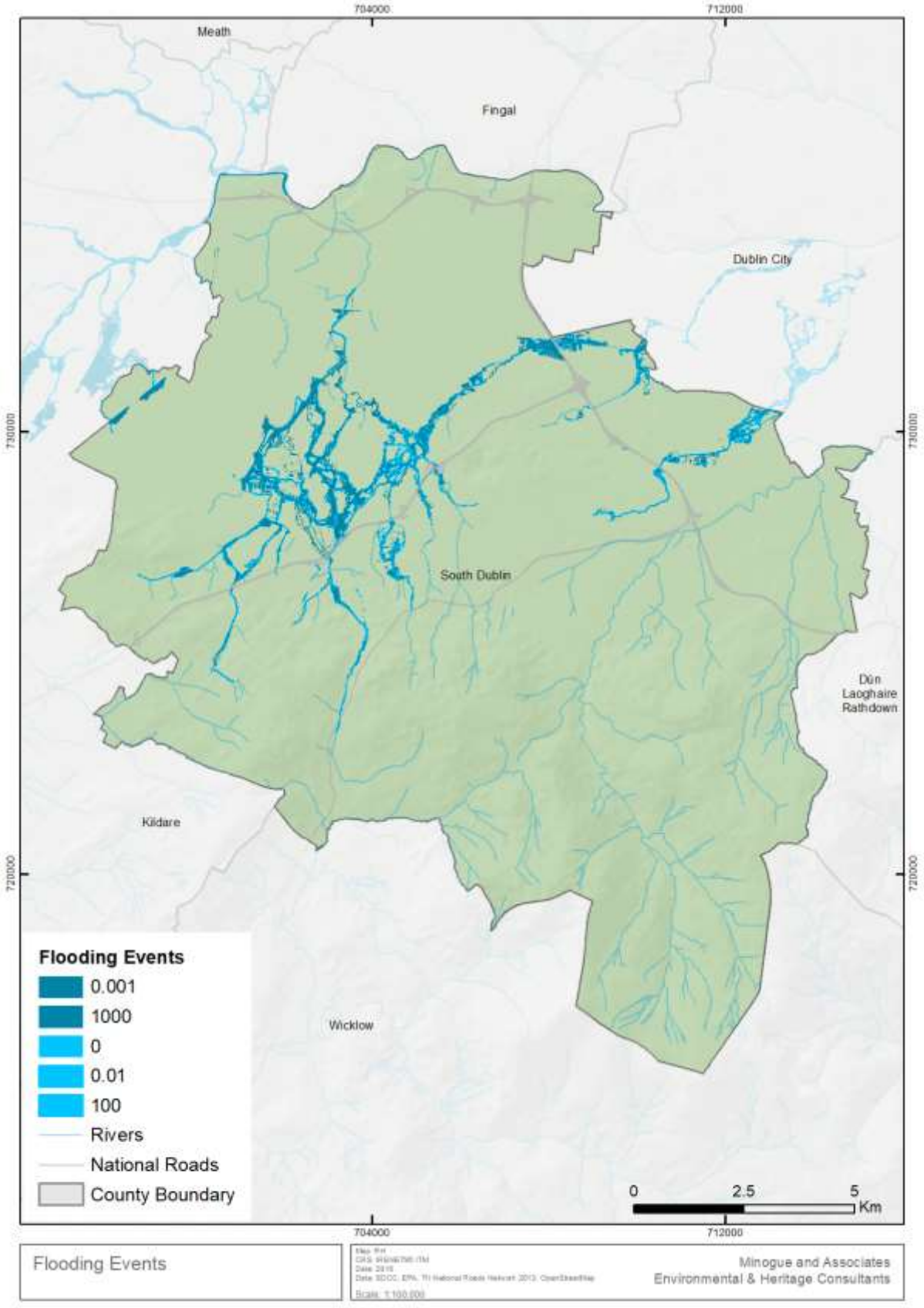


FIGURE 11 FLOOD RISK SOUTH DUBLIN COUNTY



4.5 Soil and Geology

4.5.1 Geology

The northern half of South Dublin is formed of Carboniferous Limestone rocks deposited in a deep marine basin. These rocks were formed around 340 million years ago and are faulted against the older rocks along the base of the Dublin Mountains. The limestone deposited in this basin is a muddy limestone with few fossils, as it was generally a deeper water environment. This limestone underlies most of Dublin and is known as Calp limestone or 'the Calp'. Over the past 2 million years the Ice Age had a big effect on the landscape, eroding the mountains, depositing glacial gravels in places and then rivers such as the Dodder and Liffey have been active in recent times, modifying the sediments at surface. Bedrock geology around the foothills and upper hills of the Dublin Mountains which comprise the southern part of the county are more varied in origin and formation. See **Figure 12**.

There are also a number of Geological Heritage Sites in the County, see **Figure 13.**

4.5.2 Soil

Soil can be considered as a non-renewable natural resource because it develops over very long timescales. It is an extremely complex, variable and living medium and performs many vital functions including: food and other biomass production, storage, filtration and transformation of many substances including water, carbon, and nitrogen. Soil has a role as a habitat and gene pool, serves as a platform for human activities, landscape and heritage and acts as a provider of raw materials. Such functions of soil are worthy of protection because of their socio-economic as well as environmental importance. Soils in any area are the result of the interaction of various factors, such as parent material, climate, vegetation and human action.

There is no overarching soil legislation in place currently, however the 7th Environment Action Programme (EAP) recognises the challenge of soil degradation and provides by 2020 that land be managed sustainably with soil adequately protected.

South Dublin includes existing areas under agricultural landuse and it is important to both recognise and promote this role in terms of the carbon storage capacity of soil, potential biodiversity and water benefits (subject to agricultural practice) and food security.

There are 425 council allotments at four locations across South Dublin, ranging in size from 50 square metres to 250 square metres. These are located at

- Tymon Park, Tallaght – 13
- Corkagh Park, Clondalkin – 39
- Friarstown, Bohernabreena – 297
- Mill Lane, Palmerstown – 76

Figure 19 shows the location of the large/regional parks in the County.

4.5.3 Existing issues: Geology and Soil

- Maintaining and enhancing soil function and its carbon storage role where possible.
- Addressing extent of soil sealing, increased surface run off and poor permeability of lands in the county
- Retention and creation of areas of greenfield in terms of open space, green infrastructure, permeability and biodiversity considerations.

• Promoting soil conservation and food security in areas of agricultural production in the county.	Because of the complex interrelationship between water, air and soil, declining soil quality can contribute to negative or declining water or air quality and function.

FIGURE 12 BEDROCK GEOLOGY

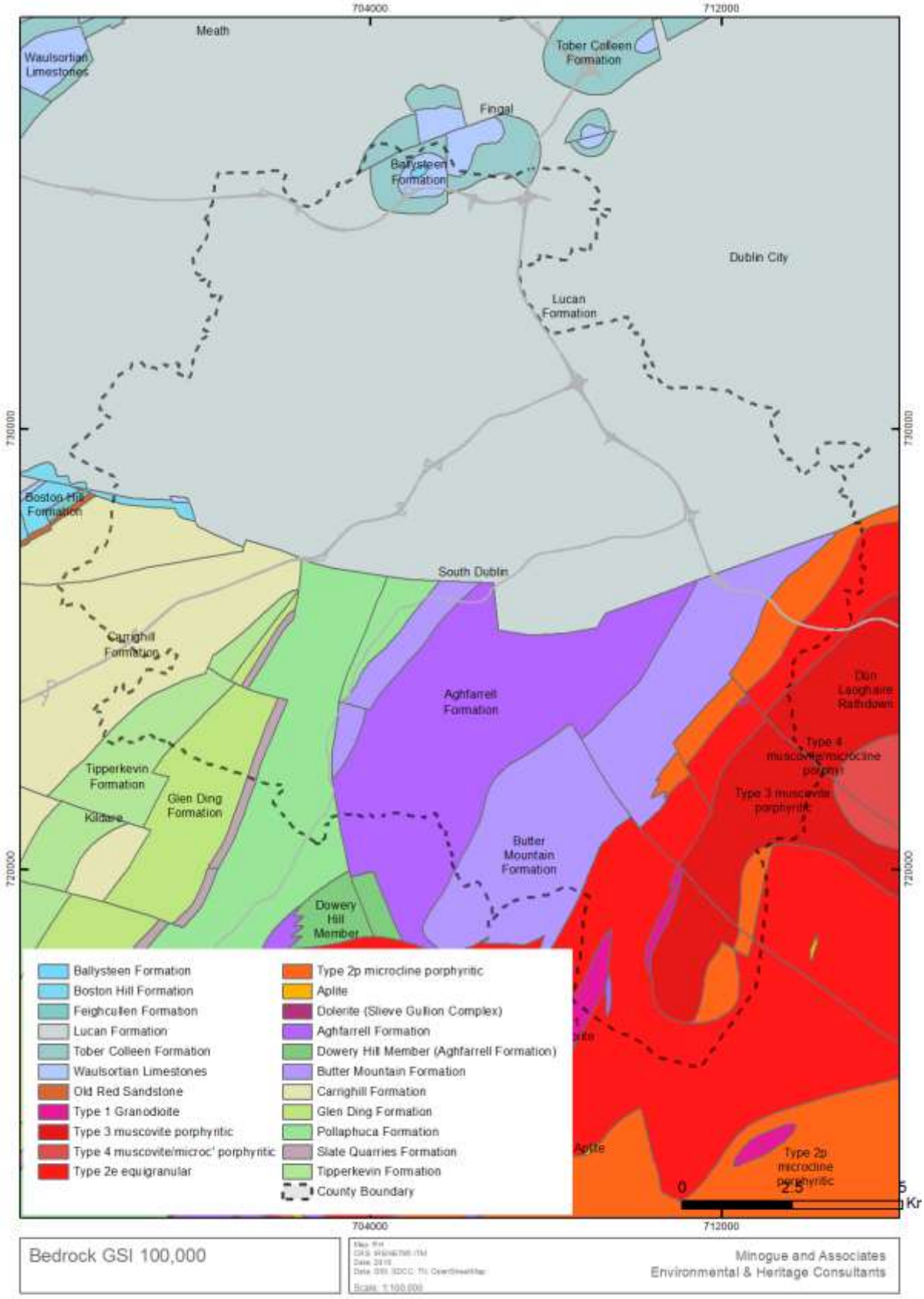
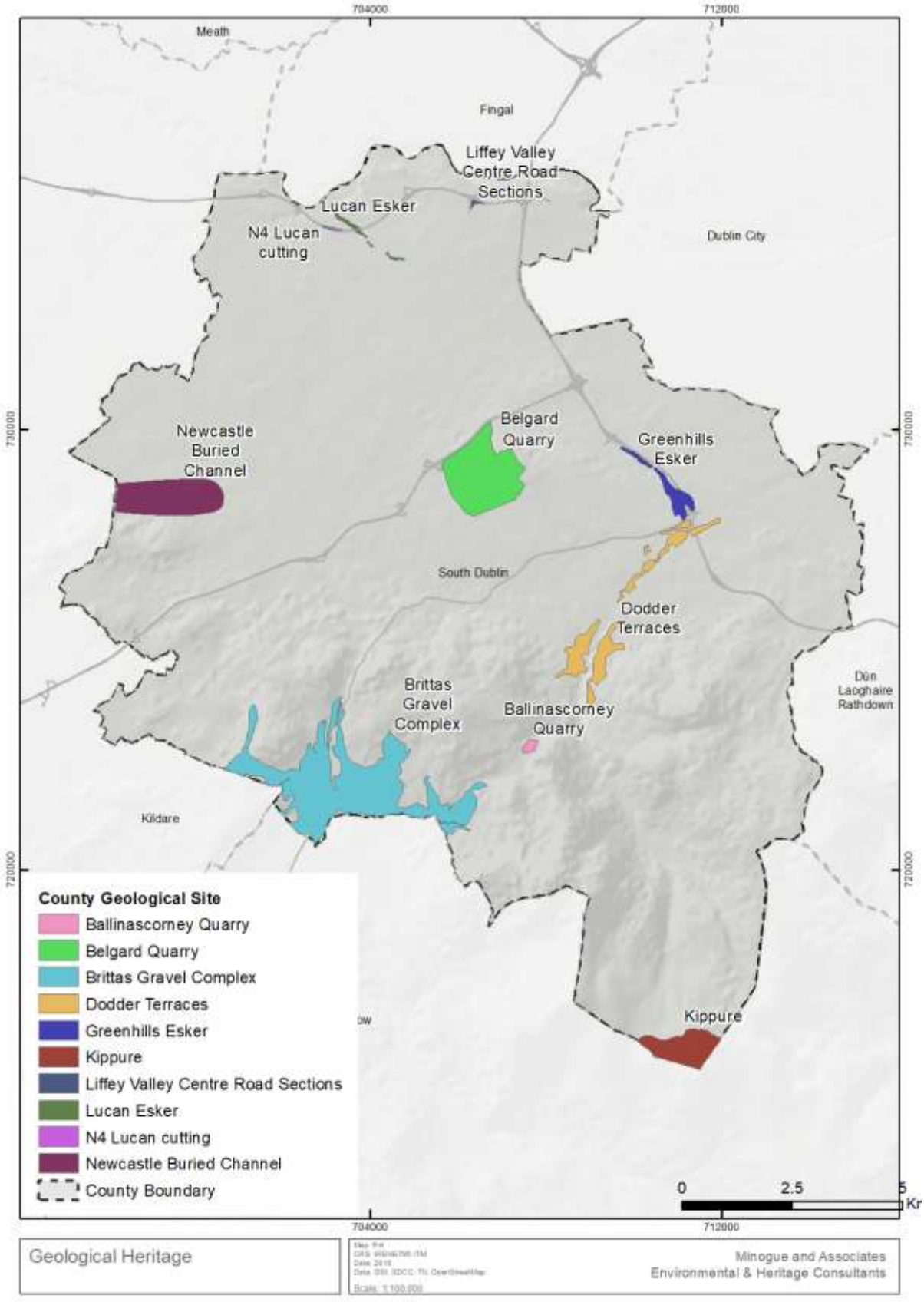


FIGURE 13 GEOLOGICAL HERITAGE SITES IN THE COUNTY



4.6 Cultural Heritage

The heritage assets which South Dublin possesses are a reminder of the predominantly rural history of the County. These structures and objects store the folk memory of the rural villages, such as Clondalkin, Lucan and Tallaght, now subsumed within the Dublin Metropolitan area. Additionally, preserved buildings, remnant agricultural farm buildings and ancient walls and field systems also help acknowledge the recent past in places such as Saggart, Newcastle and Rathcoole, which are now subject to urban development pressure. The built form, materials and construction methods of older buildings help to illustrate to inhabitants of South Dublin the continuity and adaptation of County both economically and socially.

4.6.1 Archaeology

Archaeological heritage is defined as including structures, places, caves, sites, features or other objects, whether on land, underwater or in inter-tidal zones. All archaeological structures, constructions, groups of buildings, development sites, all recorded monuments as well as their contexts, and moveable objects, situated both on land and underwater are part of the Archaeological Heritage. Therefore the archaeological heritage of the area is not confined to the archaeological sites within the Record of Monuments and Places. It also includes any archaeological sites that may not have been recorded yet, as well as archaeology beneath the ground surface, or underwater as well as the context of any such site discovered.

4.6.2 Built Heritage

Part IV of the Planning and Development Act 2000 (as amended) defines the term "architectural heritage" as structures and buildings together with their settings and attendant grounds, fixtures and fittings, groups of structures and buildings and sites, which are of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest, and "where a structure is protected, the protection includes the structure, its interiors and the land within its curtilage (including their interiors) and all fixtures and features which form part of the interior or exterior of all these structures".

An Architectural Conservation Area (ACA) is a place, area, group of structures or townscape that is of special, architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or value, or contributes to the appreciation of protected structures.

4.6.3 Existing Issues: Cultural Heritage

- Potential for additional archaeological resources
- Enhancing and linking cultural heritage of the area
- Adapting older buildings to become more energy efficient or enhance their energy efficiency
- Potential climate change effects on built heritage associated with more extreme climate events for example effects on wetter uplands and ritual upland archaeological features
- Protected structures close to flood risk areas

FIGURE 14 SITES AND MONUMENTS RECORD SOUTH DUBLIN

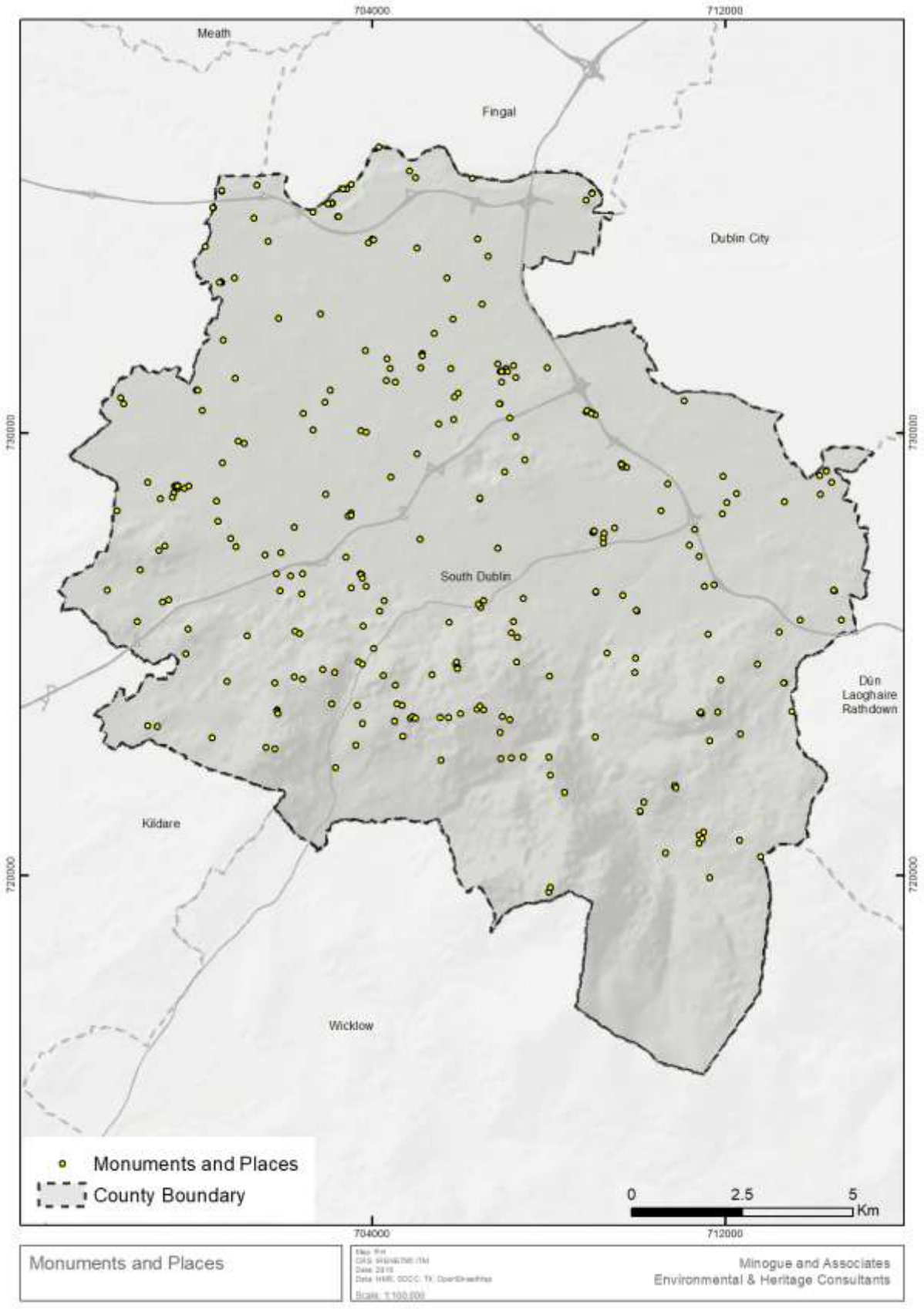


FIGURE 15AREAS OF ARCHAEOLOGICAL POTENTIAL

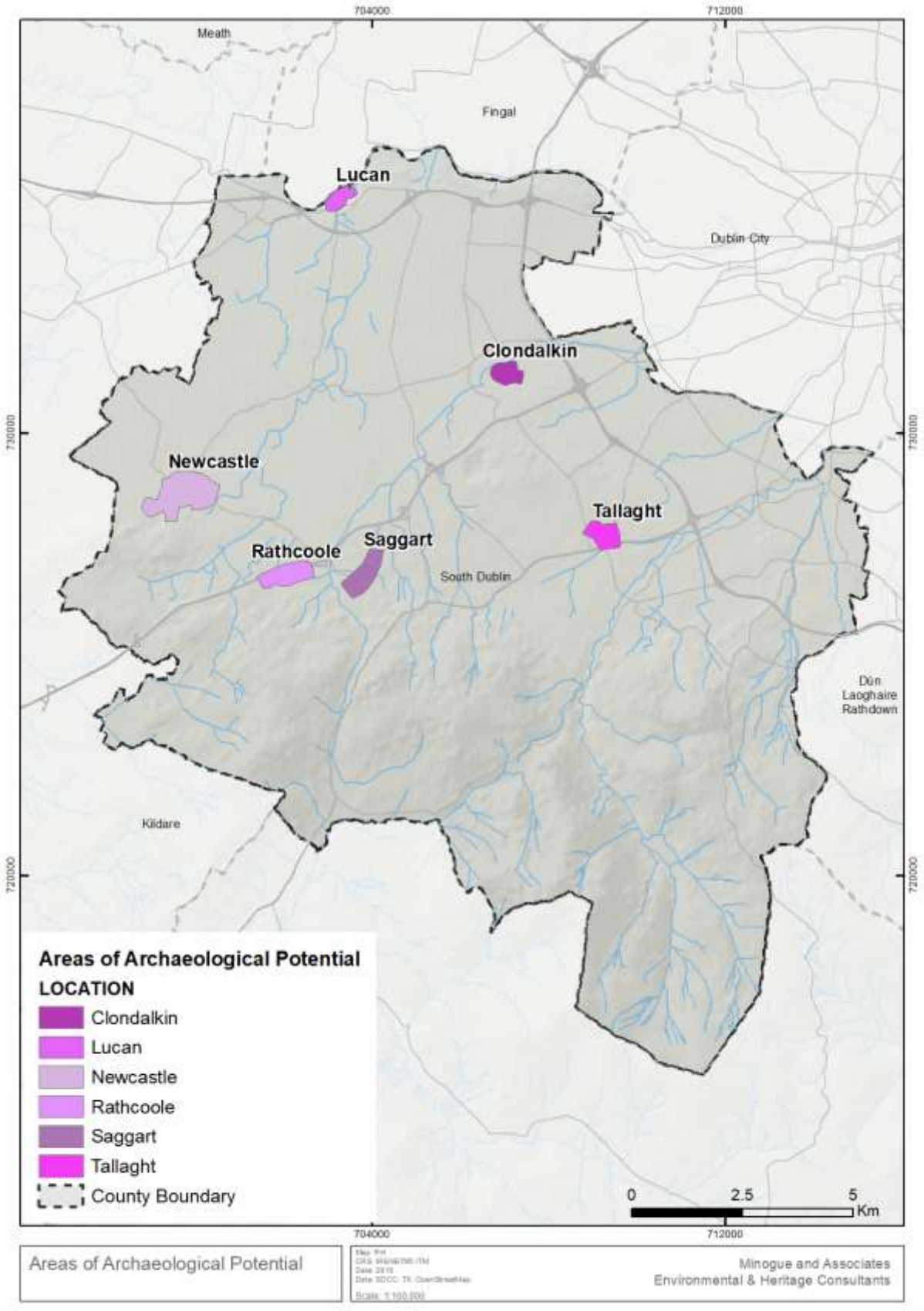
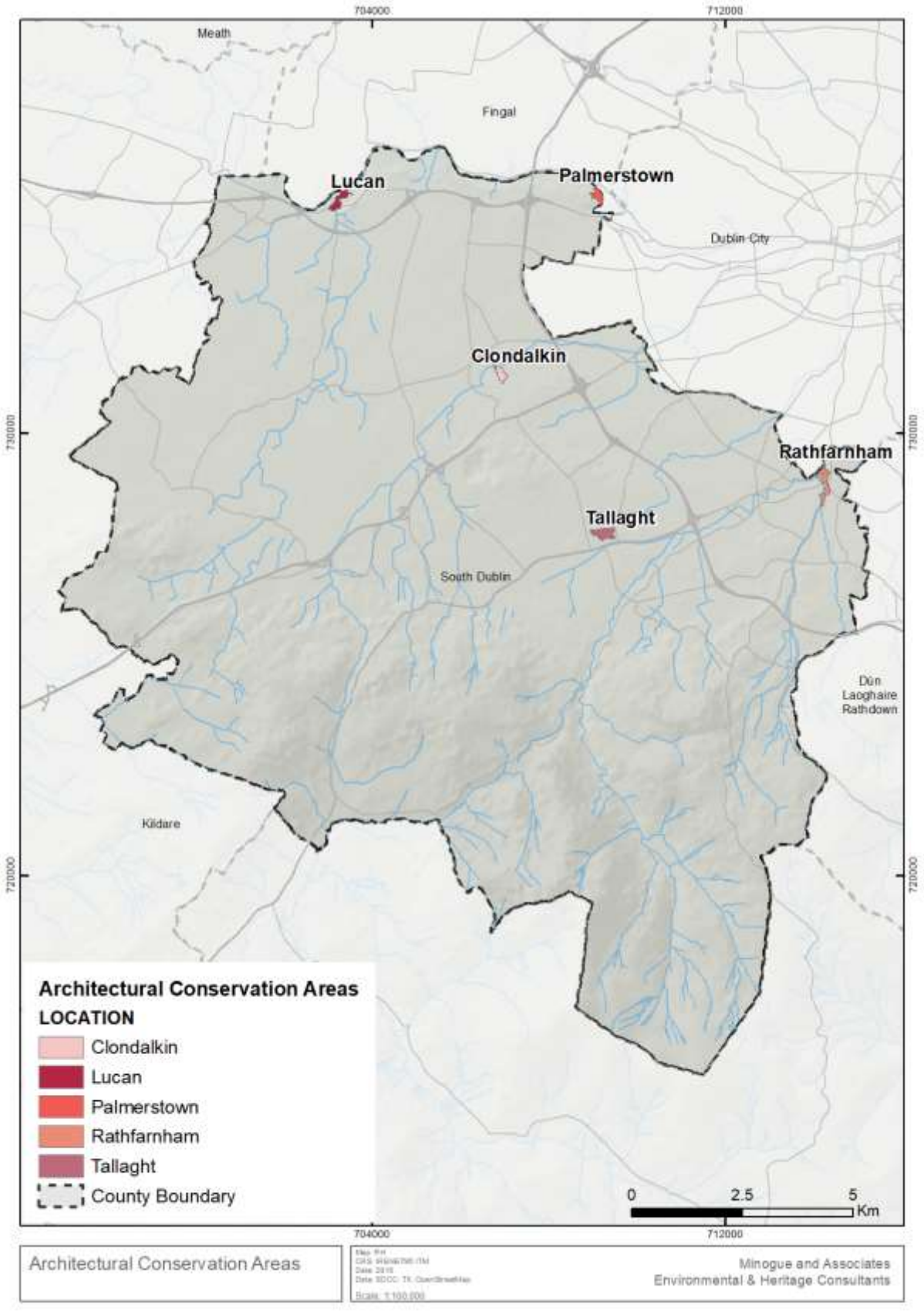


FIGURE 16ARCHITECTURAL CONSERVATION AREAS



4.7 LANDSCAPE

The landscape of the County is varied, ranging from alluvial river valleys, to fertile fields, ancient monastic settlement villages surrounded by suburban residential and office parks, to mixed farming and forestry in the mountainous uplands.

South Dublin County Council commissioned an update of the existing Landscape Character Assessment of the county as part of the CDP plan review in 2015. The study identified Landscape Character Types and Landscape Character Areas. The assessment identified the following landscape character areas in the county:

Liffey Valley LCA: a river valley of significant historical importance with an important ecological corridor associated with the River Liffey. The landscape characteristics and landscape value of this LCA confer on it a distinct sense of place. The elements that are key include historic and cultural heritage exemplified by Lucan and Palmerstown, and the variety of preserved naturalistic and rural landscapes in the area. This sense is potentially at risk due to urbanisation. Recommendations were made aimed at preserving that sense of place and relate to conservation, protection and enhancement where possible of those key landscape elements and values.

Newcastle Lowlands LCA: a low lying agricultural area of high agricultural productivity, long history of human settlement and important landscape setting to the urbanised east. The Newcastle lowlands function as an important agricultural resource but are vulnerable to urbanising pressures. In addition, its character as a rural landscape provides a distinct and important identity to this area of western Dublin. To conserve its sense of place requires measures protecting the integrity of the agricultural landscape by controls on urban expansion, ribbon development and other sources of erosion and fragmentation, and requires site planning guidance on the use of appropriate vernacular styles and treatments in new developments.

Athgoe and Saggart Hills LCA: The foothills and hills that form the backdrop and southern setting to the greater Dublin area; these hills provide a variety of uses including agriculture, forestry, recreation as well as important ecological services associated with their habitats. The LCA is diverse and offers the access into the more strongly rural areas of the county and beyond. Long views over the lowlands and south to the Wicklow Mountains are important characteristics. The integrity of the landscape character is derived from agriculture combined with other rural land uses including coniferous plantations. The integrity of its character, and of its value as a landscape setting have been compromised by housing developments in the area and measures are recommended to enhance this rural diverse agricultural landscape and protect the long views that are a defining feature of this LCA.

River Dodder and Glenasmole Valley LCA: A highly scenic and distinctive glacial valley with variety of attractive features, and enclosed fields contrasting with the upland blanket bog areas. Distinctive stone cut cottages and boundaries are present along the along the valley floor, this LCA also contains significant archaeological clusters. This LCA offers varied and extensive views across Dublin

Bay and to the Wicklow mountains and is an important recreational and ecological landscape, evidenced by its statutory designations. It forms a significant backdrop to the greater Dublin area, and is a remarkable landscape in its wildness and remoteness so close to heavily urbanised areas. Its character and integrity is of importance to local residents, and it is a very significant resource for recreation users and for tourism. The objectives of managing this LCA is to preserve its overall character and the features and values that contribute to its uniqueness The urban areas of the county were not assessed as they would normally merit more detailed and finer scale assessment, through townscape assessment or through local area plans. A summary description was provided for the Urban Areas as follows:

Suburban Lowlands: extensive urbanised area radiating from the east this area has historically functioned as the hinterland to the city; variety of housing estates and styles largely dating from the late 19th and early 20th century, with major communications corridors including roads, trains and tram routes. Green corridors are of great significance given their relative rarity within this LCA, the prime example being the River Dodder; other green spaces relate to golf courses, amenity and recreational facilities.

Please see **Figures 17, 18 and 19** which show the Landscape Character Types, Landscape Character Areas and Large/Regional Public Parks within the County.

4.7.1 Existing Issues: Landscape

Landscape measures represent a key opportunity to adapt and respond to climate change impact through the following

- Blue and green infrastructure planning and delivery
- Allowing for landscape scale response to increased water levels and flood risk
- Planning for ecological connectivity
- Greenway and blueway.
- In terms of climate change and landscape issues, potential issues including alteration of landscapes associated with changing vegetation , for example changing forestry practices, increased surface water and drying out of wetter, acidic soils.

FIGURE 17LANDSCAPE CHARACTER TYPES OF SOUTH DUBLIN

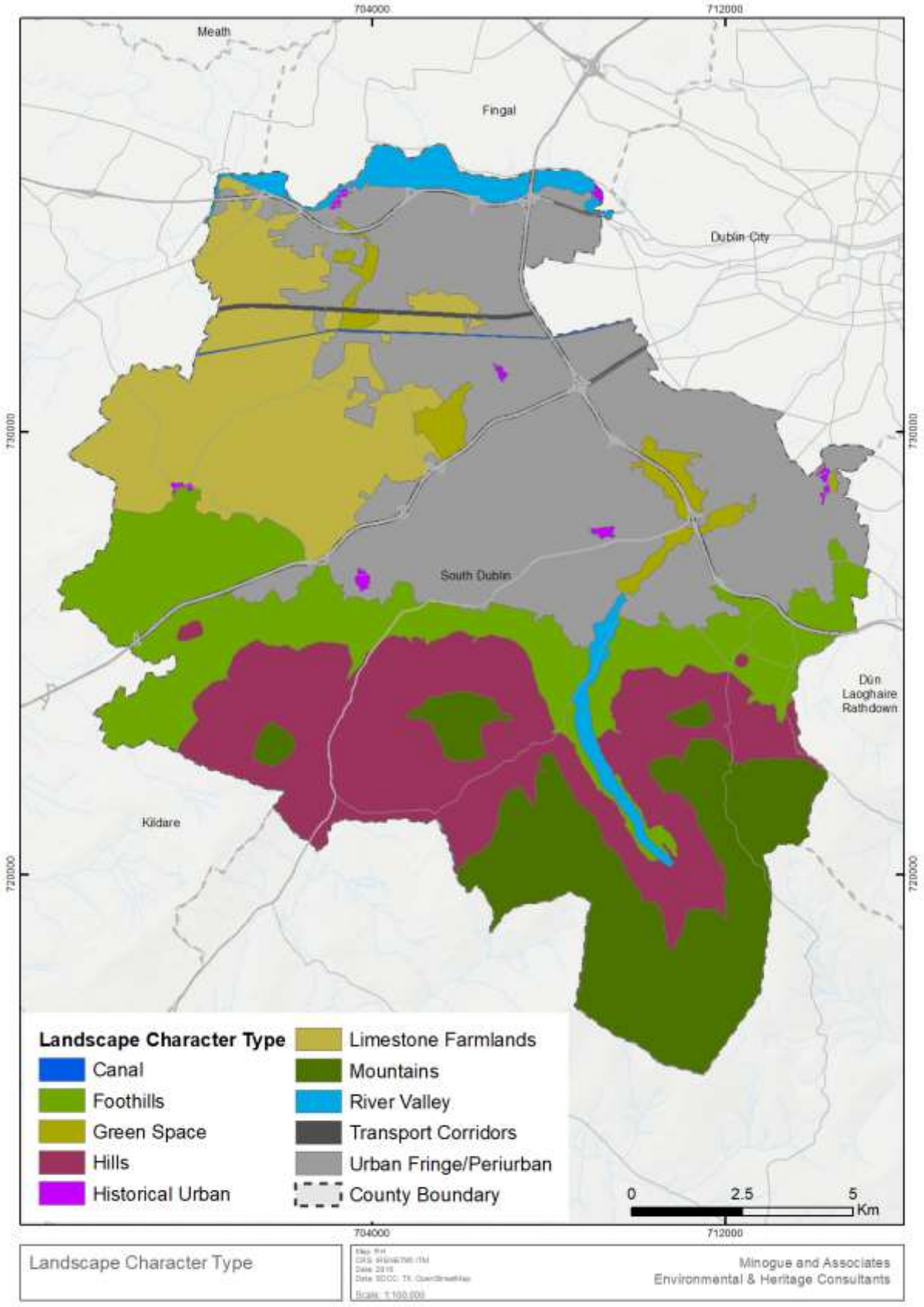


FIGURE 18 LANDSCAPE CHARACTER AREAS OF SOUTH DUBLIN

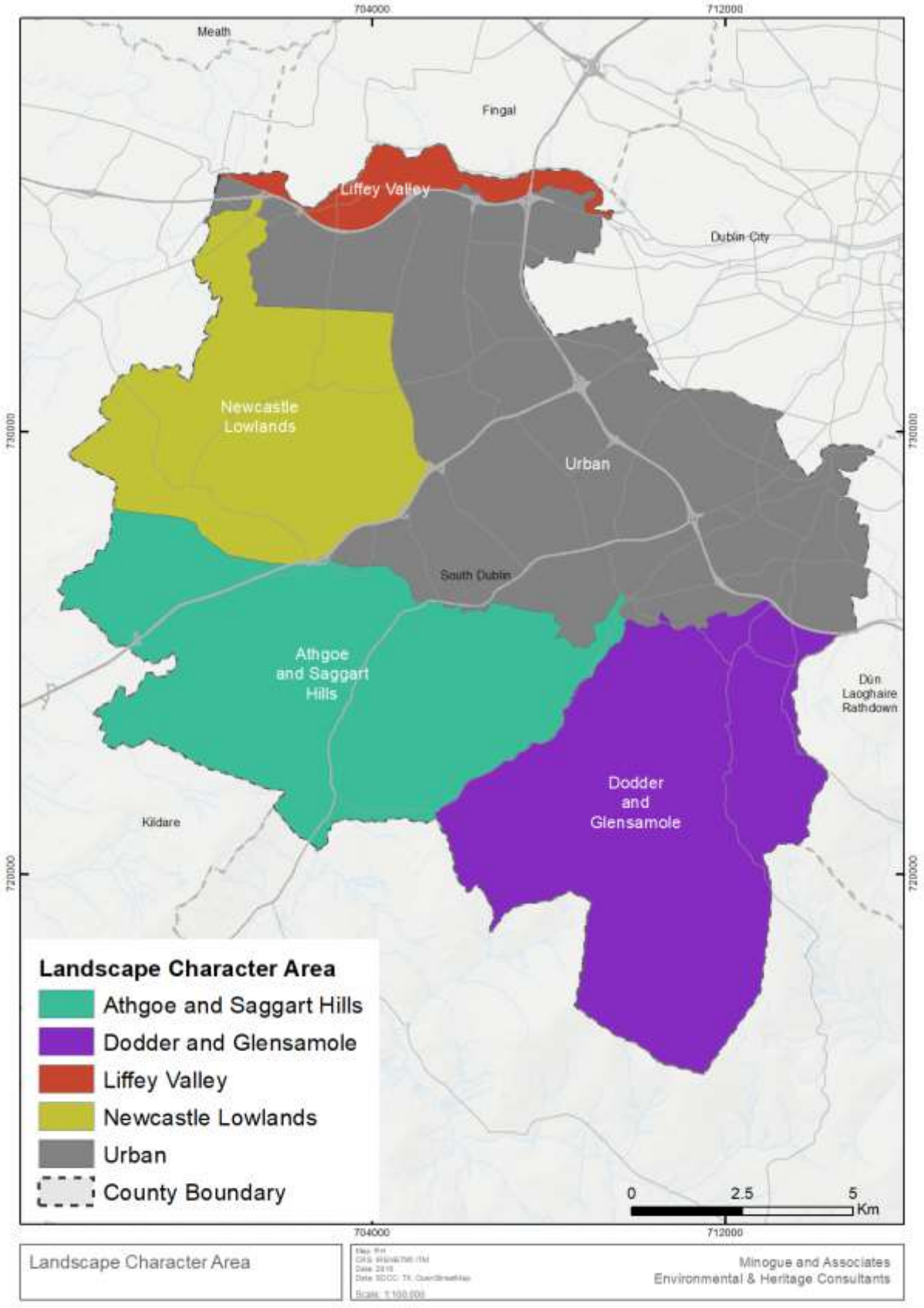
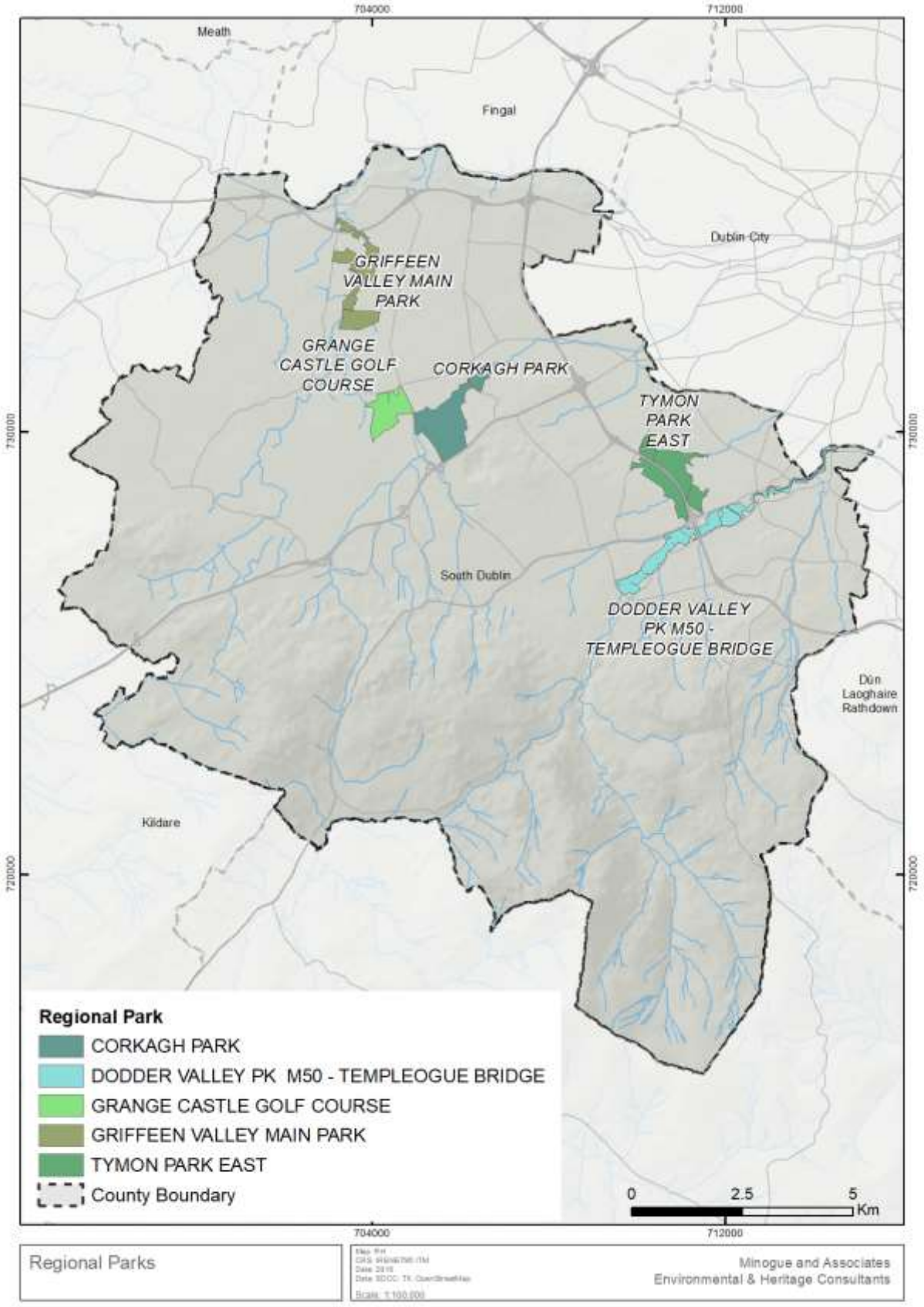


FIGURE 19LARGE/REGIONAL PUBLIC PARKS WITHIN THE COUNTY



4.8 Air quality and Climate

4.8.1 Air Quality

The Air Quality Index for health (EPA) provides air quality information with health advice for both the general public and people sensitive to air pollution. The index is displayed on a colour-coded map, updated hourly. The index is based on information from monitoring instruments at representative locations in each region. South Dublin is located within the 'Dublin City' region. Air Quality is generally classified as 'good'.

Further information on Air Quality and Human Health is provided in Section 4.2.4.

4.8.2 Climate Change and Greenhouse Gas Emissions

Adaption and responding to climate change is a key objective the CCAP and the following baseline is taken from the SDCC CCAP. The adaptation baseline has identified that the effects of climate change are already impacting South Dublin at a significant rate and are very likely to increase in their frequency and intensity. The number of days with heavy rainfall has increased and the amount of extreme flooding events has also risen in the last 10 years. South Dublin has also experienced extreme temperatures, as witnessed recently in 2018, with Met Éireann issuing its first ever Status Red warning for snow in February, followed by one of the hottest summers on record during June and July. All these extreme weather events clearly highlight the need to reduce the impacts that climate change is having on the environment, the economy and the citizens of Dublin.

The mitigation baseline calculates the greenhouse gas emissions for the council's own activities and also for the entire County (including a breakdown of the residential, transport and commercial sectors). SDCC's emissions decreased from 14,230 tonnes of CO2 in 2009 to 11,800 tonnes of CO2 in 2017. This means that SDCC is now 3,270 tonnes of CO2 (23%) away from the 2030 target of a 40% emission reduction, from its baseline year.

Public lighting was the biggest emitter at 49%, followed by buildings and facilities and then the municipal fleet, which contributed 42% and 9% to the council's emissions, respectively.

In 2017, 77% of emissions by the council came from electricity; this was mainly due to the large amount of electricity used in public lighting and in buildings/facilities. Natural gas was the second highest contributor to emissions at 13%. The majority of gas was used in buildings and facilities in SDCC to meet heating demands. Diesel, which made up part of the energy used for the vehicle fleet, accounted for 6% of the total emission.

The most recently-available information for total emissions in the entire South Dublin area is based on Census 2016 data. Therefore, using this data, Codema was able to calculate that the total GHG emissions for the South Dublin area amounted to 1,877,910 tonnes of CO2 equivalent in 2016. The sectors that produced the most emissions were the transport, commercial and residential sectors, accounting for 39%, 32% and 24% of the total emissions, respectively. South Dublin County Council's own emissions amounted to only 1% of this total, with social housing contributing another 2%. This highlights the need for collaboration and action from all stakeholders to tackle the remaining 97% of emissions from public and private sector sources in the County.

4.8.3 Key Issues: Air Quality and Climate

- Planning for and adapting to climate change.
- Sectoral policies can assist in this including transport and energy.
- Measures including carbon sequestration in existing soils and additional appropriate vegetation planting associated with green infrastructure and ecological corridors.
- Integration of blue infrastructure measures
- A modal shift from private transport to public transport
- Increasing energy efficiency in buildings.
- Transition to a low carbon economy and source of power.

4.9 Material Assets

The EPA SEA Process Draft Checklist (2008) defines material assets as the critical infrastructure essential for the functioning of society such as: electricity generation and distribution, water supply, wastewater treatment, transportation, etc. An overview is provided below.

4.9.1 Transport

South Dublin is serviced by 847 km of Roads in total categorised as follows:

- 55 km National Roads
- 103 km Regional Roads
- 689 km Local Roads.

Two national primary routes the N4 and N7 traverse the county, and the busiest stretch of road in the country - the M50 between the Red Cow junction and the junction with the N4 is also in the county. A critical issue is that much of the traffic on these arteries is passing through and not stopping in the county. Additional issues include a lack of connectivity within the County both for soft and hard transport methods.

The public transport options in the county include the Luas Red Line, the main Kildare-Dublin Railway Line as well as a number of buses including quality bus corridors. BusConnects will also address connectivity and enhance options for bus travel upon delivery.

Walking and cycling has also seen significant investment and the Greater Dublin Area (GDA) Cycle Network Plan was published in 2013. . SDCC was a central stakeholder in the cycle analysis for the Greater Dublin Area. The aim of the Plan was to identify and prioritise opportunities for investment in the cycle network.

4.9.2 Water Services

The treatment of wastewater is governed by the Urban Waste Water Treatment Directive (91/271/EEC) (amended by Directive 98/15/EEC) transposed into Irish law by the Urban Waste Water Treatment Regulations 2001 (SI 254 of 2001) and the Urban Waste Water Treatment (Amendment) Regulations 2004 (SI 440 of 2004). The Directive aims to protect the environment from the adverse effects of the wastewater discharges by ensuring that wastewater is appropriately treated before it is discharged to the environment. The treatment of wastewater is relevant to the Water Framework Directive which requires all public bodies to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and bring polluted water bodies up to good status by 2027.

Wastewater

Almost all of the waste water in South Dublin is currently treated in Ringsend Wastewater Treatment Works which discharges into Dublin Bay. The treated waters are treated to a Tertiary standard, which is in compliance with the Urban Wastewater Treatment Directive. The quality of the discharged waters is within the requirements of the Urban Waste Water Treatment Directive.

The Greater Dublin Drainage Scheme will represent a significant wastewater infrastructure development for the Greater Dublin Regional area which will allow for an underground orbital sewer and two pumping stations, a new wastewater treatment plan at Clonshaugh (in Fingal County) and an outfall pipe located 6km out to sea from Baldoyle Bay. This project is subject to technical studies with a view to submitting a planning application accompanied by an Environmental Impact Statement (EIS) and Natura Impact Statement (NIS) in 2018.

WATER

The Greater Dublin Water Supply Area (GDWSA) is served by 5 major water treatment plants, Ballymore Eustace, Srowland, Leixlip, Ballyboden and Vartry, and a number of smaller sources. The total capacity of current sources and treatment plants is 598ML/day and based on proposed capital investment between 2017 and 2024 this water available from existing sites will increase to 656ML/day. It is anticipated that Dublin will need a new major water source by 2025, based on projection of growth in the Greater Dublin Area. Irish Water is currently planning the development of a new major water source for the East and Midlands which will include supplying projected demand in the GDA water supply area. Irish Water is also currently implementing a major water conservation programme in order to maximise the availability of treated water from current sources.

4.9.3 WASTE MANAGEMENT

The Regional Waste Management Plan 2015-2024 for the Eastern-Midlands Region encompasses the local authorities: Dublin City, Dún Laoghaire- Rathdown, Fingal, South Dublin, Kildare, Louth, Laois, Longford, Meath, Offaly, Westmeath and Wicklow. The regional plan provides the 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.

The Waste Framework Directive(WFD) has incorporated previous separate directives that addressed waste oils and hazardous waste. Principles in relation to waste prevention, recycling, waste processing and the polluter pays principle are included within this Directive.

In 2014 the EC adopted a communication promoting the Circular Economy. The circular economy considers waste as a resource which in turn can be recirculated into systems that focus on maintaining, repairing, reusing, refurbishing and recycling materials.

Denmark, Sweden, Japan, Scotland and the Netherlands[13] are currently the most advanced countries in terms of embedding the circular economy into their waste management system. Key elements of the communication include:

- Increase recycling and preparing for municipal waste to 70% by 2030

[13] http://circulatenews.org/2015/04/an-introduction-to-circular-economy-in-scandinavia-sweden-and-denmark-leading-the-race-to-circularity/

- Increase recycling and preparing for reuse of packaging waste to 80% by 2030
- An aspiration to eliminate landfill by 2030
- Member states to be responsible for ensuring the separate collection of biowaste by 2025.
- Reduction of food waste by at least 30% by 2025.

South Dublin County Council will be committing a certain amount of waste to the thermal treatment plant in Ringsend within Dublin City Councils administrative area, the construction and use of which forms a part of the waste management strategy for the Greater Dublin Area.

4.9.4 Seveso Sites

Seveso sites are those which store significant amounts of dangerous or harmful substances and proximity to these sites could represent a potential impact to human health. They are regulated under the COMAH regulations (Control of Major Accident Hazards Involving Dangerous Substances, S.I. 476 of 2000). If there are planning applications for development occurring within a certain distance of the perimeter of Seveso sites, the Health and Safety Authority (HSA) provides appropriate advice to the planning authorities in respect of development within a distance of these sites.

4.9.6 Key Issues: Material Assets

Extreme weather events pose significant risks to critical assets such as electricity infrastructure. Projected increases in temperature, wind speeds, cold snaps and rainfall will also put a stress on the built environment, particularly on critical infrastructure (such as electricity and communication networks) and residential developments (with the most vulnerable populations being particularly at risk).

Increases in wind speeds, cold snaps and rainfall will put a stress on transport networks, which may lead to disruption of transport services during extreme events

Due to the characteristics of South Dublin, prolonged heavy rainfall events typically result in urban flooding, which is mainly caused by a lack of pervious surfaces. Flooding also puts groundwater supplies at risk, as these can be contaminated due to the high infiltration of flood water.

Key issues to consider for material assets include:

- Encouraging sustainable use of resources
- Reducing reliance on private transport
- Workable alternatives to private transport and future public transport services and modal shift
- Projected increases in temperature, heat waves and droughts may increase the risk of fires in landfill sites and can also increase the prevalence of vermin and odour.
- Energy – both energy efficiency in buildings and transport and alternative, renewable sources of energy

FIGURE 20 EXISTING PUBLIC TRANSPORT PROVISION IN SOUTH DUBLIN

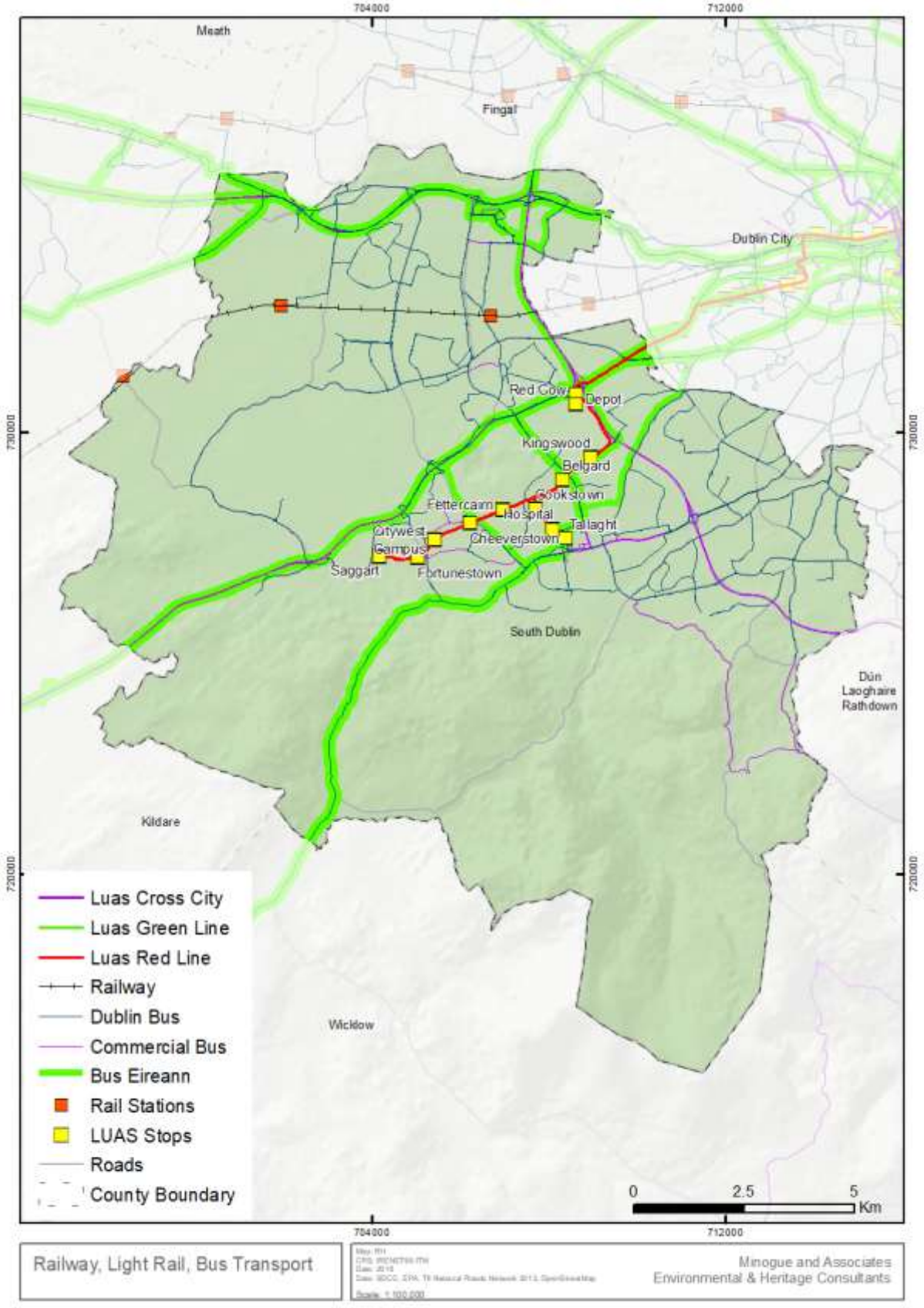


FIGURE 21 CURRENT BUS PROVISION SOUTH DUBLIN

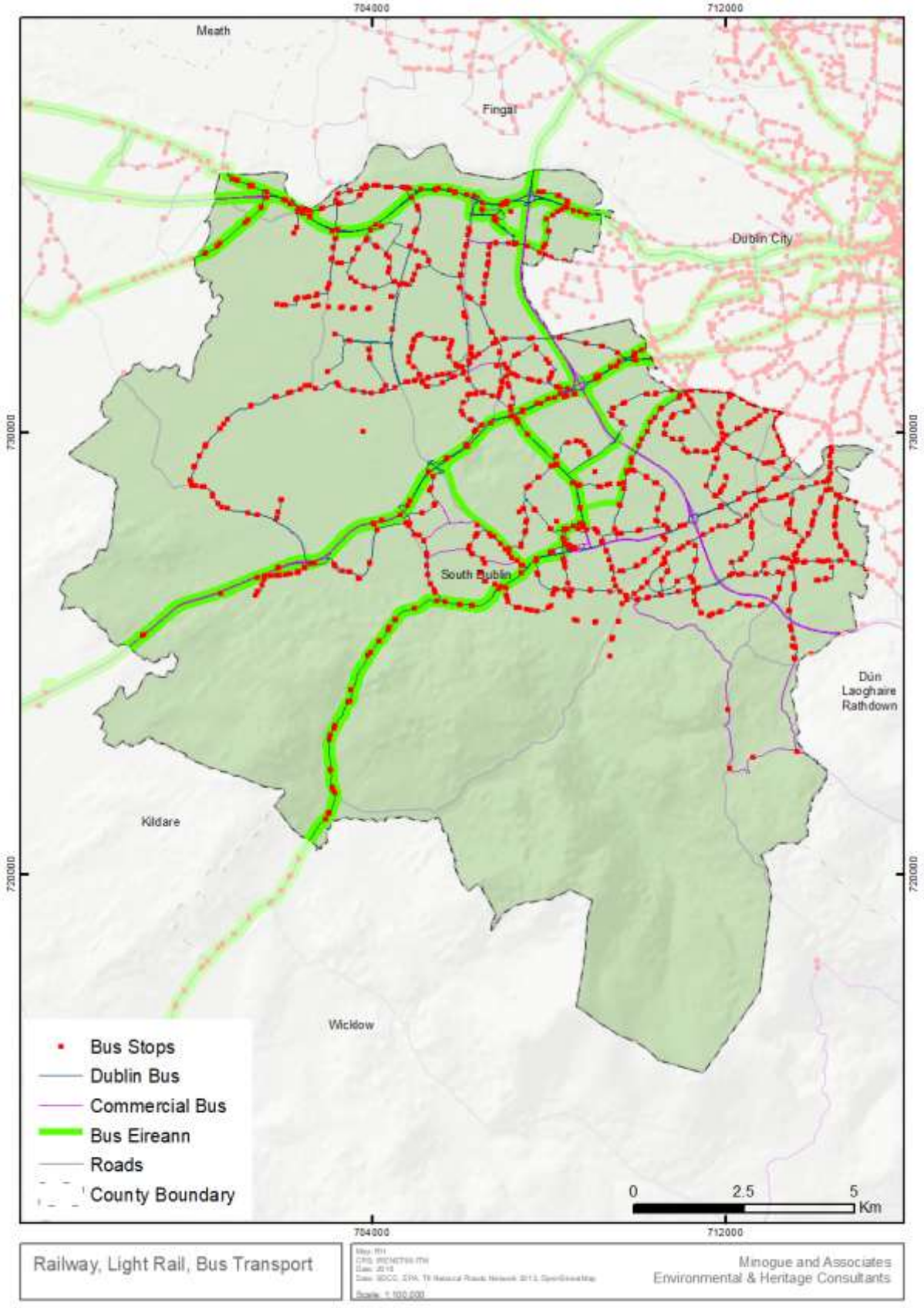
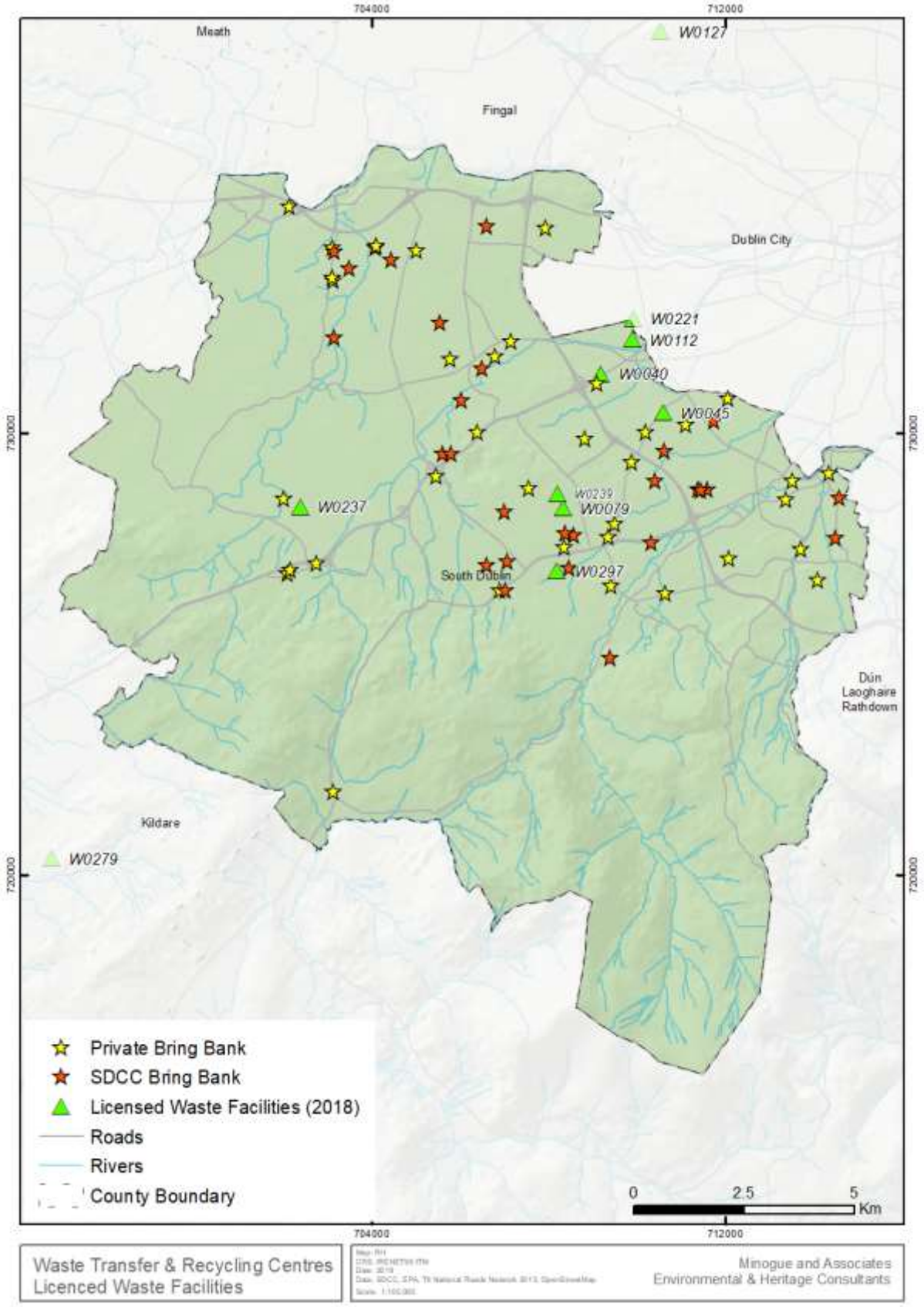


FIGURE 22 RECYCLING FACILITIES IN SOUTH DUBLIN

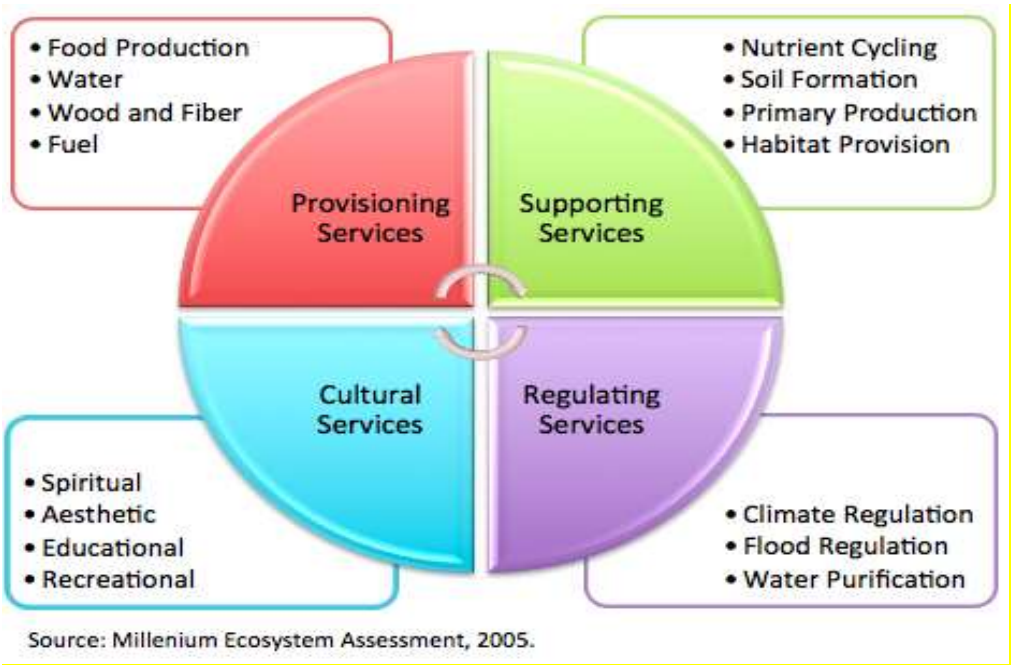


4.10 INTER-RELATIONSHIPS

4.10.1 ECOSYSTEM SERVICES

Awareness about the roles and functions of ecosystems has increased in recent years and it can be a useful means to highlight their importance and value services to society. The Economics of Ecosystem Services and Biodiversity (TEEB) study defines ecosystem services as: '*the benefits people receive from ecosystems'*. Humans are ultimately dependant on the natural environment and ecosystem services highlight how these systems provide and interact to create the essential components for human well- being. Four key services are identified for ecosystems and are shown in the following **Figure 23**.

FIGURE 23 ECOSYSTEM SERVICES.



4.10.2 NATIONAL ECOSYSTEM AND ECOSYSTEM SERVICES MAPPING PILOT (NPWS)

The National Parks and Wildlife Service (NPWS) commissioned a short project for a National Ecosystem and Ecosystem Services mapping pilot for a suite of prioritised services based on available data. The project completed in 2016.

In addition to highlighting the importance and values of biodiversity and ecosystems, the project set out to initiate discussion on how ecosystem services assessments can be integrated into mutlisectoral decision making processes in Ireland. The deliverables also contribute to meeting a number of Ireland's national, EU and UN obligations. The project utilised available information and built upon existing approaches and tools including the MAES conceptual framework and the JNCC Spatial Framework approach and CICES (Common International Classification of Ecosystem Services) as well as initiatives and activities in Ireland. The following maps show an initial assessment from this project highlighting the ecosystems services provided in the 4 Dublin Local Authorities. These are briefly discussed below in the context of the relevant CCAP.

FIGURE 24 ECOSYSTEM SERVICES –WATER RETENTION

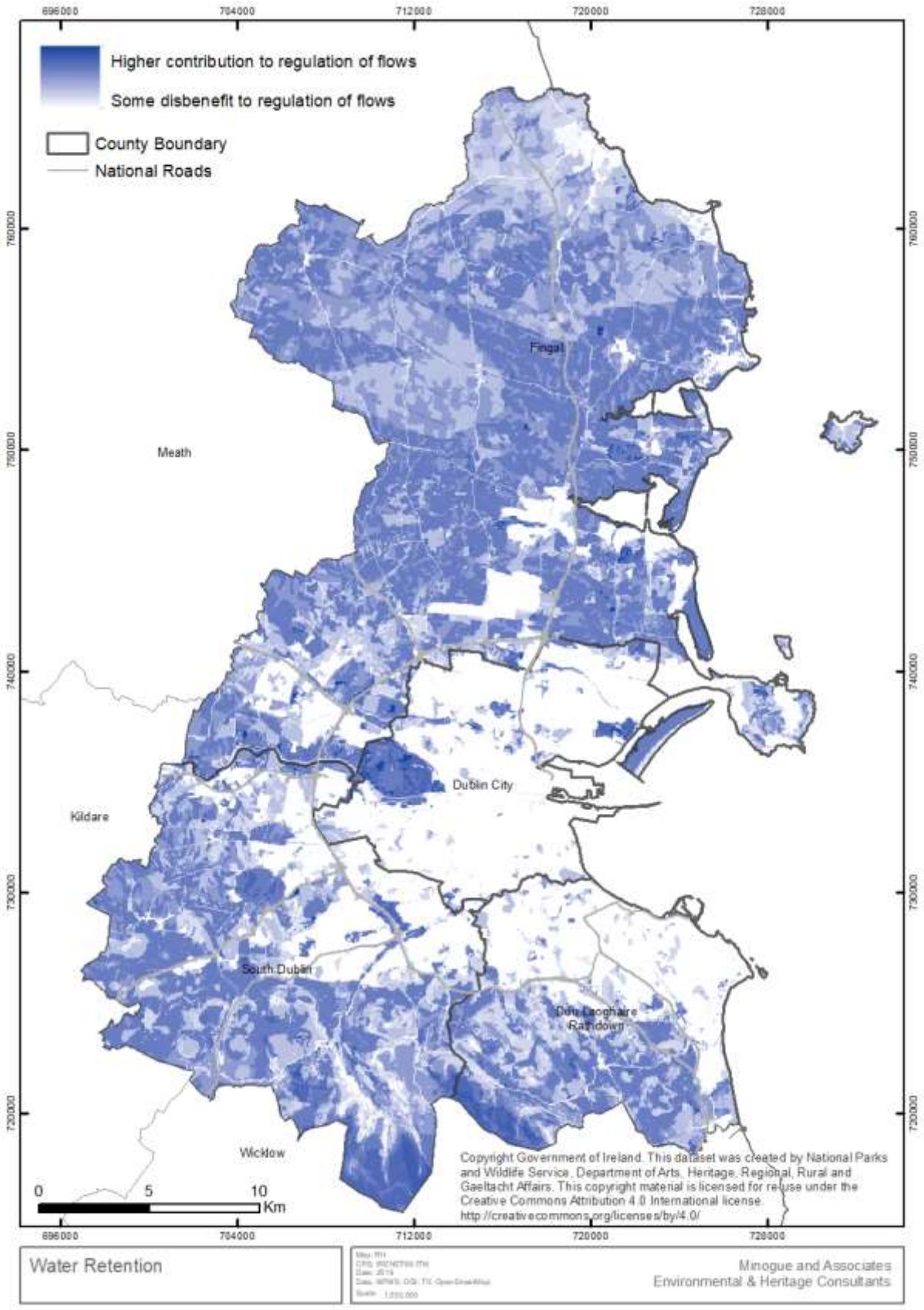


FIGURE 25 ECOSYSTEM SERVICES –WATER FILTRATION

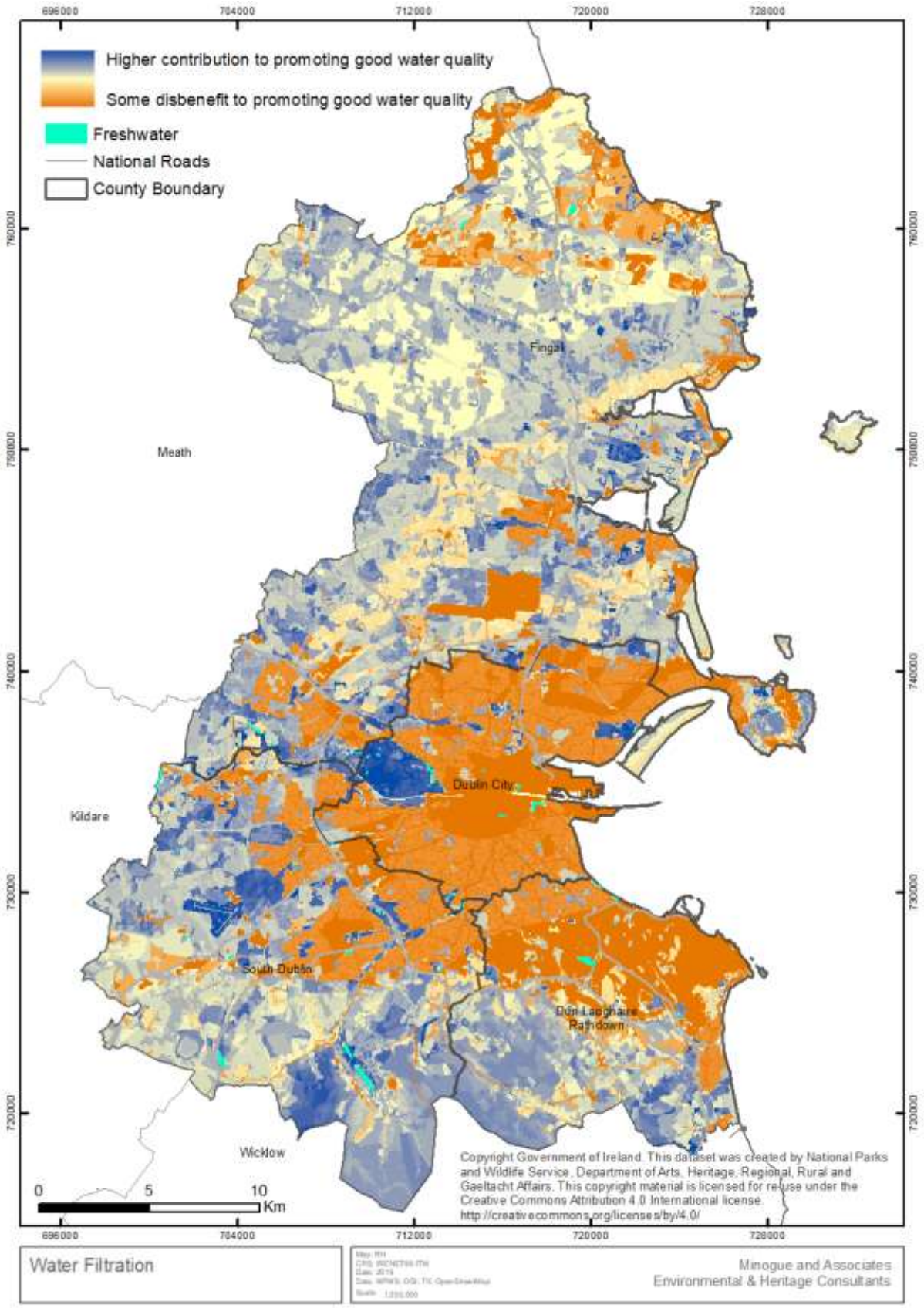
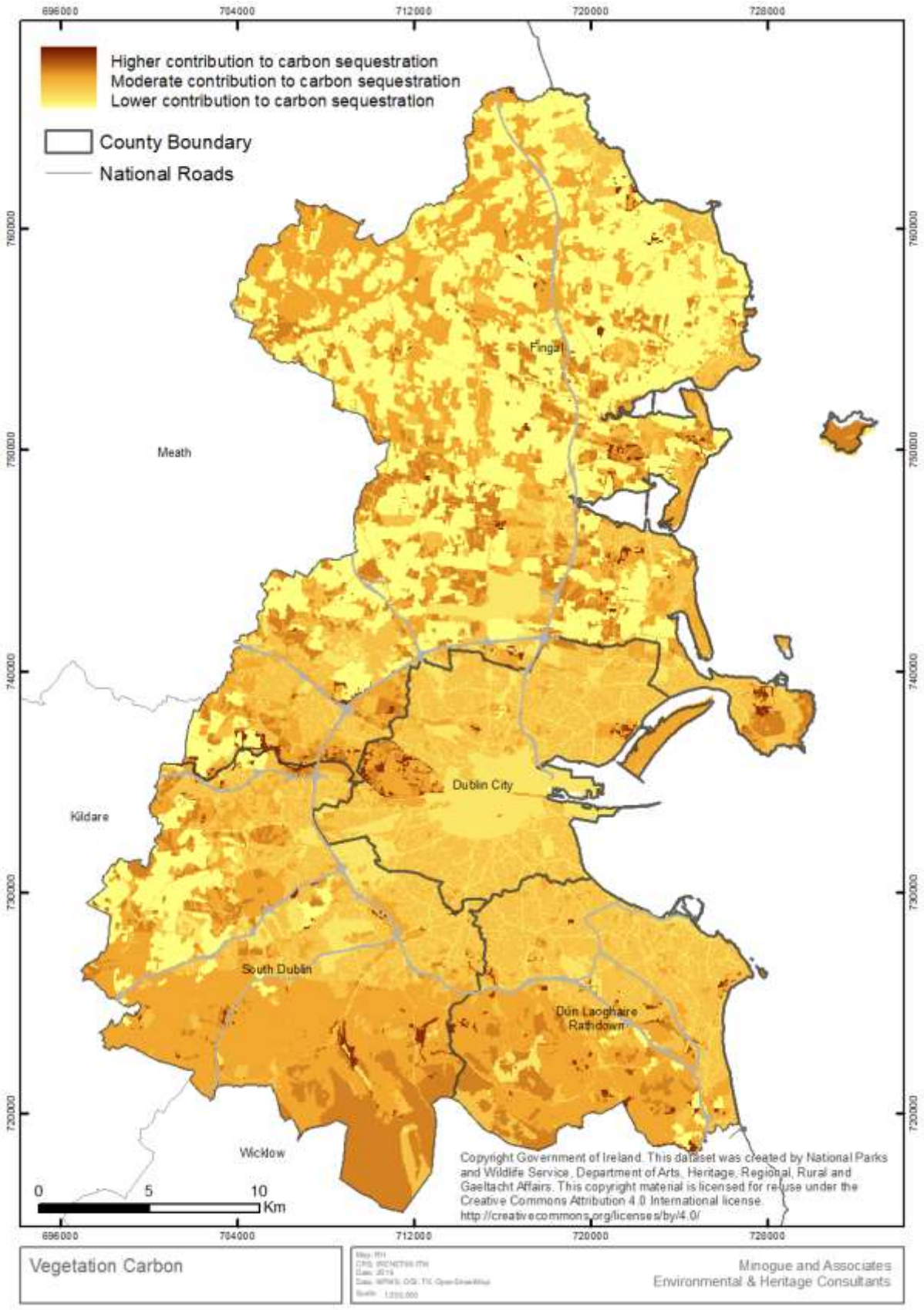


FIGURE 26 ECOSYSTEM SERVICES- CARBON SEQUESTRATION



In the context of South Dublin, the above assessment demonstrates the importance of the foothills and uplands in terms of water storage, filtration and carbon sequestration. The agricultural lands in the lowlying western and southern parts of the county also fulfil an important role in water services.

4.10.1 Environmental Sensitivity.

In accordance with the SEA Directive, the interrelationship between the environmental parameters above must be taken into account. Although all such parameters may be considered interrelated and may impact on each other to a degree. The Figure below shows the overall environmental sensitivity for the plan area and sphere of influence, and follows the same approach (i.e.: ranking of environmental parameters) as that used in the South Dublin CDP 2016-2022 SEA process. In order to show consistency between the four local authorities in terms of overall environmental sensitivity, the following parameters were utilised:

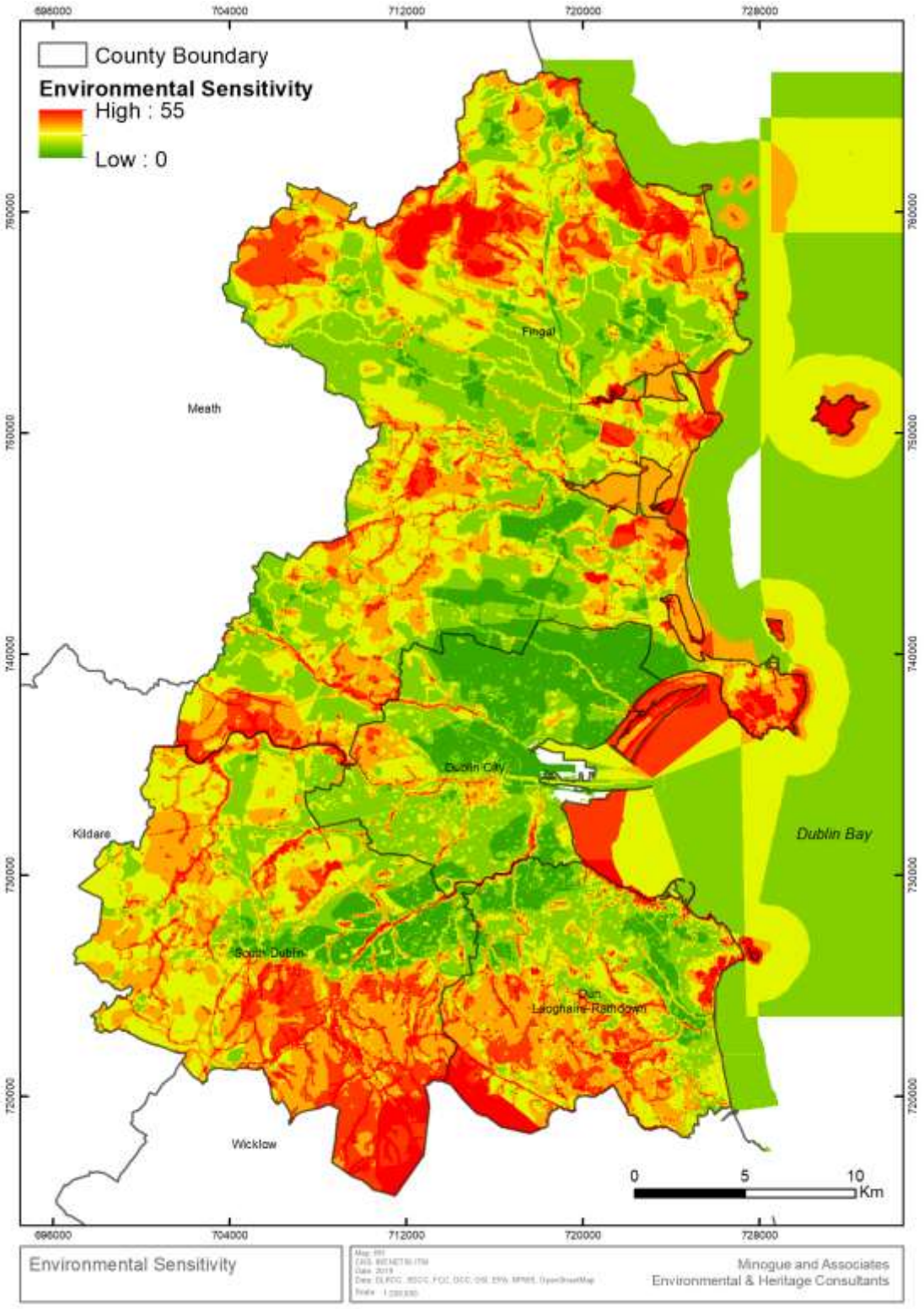
Every Parameter value = 5 (except Groundwater Vulnerability)

<table>
<tr><td>All Dublin Local Authorities</td><td colspan="3">SAC, SPA, NHA, pNHA
NIAH, SMR
ACA (SDCC; FCC; DLR) / Arch zone (DCC)
Rivers / Lakes
Nutrient Sensitive Waters
Corine – pasture/non-irrigated/peat/natural grassland categories
Ancient Woodland Survey (NPWS)
RPA drinking water rivers
RPA drinking SWB
RPA bathing SWB
Sites and Monuments
GW Vulnerability</td></tr>
<tr><td>Fingal County Council</td><td>Highly Sensitive Landscapes
Nature Development Areas</td><td>South Dublin CC</td><td>SDCC- Grean Areas (Urban Atlas) -
SDCC - AREAS_OF_ARCHELOGICAL_POTENTIAL
SDCC – Views
SDCC – Hedgerows
SDCC- Parks
SDCC – Trees in Dodder Valley</td></tr>
<tr><td>FCC, SDCC, DLR</td><td>Record Protected Structure</td><td>DLR</td><td>Conservation Area; Ecological Networks, Coastal Habitats</td></tr>
</table>

By mapping key environmental layers (GIS) to produce an environmental sensitivities map, it provides a visual impression which can assist in identifying which areas within the Plan area experience the highest concentration of environmental sensitivities and consequently the

areas potentially most vulnerable to potential environmental impacts from development. This can be a useful guide when considering the strategic options in relation to the plan during the early stages in the plan making process, and identifying areas that are of greater or lesser vulnerability. **Figure 27** shows the environmental sensitivity map for the four Dublin Local Authorities.

FIGURE 27 Environmental sensitivity mapping South Dublin County



4.11 EVOLUTION OF THE ENVIRONMENTAL BASELINE IN THE ABSENCE OF THE CCAP

The SEA legislation requires that consideration is given to the likely evolution of the current baseline where implementation of the CCAP 2019-2024 does not take place. In the absence

of the CCAP the environment would evolve under the requirements of the South Dublin County Development Plan 2016- 2022.

Overall, this Climate Change Action Plan will be monitored and updated on an annual basis, with a review and revision every five years. Whilst the South Dublin CDP 2016-2022 will remain the primary landuse framework for the county, in the absence of the CCAP, the detailed actions accompanied by targets and indicators will not allow for the annual measuring of progress in this area. This presents a lost opportunity to implement changes at local authority, and community level across the county.

Key actions relating to nature based solutions which offer a suite of positive environmental effects would not be implemented with subsequent opportunities lost to green up infrastructure, promote food security and enhance tree planting. Other actions such as wetlands provision in public parks would be omitted.

At county level, the local authority would be less likely to contribute to continue to the reduction in carbon emissions associated with their fleet, lighting and buildings.

Promoting regional or inter county actions relating to public transport, walking and cycling may be less effective in the absence of this action plan.

4.12 EXISTING ENVIRONMENTAL ISSUES IN NEIGHBOURING AREAS.

Whilst the CCAP is prepared for South Dublin, the regional approach for the four DLAs is a key element of the four CCAPs; Therefore a summary of key environmental issues identified for Climate Change in the SEA ER of neighbouring local authority areas is presented below in Table 6. It is accepted that many of the climate change issues are cross cutting and give rise to a variety of effects and issues on SEA parameters, in particular, biodiversity, flora and fauna, water resources, soil, landscape, material assets and population and human health.

TABLE 6KEY CLIMATE CHANGE ISSUES IDENTIFIED IN SEA ER OF NEIGHBOURING LOCAL AUTHORITY COUNTY DEVELOPMENT PLANS

SEA Topic	Existing Environmental Issues
Dublin City County Development Plan 2016-2022	Best practice methods for energy efficiency, energy conservation and water conservation, e.g., district heating network, combined heat and power systems, energy efficiency Continued regard to the Sustainable Energy Action Plan. Feasibility of renewable energy sources throughout the city. Further reductions in CO2 emissions required
Climatic Conditions	Rising sea levels. Pluvial (rainfall) and coastal flood risk from changing land-use patterns and climate change. Importance of city vegetation/ landscape to act as a carbon sink. Pressure from transport-related emissions. Greater co-ordination with the other planning authorities in the Greater Dublin Region to respond to these shared regional issues set out
Fingal County Development Plan 2017-2023	Some of the likely potential impacts of climate change for Fingal have been identified as follows: Increased likelihood and magnitude of precipitation levels and flooding events Disruption to urban infrastructure due to flooding

	Increased sea levels and loss of coastal land Potential residential and commercial water shortages, and Increased vulnerability for at risk sections of society due to changing demographic and hazards Towns along the coast will become increasingly vulnerable to rises in sea levels, coastal erosion and coastal squeeze. More intense storm events are also likely outcomes of climate change.
Dun Laoghaire Rathdown County Development Plan 2016-2022	Legislative objectives governing air and climatic factors in Dún Laoghaire-Rathdown were not identified as being conflicted with.
Kildare County Development Plan 2017 - 2023	Legislative objectives governing air and climatic factors in County Kildare were not identified as being conflicted with.
Wicklow County Development Plan 2016-2022	Emissions to air including greenhouse gas emissions and other emissions[14]

[14] Taken from SEA Statement as Environmental Report not available on final plan webpage.

5 Strategic Environmental Objectives

5.1 Introduction

The purpose of the SEA Objectives is to ensure that the assessment process is transparent and robust and that the CCAP considers and addresses potential environmental effects. SEA Objectives have been set for each of the ten environmental topics identified at the Scoping Stage of the SEA process.

These objectives are derived from the principles identified through the plan, policy and programme review and align where possible with the SEOs developed for the South Dublin County Development Plan 2016-2022. Where they differ from the South Dublin CDP 2016-2022 objectives, the text is shown in italic bold font. The results of this are summarised in a table, called an evaluation matrix (See Chapter Seven SEA ER).

TABLE 7PROPOSED STRATEGIC ENVIRONMENTAL OBJECTIVES

SEA Topic	Strategic Environmental Objectives
Biodiversity Flora and Fauna	To avoid loss of habitats, geological features, species or their sustaining resources in designated ecological sites
	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites
	To sustain, enhance or - where relevant - prevent the loss of ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity
Population and human health 	To protect human health from hazards or nuisances arising from traffic and incompatible landuses.
Water	To maintain and improve, where possible, the quality of rivers, lakes and surface water.
	To prevent pollution and contamination of ground water
	To prevent development on lands which pose - or are likely to pose in the future – a significant flood risk
Air Quality and Climate	To minimise increases in travel related greenhouse emissions to air
	To reduce car dependency within the County by way of, inter alia, encouraging modal change from car to more sustainable forms of public transport and encouraging development which will not be dependent on

	private transport
Soil and Geology	To maximise the sustainable re-use of brownfield lands and the existing built environment, rather than developing greenfield lands
	To minimise waste production and reduce the volume of waste to landfill and to operate sustainable waste management practices
Material Assets	To maintain and improve the quality of drinking water supplies
	To serve new development under the CDP with appropriate waste water treatment
	To minimise waste production and reduce the volume of waste to landfill and to operate sustainable waste management practices.
Cultural Heritage 	To protect the archaeological heritage of South Dublin with regard to entries to the Record of Monuments and Places - including Zones of Archaeological Potential - and the context of the above within the surrounding landscape where relevant
	To preserve and protect the special interest and character of South Dublin's architectural heritage with regard to entries to the Record of Protected Structures, Architectural Conservation Areas, and their context within the surrounding landscape where relevant
Landscape 	To protect and avoid significant adverse impacts on the landscape, landscape features and designated scenic routes; especially with regard to areas of high amenity, the Dublin Mountain Area, and the Liffey and Dodder Valleys.
	***Interrelationships*** ***Maintain and improve the health of people, ecosystems and natural processes*** ***Actively seek to integrate opportunities for environmental enhancement during adaptation to climate change***

6 CONSIDERATION OF ALTERNATIVES

6.1 INTRODUCTION

One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative development scenarios, in this case the South Dublin CCAP 2019-2024. These alternative development scenarios should meet the following considerations:

- Take into account the geographical scope, hierarchy and objectives of the plan –be realistic
- Be based on socio-economic and environmental evidence – be reasonable
- Be capable of being delivered within the plan timeframe and resources –be implementable
- Be technically and institutionally feasible – be viable

In developing, refining and assessing the alternatives for the draft CCAP, the toolkit included in Developing and Assessing Alternatives in Strategic Environmental Assessment Good Practice Guidance (EPA 2015) was utilised.

In addition to the above, the CCAP will function within the policy hierarchy established by national, regional and county strategic plans, as well as relevant legislation.

This chapter presents the approach to considering and assessing the alternatives for the CCAP. Section 6.2 presents the alternative scenarios. Section 6.3 presents the evaluation of the alternatives for potential environmental effects. This in turn informed the selection of a preferred alternative for the CCAP which is presented in Section 6.4.

6.2 ALTERNATIVES CONSIDERED

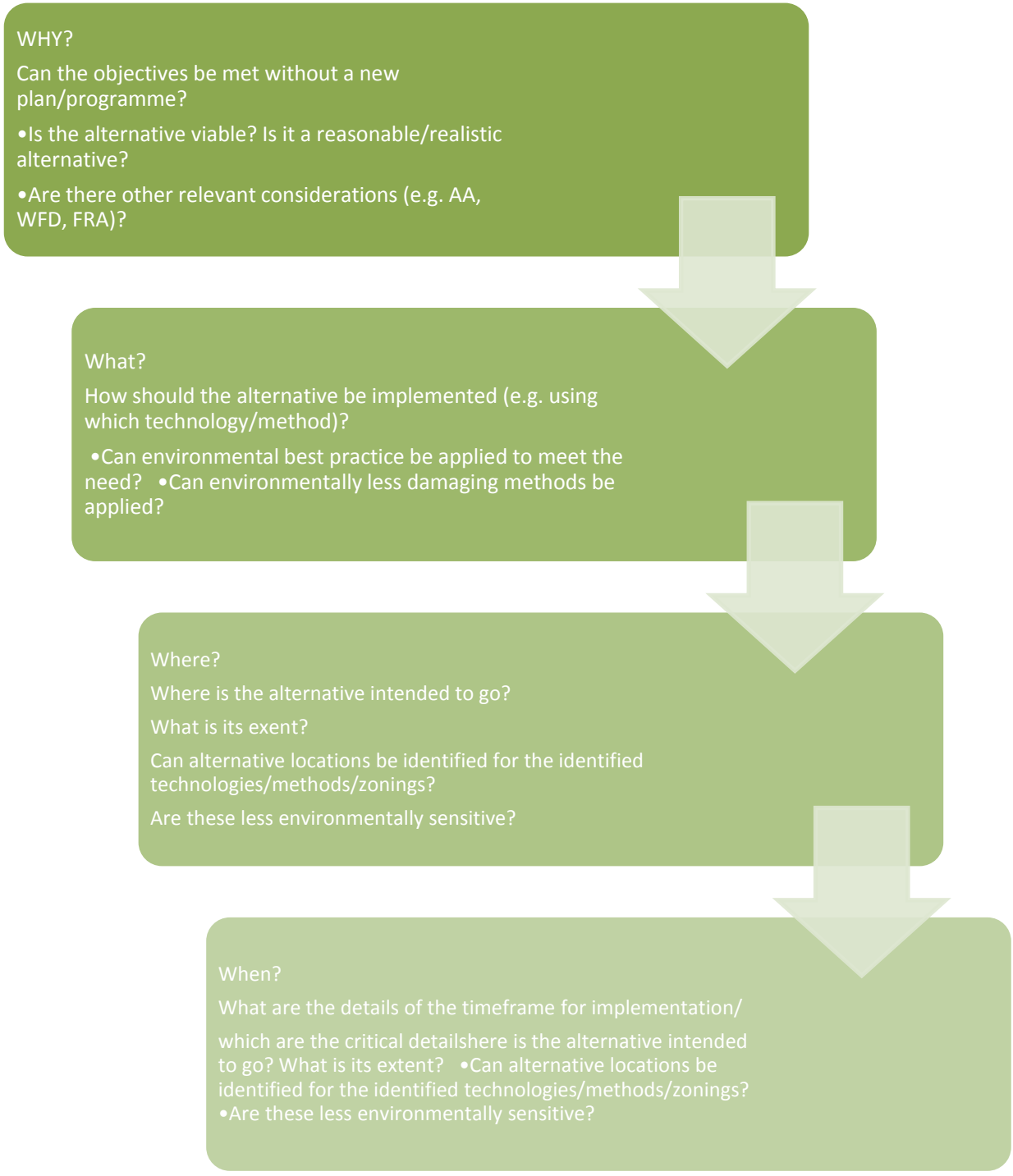
In a *Strategy Towards Climate Change Actions Plans for Dublin 2017*, seven focus areas were identified as having the greatest potential to help the Dublin LAs move towards a zero-carbon society and adapt to the effects of climate change. These focus areas were as follows:

- Water, Waste, Planning, Transport, Energy, Ecosystems and Biodiversity and Citizen Engagement.

The focus areas can have predominately either mitigation or adaptation solutions, or both. For example, the Energy focus area mainly concerns mitigation (ie. reducing the use of fossil fuels and their associated CO2 emissions), while Water largely focuses on adapting to changes that are occurring or will occur in the near future due to climate change. Meanwhile, the Citizen & Stakeholder Engagement focus area concerns both mitigation and adaptation.

The aim of the CCAP is to work with the other Dublin local authorities in a co-ordinated manner to achieve the actions identified as being capable of implementing over a Five Year Period whilst also contributing to both mitigation and adapting to climate change. In

considering Alternative Scenarios for the CCAP, the following questions were used to help frame the Consideration of Alternatives[15]:



Therefore the Alternatives considered are as follows:

[15] Adapted from Figure 4.3 Developing and Assessing Alternatives in the Strategic Environmental Assessment Process (EPA, 2015).

TABLE 8 ALTERNATIVES CONSIDERED

	Why **Can the objectives be met without a new plan/programme?** **•Is the alternative viable? Is it a reasonable/realistic alternative?** **•Are there other relevant considerations (e.g. AA, WFD, FRA)?**	**What** **What?** **How should the alternative be implemented (e.g. using which technology/method)?** **•Can environmental best practice be applied to meet the need? •Can environmentally less damaging methods be applied?**	**Where** **Where?** **Where is the alternative intended to go?** **What is its extent?** **Can alternative locations be identified for the identified technologies/methods/zonings?** **Are these less environmentally sensitive?**	**When** **When?** **What are the details of the timeframe for implementation/ which are the critical details here is the alternative intended to go?** **What is its extent? •Can alternative locations be identified for the identified technologies/methods/zonings?** **•Are these less environmentally sensitive?**
Alternative 1: Do-Nothing (rely CDP policies and objectives to address and adapt to climate change)	This alternative could see the do nothing scenario be continued by using the existing CDP policies and landuse zonings to continue to adapt and plan for effects on climate change.	Through using climate change policies in the CDP and providing the landuse framework for responding to climate change. Landuse activities relevant could include renewable energy, transport and flood risk management	This would include the county of South Dublin	This would cover the timeframe of the current CDP upto 2022
Alternative 2: Prioritise largest greenhouse gas emission sectors –	This would require the preparation of an action plan that would concentrate on energy and transport for South Dublin as a means to	It would prioritise measures that would reduce energy emissions, promote renewable energy and sustainable transport projects	This would include the county of South Dublin	This would likely reflect the timeframe of the CDP given its landuse implications.

	Why Can the objectives be met without a new plan/programme? •Is the alternative viable? Is it a reasonable/realistic alternative? •Are there other relevant considerations (e.g. AA, WFD, FRA)?	What What? How should the alternative be implemented (e.g. using which technology/method)? •Can environmental best practice be applied to meet the need? •Can environmentally less damaging methods be applied?	Where Where? Where is the alternative intended to go? What is its extent? Can alternative locations be identified for the identified technologies/methods/zonings? Are these less environmentally sensitive?	When When? What are the details of the timeframe for implementation/ which are the critical details here is the alternative intended to go? What is its extent? •Can alternative locations be identified for the identified technologies/methods/zonings? •Are these less environmentally sensitive?
Energy and Transport	address and respond to climate change			
Alternative 3: Approach the priority areas in a balanced manner to provide for both responses to climate change impacts (adaptation) and reduce greenhouse gas missions	This is the existing CCAP. It would consider a mixture of adaptation and mitigation measures for the climate change action plan and would include citizen engagement and awareness raising throughout. It would be underpinned by a baseline assessment of greenhouse gas emissions and sectoral use in the county	This would include a suite of measures that would aim to bring co-benefits where possible and rely on nature based solutions where possible	This would be tailored to South Dublin but prepared as part of a broader regional approach to climate change	This would extend to 2023 and include a detailed monitoring regime to allow for annual reporting and monitoring of actions.

	Why	What	Where	When
	Can the objectives be met without a new plan/programme? •Is the alternative viable? Is it a reasonable/realistic alternative? •Are there other relevant considerations (e.g. AA, WFD, FRA)?	What? How should the alternative be implemented (e.g. using which technology/method)? •Can environmental best practice be applied to meet the need? •Can environmentally less damaging methods be applied?	Where? Where is the alternative intended to go? What is its extent? Can alternative locations be identified for the identified technologies/methods/zonings? Are these less environmentally sensitive?	When? What are the details of the timeframe for implementation/ which are the critical details here is the alternative intended to go? What is its extent? •Can alternative locations be identified for the identified technologies/methods/zonings? •Are these less environmentally sensitive?
mitigation).				

6.3 Assessment of potential effects for each alternative scenario

This section presents the assessment of potential environmental effects for each Alternative Scenario. This is undertaken by assessing each alternative against the SEOs presented in Chapter 5 of this SEA ER. It is informed by the environmental baselines as well as the policy review.

The assessment of Alternatives is categorised as follows, as many of the alternatives share similar objectives, to highlight where an alternative may generate particular positive or negative effects, a + or – is shown. :

Positive	
Neutral	
Uncertain	
Negative	

TABLE 9 ASSESSMENT OF ALTERNATIVES

Strategic Environmental Objectives	Alternative 1:Do Nothing Scenario	Alternative 2.Prioritise Energy and Transport	Alternative 3 Prioritise all main sectors and include for awareness raising
Biodiversity			
B1: To avoid loss of habitats, geological features, species or their sustaining resources in designation ecological sites.	Uncertain to negative	Uncertain/ negative	Positive++
B2: To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites	Positive	Uncertain/negative	Positive++
B3: To sustain, enhance or - where relevant - prevent the loss of ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity	Positive	Positive+	Positive++
Population and Human Health			
PHH1: To protect human health from hazards or nuisances arising from traffic and incompatible landuses	Positive	Uncertain	Positive++
Water			
W1: To maintain and improve, where possible, the quality of rivers, lakes and surface water.	Positive	Positive	Positive++
W2: To prevent pollution and contamination of ground water	Positive	Positive	Positive+
W3: To prevent development on lands which pose - or are likely to pose in the future – a significant flood risk	Positive	Positive	Positive++
Comment: Whilst all alternatives show consistency with these Water SEOs, Alternative 3 has allowed for full integration of strategic flood risk			

Strategic Environmental Objectives	Alternative 1:Do Nothing Scenario	Alternative 2.Prioritise Energy and Transport	Alternative 3 Prioritise all main sectors and include for awareness raising
assessment and promotes nature based solutions as another means to respond to climate change thereby increasing the overall environmental performance of the option. .			
Soil and Geology			
S1: To maximise the sustainable re- use of brownfield lands, and the existing built environment, rather than developing greenfield lands	Positive	Neutral	Positive++
S2: To minimise waste production and reduce the volume of waste to landfill and to operate sustainable waste management practices. (S2, an SEO with an objective to reduce contamination and safeguard quantity and quality of soils was excluded because of the absence of adequate information in the County)	Neutral	Neutral	Neutral
Material Assets			
M1: To maintain and improve quality of drinking water supplies	Positive	Positive	Positive
M2: To serve new development under the CCAP with appropriate wastewater treatment	Positive	Positive	Positive
M3: To reduce car dependency within the CCAP by way of, inter alia, encouraging modal change from car to more sustainable forms of public transport and encouraging development which will not be dependent on private transport.	Positive	Positive	Positive ++

Strategic Environmental Objectives	Alternative 1:Do Nothing Scenario	Alternative 2.Prioritise Energy and Transport	Alternative 3 Prioritise all main sectors and include for awareness raising
M3: To minimise waste production and reduce the volume of waste to landfill and to operate sustainable waste management practices.	Positive	Neutral	Positive
Climate and Air Quality			
C1: To minimise increases in travel related greenhouse emissions to air	Positive	Positive	Positive++
C2: To reduce car dependency within the CCAP by way of, inter alia, encouraging modal change from car to more sustainable forms of public transport and encouraging development which will not be dependent on private transport	Positive	Positive	Positive++
C3: Ensure that the CCAP proposals are adaptive to expected climate change patterns.	Positive	Neutral	Positive ++l
Cultural Heritage			
CH1: To protect the archaeological heritage of South Dublin with regard to entries to the Record of Monuments and Places - including Zones of Archaeological Potential - and the context of the above within the surrounding landscape where relevant	Positive	Uncertain/neutral	Positive
CH2: To preserve and protect the special interest and character of architectural heritage with regard to entries to the Record of Protected Structures, Architectural Conservation Areas, and their context within the surrounding landscape where relevant	Positive	Positive	Positive

Strategic Environmental Objectives	Alternative 1:Do Nothing Scenario	Alternative 2.Prioritise Energy and Transport	Alternative 3 Prioritise all main sectors and include for awareness raising
Landscape			
L1: To protect and avoid significant adverse impacts on the landscape, landscape features and designated scenic routes; especially with regard to areas of high amenity the Dublin Mountains Area, and the Liffey and Dodder Valleys	Neutral	uncertain	Positive++
Interrelationships			
Maintain and improve the health of people, ecosystems and natural processes Actively seek to integrate opportunities for environmental enhancement during adaptation to climate change			

6.5 Preferred Alternative

In terms of all SEOs, Alternative 3 is identified as creating most positive interactions as it provides greater environmental performance overall and also allows for a greater environmental gains, than may be achieved through Alternatives 2 and 1. In addition, the mulit faceted approach contributes to greater co-benefits by providing for a wider range of environmental effects particularly around nature based solutions and resource management. The inclusion of measures for citizen engagement and awareness raising through the CCAP option is also positive for a number of SEO..

7 Assessment of Significant Environmental Effects

7.1 Introduction

The purpose of this section of the Environmental Report is to predict and evaluate as far as possible the environmental effects of the CCAP No.3 to the South Dublin County Council CDP 2016-2022.

SEA is an iterative process and the CCAP has taken consideration of environmental issues raised during the SEA process to date. These issues have been incorporated into the CCAP and the principal purpose of this chapter is to discuss the evaluation of these. The discussion of likely impacts is grouped around each of the following environmental parameters as described in Chapter Five.

- Population & Human Health
- Biodiversity, Flora & Fauna
- Water Resources including flooding
- Soil & Geology
- Climatic Factors and Climate change
- Cultural Assets
- Material Assets
- Landscape
- In-combination and cumulative effects.

7.2 Approach to Assessment

Having established the environmental baseline and the key environmental sensitivities for the Plan area in Chapter 5, and the Strategic Environmental Objectives in Chapter 6, an assessment for any potential environmental effects from implementing the CCAP can be undertaken.

An assessment of cumulative and in-combination effects is also presented in the concluding section of this chapter.

7.2.1 Population and Human Health-Significant effects

Land use planning impacts on the everyday lives of people and can either hinder or help promote healthy sustainable environments and communities. For example the provision of safe walking routes and cycle-ways, parks, playgrounds, safe routes to school, public transport facilities, etc. result in direct and indirect health benefits and allow for healthier transportation choices to be made by communities above private motor car.

Many of the actions identified in the CCAP give rise to long term positive effects on population and human health both by responding and adapting to the impacts of climate change, and also reducing greenhouse gas emissions through a series of measures.

Reflecting the opportunity for co-benefits of the CCAP, measures around energy efficiency and district heating opportunities can help address fuel poverty in relation to vulnerable individuals as well as the chance to reuse energy from within the local area. Actions (*Action 11*) relating to deep retrofits of the councils housing stock provides positive, long term effects both in relation to resource management (by reusing existing buildings and greenhouse gas savings through avoiding new build particularly of concrete sourced products), but it also helps to address fuel poverty particularly

in housing stock that may require upgrading to achieve greater energy efficiency, reducing fuel bills and overall enhancing the comfort of these dwellings.

Reflecting key objectives in the South Dublin CDP 2016-2022 the CCAP will support and encourage a modal shift in transport by expanding the walking and cycling network, encouraging and promoting greater engagement and awareness raising in relation to walking and cycling and promoting behavioural change; for example see the following *Transport*

- *Actions 7 Improve road safety at schools with additional school wardens,*
- *Action 8 Organised walks to promote healthy lifestyles, i.e. Clondalkin Route,*
- *Action 9 Develop cycle network strategy,*
- *Action 10 Build out County Cycle Network and*
- *Action 11 Development of cycle/pedestrian greenways.*

All the measures included in the Nature Based Solutions and a large number of the Flood Resilient measures are identified as generating long term positive effects on this SEO.

The measures particularly in Nature Based Solutions provide for multiple positive effects via tree planting, woodland strategy, SUDs, and wetlands, which can provide a range of ecosystem services including water purification, carbon storage, and assist in absorption of emissions associated with transport such as Particulate matter and providing noise buffers, these create positive effects on population and human health.

By implementing measures around flood management and where measures such as wetlands and flood attenuation ponds are created, these respond to potential flood risk events and therefore give rise to positive effects on these SEOs.

In order to enhance environmental benefits with the Transport Actions, the action relating to public realm enhancement and sustainable transport is recommended for mitigation to incorporate green infrastructure measures (*Action 5*).

7.2.2 Biodiversity, Flora and Fauna-Significant Effects

The promotion of a nature based measures and resource management in particular along with blue and green infrastructure actions all strengthen overall protection of biodiversity resources and the Biodiversity SEOS.

Mapping habitats, identification and control measures for invasive species, leaf composting, and tree canopy and hedgerow mapping are examples of actions that are long term positive and consistent with these SEOs.

Action 18 Assess feasibility of additional low carbon district heating networks at Clonburris and Grange Castle- the Grand Canal pNHA forms the southern and northern boundary of these two lands. However the Clonburris Planning Scheme includes a number of protective measures relating to the Grand Canal and the South Dublin CDP 2016-2022, as well as recent Variation to the CDP provide for buffers for the Grand Canal ecological corridor and appropriate ecological mitigation measures.

Walking and cycling actions, if they were to take place on or near sensitive habitats or species vulnerable to disturbance would give rise to adverse effects. However the existing environmental protection provisions in the CDP will apply

and provide sufficient mitigation measures.

Indirect and cumulative positive impacts are identified for biodiversity in relation to actions around Resource Management such as reducing illegal dumping.

Nature based solutions identified as particularly positive include

- *Action 33 Research to increasing buffers from watercourses;*
- *Action 32 citizen engagement on ideas for biodiversity,*
- *Action 10 prioritise nature based solutions in policies for flood risk in the CDP, and*
- *Action 12 An Urban Woodland Strategy*.

7.2.3 Water - Significant Effects

Potential effects on water resources (and frequently biodiversity) in the absence of mitigation include:

- A reduction in water quality in groundwater, springs and watercourses associated with the construction phase of new developments (short to medium term impacts);
- Surface water runoff from impermeable surfaces leading to reduced water quality in groundwater springs or surface waters affecting qualifying habitats and species downstream(impacts can range from short to long term);
- Changes in the flow rate of watercourses arising from an increased footprint of impermeable surfaces within the Plan area - increasing the extent of impermeable surfaces will result in a decrease in infiltration and an increase in runoff;
- Generally, land use practices can result in water quality impacts and whilst surface water impacts may be identified quickly, impacts to groundwater can take much longer to ascertain due to the slow recharge rate of this water resource;
- Water quality impacts can also have human health impacts in the case where bacterial or chemical contamination arises.

The South Dublin CDP 2016-2022 already includes a range of provisions and measures to address and minimise the above effects, including measures around green infrastructure, flood risk management and development control.

The CCAP however further enhances and strengthen these through the flood resilience actions and nature based solutions in particular. Additional tree planting and woodland strategy (*Actions 12 to 15*) provide for positive effects as they reduce soil run off and allow for water attenuation and filtration.

Measures around SUDs, and Actions 10 and 11 in the Flood Resilience theme are particularly positive, creating long term direct positive effects on water resources, as well as soil and biodiversity, landscape and population as they state in *Action 10 Protect and conserve floodplains, wetlands, rivers and watercourses subject to flooding and Action 11 Integrated constructed wetlands for water attenuation and purification.*

Action 15 is recommended for mitigation to enhance the nature based solution approach and principle.

7.2.4 Soil and Geology - Significant Effects

Soil quality and function may be enhanced through particular measures associated with flood resilience, nature based solutions and resource management in particular.

Awareness raising around illegal dumping and Action 18 leaf composting can generate positive effects on soil through enhancement of the resource and a more sustainable approach to enriching soil.

A number of the measures relating to flood resilience including recognition of flood plains and production of Regional Flood Plain Management Guidelines (Action 5) indirectly benefit soil and geology SEOs.

7.2.5 Air Quality and Climate

Overall the CCAP will contribute positively to climate change adaptation through the following:

- Blue and green infrastructure giving rise to increased surface water storage and potential carbon sequestration
- Focus on energy efficiency and innovation as seen through the actions identified in the Energy Theme, examples include
- Action 4 and 5 provide for evidence based climate change chapter in the County Development Plan and the Tallaght Local Area plan, both of which will allow for policy responses and in the CDP context, landuse zoning responses based on the evidence prepared.
- Other energy related measures including *Action 10 development of South Dublin District Heating System and deep retrofitting of council housing stock (Action 11*) are all identified as positive in relation to this SEO.

Key measures relating to behavioural change around transport and the increase in walking/cycling and public transport measures are essential in addressing transport emissions over the lifetime of the CCAP and beyond.

Recognising the ecosystems functions of soil, water and biodiversity is a key element in the Nature Based solutions theme and is an important acknowledgement that also provides for positive effects across a number of SEOs.

The CCAP includes targets relating to 40% reduction in the councils Greenhouse Gas Emissions by 2030 (primarily through lighting and energy measures), a 33% improvement in the councils energy efficiency by 2020. However the CCAP also acknowledges that the council's outputs are relatively minor given the wider sectoral emissions in the county and this is why many of measures relate to the council leading on climate action, promoting behavioural change, facilitating sustainable transport options, promoting increased energy efficiency and supporting nature based solutions and citizen engagement.

The preparation of a new baseline of emissions and the annual monitoring reporting of the CCAP is a critical feature that should allow review of progress on a regular basis.

7.2.6 Cultural Assets - Significant Effects

Archaeology and Built heritage features are present throughout the plan area, and in particular those archaeological ritual features and landscapes associated with the foothills on peat soils may be

particularly vulnerable to climate change effects.

The CCAP does not directly identify cultural heritage however through public realm improvements, green infrastructure measures and nature based solutions, effects on cultural heritage features may be minimised over the CCAP.

7.2.7 Material Assets - Significant Impacts

Many of the measures in Energy, Transport and Flood Resilience in particular provide for mitigation and adaptation with a view to minimising adverse effects of climate change on material assets, and also responding and facilitating behavioural and modal change in energy use and transport. Examples of these include the following:

- *Energy: Action 1: Create an Energy Masterplan for the Dublin Region, and Action 15: Replace 4,000 SOX lights with LED*
- *Transport: Action 11: Development of pedestrian/cycle greenways, Action 15: Cycle training programme for 6th Class students/ pedal power labs*
- Flood Resilience: whilst most of the measures here mitigate and adapt to climate change, with accompanying positive effects on material assets SEOs, *Actions 13 and 15* are recommended for mitigation to allow for the inclusion of 'environmental externalities' in any costing exercise, as well as promotion of natural flood measures as a priority in any updated guidelines or policies. Similarly with *Action 2*1 awareness raising, the action is recommended for mitigation to help raise awareness and understanding of more nature based flood measures

7.2.8 Landscape - Significant Effects

Long term positive effects are identified for the CCAP and landscape primarily through the nature based solutions, public realm enhancement, green and blue infrastructure, woodland strategy, increased tree planting etc.

Many of the measures in the CCAP require a landscape level response such as Regional Flood Plain management guidelines, recognition of green and blue infrastructure and corridors and this an important approach to take when responding to climate change.

Overall, positive effects identified for Landscape SEOs, as landscape change can be considerable with climate change effects in terms of changing water levels, habitat change, transport measures and adaptation measures such as flood risk management.

An increase in open space, green infrastructure, public realm and permeability would all create long term positive effects for the Landscape SEOs.

7.3 In-combination and cumulative significant effects

This section of the Environmental Report provides an outline of the potential cumulative effects on the environment as a result of implementation of the CCAP.

Cumulative effects are referred to in a number of SEA Guidance documents and are defined in the EPA SEA Process Checklist as "*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*"[16] These effects can be insignificant individually but cumulatively over time and from a number of sources can result in the degradation of sensitive environmental resources. The assessment of cumulative effects is a requirement of the SEA Directive (2001/42/EC).

The 2004 Guidelines produced by the DECLG outlines that the SEA process is in a good position to address cumulative effects for which the Environmental Impact Assessment process is not equipped to deal with. Due to the strategic nature of the SEA process a forum is provided in which cumulative effects can be addressed.

The EPA Strive Report 2007-2013 on 'Integrated Biodiversity Impact Assessment' describes cumulative effects as incremental effects resulting from a combination of two or more individual effects, or from an interaction between individual effects – which may lead to a synergistic effect (i.e. greater than the sum of the individual effects), or any progressive effect likely to emerge over time.

[16] (EPA SEA Process Checklist (2011)).

7.3.1 Summary of Cumulative and In-combination effects identified

Cumulatively and in combination, several of the CCAP Actions encourage a modal shift and in turn gives rise to indirect positive effects, for example by creating more physical activity in terms of travel to work and school, positively affecting air quality with accompanying benefits to both population and human health . In addition, this can create a reduction in emissions associated with Particulate Matter and Nitrogen Dioxide. This benefits both human health as well as Biodiversity, flora and fauna and surface water features.

The majority of the Flood Resilient measures are identified as being consistent and positive across all SEOs, in particular measures that promote natural based solutions such as tree planting and SUDs are all positive across all parameters and can provide multi functional benefits in the landscape.

In combination and cumulative effects are particularly relevant to the Nature Based solutions actions which together create long term positive effects across Population, Landscape, Biodiversity, Soil and Geology, Water and Material Assets whilst responding to climate change effects.

The resource management is also a critical theme as it promotes reduction and reuse and measures around illegal dumping and leaf composting all interact to generate positive effects.

Threaded throughout the CCAP is the theme of citizen engagement and awareness raising and this is critical to both inform, educate and engage citizens in relation to responding to climate change, whilst also identifying positive measures. Many of the engagement

actions should increase public awareness and a sense of responsibility, collective and individual action in addressing and adapting to climate change. Positive in combination effects are identified for human health around modal shifts, and green infrastructure, behavioural change, tree planting and responding to flood risk.

The SEA ER of the South Dublin County Development Plan provided a cumulative assessment of national level plans and programmes as they relate to the CDP.

7.3.1 Potential cumulative effects from other plans and projects

Table 10 Potential cumulative and in combination effects

Plan	Comment	Cumulative effects
National Planning Framework	**The purpose of the NPF is to provide a focal point for spatial plans throughout the planning hierarchy. It will provide a framework for the new Regional Spatial and Economic Strategies (RSESs) by the three Regional Assemblies and the associated enhancement of the economic development focus of local authorities as per the Local Government Reform Act 2014. The NPF will co- ordinate the strategic planning of urban and rural areas in a regional development context to secure overall proper planning and development as well as co-ordination of the RSES's and city/ county development plans in addition to local economic and community plans and local area plans and other local development.**	The SEA And NIR of the NPF and Draft RSES are now available.
Regional Spatial & Economic Strategy (Draft)	**The RSES is a strategic plan which identifies regional assets, opportunities and pressures and provides appropriate policy responses in the form of Regional Policy Objectives. At this strategic level it provides a framework for investment to better manage spatial planning and economic development throughout the Region**	**The SEA Scoping Report is available for the draft Strategy.** **No in combination effects are identified**
The Transport Strategy for the Greater Dublin Area, 2016-2035	This Strategy sets out how transport will be developed across the region, covering Dublin, Meath, Wicklow and Kildare, over the period of the strategy and was subject to SEA and AA.	No in combination effects are identified.
Water Services Strategic Plan	Ireland's first integrated national plan for the delivery of water services, the Water Services Strategic Plan (WSSP) addresses six key themes and was adopted in 2015. It was subject to full SEA and AA and concluded that Overall, the assessment has identified that the implementation of the draft WSSP is likely to have positive effects on the majority of the SEOs that have been used in the assessment to help characterise the environmental effects of the WSSP and no significant negative effects were identified.	No in-combination impacts were predicted as a result of implementation of the Plans

Neighbouring County Development Plans	These plans were subject to full SEA and AA and concluded that subject to full adherence and implementation of measures likely significant effects were not identified.	No in-combination impacts were predicted as a result of implementation of the Plans
River Basin District Management Plans.	The National River Basin District Management Plan is now published (2018). The second cycle River Basin Management Plan aims to build on the progress made during the first cycle with a greater emphasis on ensuring the evidence base is available and the administration supports are fully in place to support key measures. The approach to the plan development involves characterisation of Ireland's water bodies in order to develop a tailored programme of measures to allow for the protection of good status or the restoration of good status for all water bodies. The outcomes are then monitored in order to feed into further characterisation and measures setting as the cycle moves forward. The plan was subject to SEA and Appropriate Assessment.	No in-combination impacts are predicted as a result of implementation of the Plans
CFRAMS Study	The Eastern CFRAM study has been commissioned in order to meet the requirements of the Floods Directive, as well as to deliver on core components of the 2004 National Flood Policy, in the Eastern district.	No in-combination impacts are predicted as a result of implementation of the Plans.
Greater Dublin Drainage	Irish Water made a planning application for strategic infrastructure development to An Bord Pleanála for the Greater Dublin Drainage Project in June 2018. The GDD project proposes a new regional wastewater treatment facility to be located in the townland of Clonshaugh in north county Dublin, an underground orbital sewer from Blanchardstown to Clonshaugh, a new pumping station at Abbotsown, a partial diversion of the north fringe sewer, and an outfall pipeline to return the treated water to the Irish Sea. The project also includes a regional sludge treatment centre at the new GDD facility and an associated biosolids storage facility at Newtown near Kilshane Cross.	Chapter 23 of the EIAR was reviewed with a focus on the cumulative impacts, No in-combination impacts are predicted as a result of implementation of the Project

The Greater Dublin Transport Strategy 2016-2035	The Transport Strategy for the Greater Dublin Area, 2016-2035 has been prepared and published by the National Transport Authority. It sets out how transport will be developed across the region, covering Dublin, Meath, Wicklow and Kildare, over the period of the strategy and has been approved by the Minister for Transport, Tourism and Sport in accordance with the relevant legislation. Luas, heavy rail and orbital bus routes are of particular relevance to the elements of this Strategy and the CCAP.	Positive effects in relation to the prioritisation of public transport modes above private transport.
South Dublin Heritage Plan	Key objectives as follows: Objective 1: Establish the existing resource information in the County Objective 2: Gather heritage information Objective 3: Provide better access to information	Positive interactions with SEOs in relation to this plan; no adverse cumulative effects identified.

8 MITIGATION

8.1 INTRODUCTION

Section (g) of Schedule 2(B) of the SEA Regulations (Annex 1(g) of the SEA Directive) requires the Environmental Report to describe the measures envisaged to prevent, reduce and/or offset as fully as possible any significant adverse effects on the environment from implementation of the CCAP to the South Dublin County Development Plan 2016-2022. Mitigation involves ameliorating significant negative effects. Where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts or where this is not possible, to lessening or offsetting those effects. Mitigation measures can be generally divided into those that:

- Avoid effects;
- Reduce the magnitude or extent, probability and/or severity of effect;
- Repair effects after they have occurred, and
- Compensate for effects, by balancing out negative impacts with positive ones.

The iterative process of the preparation of the CCAP has facilitated the integration of environmental considerations into the plan. In addition, potential positive effects of implementing the CCAP have been and will be maximised and potential adverse effects have been and will be avoided, reduced or offset.

Many impacts will be more adequately identified and mitigated at masterplan, project and EIA level. In general terms, all proposals for development will be required to have due regard to environmental considerations outlined in this Environmental Report and associated assessment. Proposals for development which are deemed contrary to the environmental objectives contained in South Dublin CDP 2016-2022 will not normally be permitted, and if permitted, will be developed with specific mitigation measures.

The following sections present the principal environmental protection measures already included in the South Dublin CDP 2016-2022 that will apply; please note this is not an exhaustive list.

8.2 Environmental Protection Measures in the South Dublin CDP 2016- 2022.

The CCAP has been prepared having regard to the policies and objectives outlined within the South Dublin County Development Plan 2016-2022. The particular environmental protection measures for the CDP 2016-2022 are as follows:

TABLE 11 ENVIRONMENTAL PROTECTION MEASURES IN SOUTH DUBLIN CDP 2016-2022

CDP Policy/Objective	Text
Population and Human health	
Housing (h) Policy 12	Public Open Space It is the policy of the Council to ensure that all residential development is served by a clear hierarchy and network of high quality public open spaces that provides for active and passive recreation and enhances the visual character, identity and amenity of the area.
Policy C1	It is the policy of the Council to ensure that all communities have access to multifunctional community centres that provide a focal point for community activities.
Policy C8 (a)	It is the policy of the Council to support and facilitate the provision of good quality and accessible childcare facilities at suitable locations in the County
Policy C8 (b	It is the policy of the Council to require the provision of new childcare facilities in tandem with the delivery of new communities.
Policy 13	It is the policy of the Council to promote the highest levels of universal accessibility in all community facilities
Policy 12.	It is the policy of the Council that a hierarchical network of high quality open space is available to those who live, work and visit the County, providing for both passive and active recreation, and that the resource offered by public open spaces, parks and playing fields is maximised through effective management
Biodiversity, Flora and Fauna	
Heritage, conservation and landscapes (HCL) policy 12 natura 2000 sites	It is the policy of the Council to support the conservation and improvement of Natura 2000 Sites and to protect the Natura 2000 network from any plans and projects that are likely to have a significant effect on the coherence or integrity of a Natura 2000 Site

CDP Policy/Objective	Text
Heritage, conservation and landscapes (HCL) policy 13	Natural Heritage Areas It is the policy of the Council to protect the ecological, visual, recreational, environmental and amenity value of the County's proposed Natural Heritage Areas and associated habitats.
HCL13 objective 1:	To ensure that any proposal for development within or adjacent to a proposed Natural Heritage Area (pNHA) is designed and sited to minimise its impact on the biodiversity, ecological, geological and landscape value of the pNHA particularly plant and animal species listed under the Wildlife Acts and the Habitats and Birds Directive including their habitats.
HCL13 objective 2:	To restrict development within a proposed Natural Heritage Area to development that is directly related to the area's amenity potential subject to the protection and enhancement of natural heritage and visual amenities including biodiversity and landscapes
Heritage, conservation and landscapes (HCL) policy 15	Non-Designated Areas It is the policy of the Council to protect and promote the conservation of biodiversity outside of designated areas and to ensure that species and habitats that are protected under the Wildlife Acts 1976 and 2000, the Birds Directive 1979 and the Habitats Directive 1992 are adequately protected
HCL15 objective 1	To ensure that development does not have a significant adverse impact on rare and threatened species, including those protected under the Wildlife Acts 1976 and 2000, the Birds Directive 1979 and the Habitats Directive 1992.
HCL15 objective 2:	To ensure that, where evidence of species that are protected under the Wildlife Acts 1976 and 2000, the Birds Directive 1979 and the Habitats Directive 1992 exists, appropriate avoidance and mitigation measures are incorporated into development proposals as part of any ecological impact assessment.
HCL15 objective 3	To protect existing trees, hedgerows, and woodlands which are of amenity or biodiversity value and/ or contribute to landscape character and ensure that proper provision is made for their protection and management in accordance with Living with Trees: South Dublin County Council's Tree Management Policy 2015-2020.
Material Assets -Transport	
Transport and mobility (tm) policy 1	Overarching It is the policy of the Council to promote the sustainable development of the County through the creation of an integrated transport network that services the needs of communities and businesses
Transport and mobility (tm)	Public Transport It is the policy of the Council to promote the sustainable development of the County by supporting and guiding national

CDP Policy/Objective	Text
policy 2	agencies in delivering major improvements to the public transport network and to ensure existing and planned public transport services provide an attractive and convenient alternative to the car.
Transport and Mobility (TM) Policy 3	Walking and Cycling It is the policy of the Council to re-balance movement priorities towards more sustainable modes of transportation by prioritising the development of walking and cycling facilities within a safe and traffic calmed street environment.
Transport and mobility (tm) policy 6	Road and Street Design It is the policy of Council to ensure that streets and roads within the County are designed to balance the needs of place and movement, to provide a safe traffic-calmed street environment, particularly in sensitive areas and where vulnerable users are present
Material Assets –Water and Wastewater	
Infrastructure & environmental quality (IE) policy 1 water & Wastewater	It is the policy of the Council to work in conjunction with Irish Water to protect existing water and drainage infrastructure and to promote investment in the water and drainage network to support environmental protection and facilitate the sustainable growth of the County.
IE1 objective 1	To work in conjunction with Irish Water to protect, manage and optimise water supply and foul drainage networks in the County.
IE1 objective 2:	To work in conjunction with Irish Water to facilitate the timely delivery of ongoing upgrades and the expansion of water supply and wastewater services to meet the future needs of the County and the Region
Water Resources including Flood Risk	
IE2 policy	It is the policy of the Council to manage surface water and to protect and enhance ground and surface water quality to meet the requirements of the EU Water Framework Directive
IE2 objective 1	To maintain, improve and enhance the environmental and ecological quality of our surface waters and groundwater by implementing the programme of measures set out in the Eastern River Basin District River Basin Management Plan
IE2 objective 2	To protect the regionally and locally important aquifers within the County from risk of pollution and ensure the satisfactory implementation of the South Dublin Groundwater Protection Scheme 2011, and groundwater source protection zones,

CDP Policy/Objective	Text
	where data has been made available by the Geological Survey of Ireland
IE2 objective 3	To maintain and enhance existing surface water drainage systems in the County and promote and facilitate the development of Sustainable Urban Drainage Systems (SUDS), including integrated constructed wetlands, at a local, district and County level, to control surface water outfall and protect water quality.
IE2 objective 4	To incorporate Sustainable Drainage at a site and/or district scale, including the potential for wetland facilities
IE2 objective 5	To limit surface water run-off from new developments through the use of Sustainable Urban Drainage Systems (SUDS) and avoid the use of underground attenuation and storage tanks
IE2 objective 6	To promote and support the retrofitting of Sustainable Urban Drainage Systems (SUDS) in established urban areas, including integrated constructed wetlands
Water Resources and Biodiversity, Flora and Fauna	
IE2 objective 8	To protect salmonid water courses, such as the Liffey and Dodder Rivers catchments (including Bohernabreena Reservoir), which are recognised to be exceptional in supporting salmonid fish species.
IE2 objective 9:	To protect water bodies and watercourses, including rivers, streams, associated undeveloped riparian strips, wetlands and natural floodplains, within the County from inappropriate development. This will include protection buffers in riverine and wetland areas as appropriate. (see also Objective G3 Objective 2 – Biodiversity Protection Zone)
IE2 Objective 10:	To require adequate and appropriate investigations to be carried out into the nature and extent of any soil and groundwater contamination and the risks associated with site development work, in particular for brownfield development.
IE2 objective 11	To protect surface water quality by assessing the impact of domestic and industrial misconnections to the drainage network in the County and the associated impact on surface water quality, and by implementing measures to address same.
Infrastructure & environmental quality (IE) policy 3	Flood Risk It is the policy of the Council to continue to incorporate Flood Risk Management into the spatial planning of the County, to meet the requirements of the EU Floods Directive and the EU Water Framework Directive
Material Assets –Waste Management	
Infrastructure & environmental quality (IE)	Waste Management It is the policy of the Council to implement European Union, National and Regional waste and related environmental policy, legislation, guidance and codes of practice to improve management of material resources and wastes

CDP Policy/Objective	Text
policy 5	
IE5 objective 1	To support the implementation of the Eastern–Midlands Region Waste Management Plan 2015-2024 by adhering to overarching performance targets, policies and policy actions
IE5 objective 2	To support waste prevention through behavioural change activities to de-couple economic growth and resource use.
IE5 objective 3	To encourage the transition from a waste management economy to a green circular economy to enhance employment and increase the value recovery and recirculation of resources
IE5 objective 4	To provide, promote and facilitate high quality sustainable waste recovery and disposal infrastructure/ technology in keeping with the EU waste hierarchy and to adequately cater for a growing residential population and business sector
IE5 objective 5	To provide for and maintain the network of bring infrastructure (e.g. civic amenity facilities, bring banks) in the County to facilitate the recycling and recovery of hazardous and non-hazardous municipal wastes
IE5 objective 6	To seek the provision of adequately sized public recycling facilities in association with new commercial developments and in tandem with significant change of use/extensions of existing commercial developments where appropriate
IE5 objective 7	To develop a countywide network of green waste centres in suitable locations to expand the collection system for compostable waste
IE5 objective 8:	To secure appropriate provision for the sustainable management of waste within developments, including the provision of facilities for the storage, separation and collection of such waste
Soil and Geology	
IE2 objective 10	To require adequate and appropriate investigations to be carried out into the nature and extent of any soil and groundwater contamination and the risks associated with site development work, in particular for brownfield development
Heritage, conservation and landscapes (HCL) policy 19	Geological Sites It is the policy of the Council to maintain the conservation value and seek the sustainable management of the County's geological heritage resource.
HCL19 Objective 1:	To protect designated County Geological Sites from inappropriate development and to promote the importance of such sites through the County's Heritage Plan.
Air Quality, Noise, Population and Human health	
Infrastructure &	Environmental Quality

CDP Policy/Objective	Text
environmental quality (IE) policy 7	It is the policy of the Council to have regard to European Union, National and Regional policy relating to air quality, light pollution and noise pollution and to seek to take appropriate steps to reduce the effects of air, noise and light pollution on environmental quality and residential amenity.
IE7 objective 1	To implement the provisions of EU and National legislation on air, light and noise control and other relevant legislative requirements, as appropriate, in conjunction with all relevant stakeholders
IE7 objective	To implement the recommendations of the Dublin Regional Air Quality Management Plan to protect people from the harmful health effects associated with air pollution, to preserve good air quality where it exists and to improve air quality where it is unsatisfactory
IE7 objective 3:	To implement the relevant spatial planning recommendations and actions of the Dublin Agglomeration Environmental Noise Action Plan 2013 – 2018
IE7 objective 4	To ensure that future developments are designed and constructed to minimise noise disturbance and take into account the multi-functional uses of streets including movement and recreation as detailed in the Urban Design Manual (2009) and the Design Manual for Urban Roads and Streets (2013).
IE7 objective 5	To ensure external lighting schemes minimise light spillage or pollution in the immediate surrounding environment and do not adversely impact on residential or visual amenity and biodiversity in the surrounding areas.
Green Infrastructure, Biodiversity, Flora and Fauna, Water, Landscape, Population and Human health	
Green infrastructure (g) policy 1	Overarching It is the policy of the Council to protect, enhance and further develop a multifunctional Green Infrastructure network by building an interconnected network of parks, open spaces, hedgerows, grasslands, protected areas, and rivers and streams that provide a shared space for amenity and recreation, biodiversity protection, flood management and adaptation to climate change.
G1 objective 1	To establish a coherent, integrated and evolving Green Infrastructure network across South Dublin County with parks, open spaces, hedgerows, grasslands, protected areas, and rivers and streams forming the strategic links and to integrate the objectives of the Green Infrastructure Strategy throughout all relevant Council plans, such as Local Area Plans and other approved plans
Green infrastructure	It is the policy of the Council to promote and develop a coherent, integrated and evolving Green Infrastructure network in South Dublin County that can connect to the regional network, secure and enhance biodiversity, provide readily accessible

CDP Policy/Objective	Text
(G) policy 2 green infrastructure network	parks, open spaces and recreational facilities
G2 objective 1	To reduce fragmentation of the Green Infrastructure network and strengthen ecological links between urban areas, Natura 2000 sites, proposed Natural Heritage Areas, parks and open spaces and the wider regional Green Infrastructure network
G2 objective 2	To protect and enhance the biodiversity value and ecological function of the Green Infrastructure network.
G2 objective 3	To restrict development that would fragment or prejudice the Green Infrastructure network.
G2 objective 4	To repair habitat fragmentation and provide for regeneration of flora and fauna where weaknesses are identified in the network
G2 objective 5:	To integrate Green Infrastructure as an essential component of all new developments
G2 objective 8	To provide for the incorporation of Eco-ducts and/or Green Bridges at ecologically sensitive locations on the County's road and rail corridors that will facilitate the free movement of people and species through the urban and rural environment.
G2 objective 9	To preserve, protect and augment trees, groups of trees, woodlands and hedgerows within the County by increasing tree canopy coverage using locally native species and by incorporating them within design proposals and supporting their integration into the Green Infrastructure network.
G2 objective 10	To promote a network of paths and cycle tracks to enhance accessibility to the Green Infrastructure network, while ensuring that the design and operation of the routes responds to the ecological needs of each site.
G2 objective 11	To incorporate appropriate elements of Green Infrastructure e.g. new tree planting, grass verges, planters etc. into existing areas of hard infrastructure wherever possible, thereby integrating these areas of existing urban environment into the overall Green Infrastructure network
G2 objective 12	To seek to control and manage non-native invasive species and to develop strategies with relevant stakeholders to assist in the control of these species throughout the County
Green infrastructure (g) policy 3	Watercourses Network It is the policy of the Council to promote the natural, historical and amenity value of the County's watercourses; to address the long term management and protection of these corridors and to strengthen links at a regional level
G3 objective 1	To promote the natural, historical and amenity value of the County's watercourses and address the long term management

CDP Policy/Objective	Text
	and protection of these corridors in the South Dublin Green Infrastructure Strategy.
G3 objective 3	To ensure the protection, improvement or restoration of riverine floodplains and to promote strategic measures to accommodate flooding at appropriate locations, to protect ground and surface water quality and build resilience to climate change.
G3 objective 4	To uncover existing culverts and restore the watercourse to acceptable ecological standards and for the passage of fish, where possible.
G3 objective 5	To restrict the encroachment of development on watercourses, and provide for protection measures to watercourses and their banks, including but not limited to: the prevention of pollution of the watercourse, the protection of the river bank from erosion, the retention and/or provision of wildlife corridors and the protection from light spill in sensitive locations, including during construction of permitted development.
G4 objective 1	To support and facilitate the provision of a network of high quality, well located and multifunctional public parks and open spaces throughout the County and to protect and enhance the environmental capacity and ecological function of these spaces
G4 objective 2	To connect parks and areas of open space with ecological and recreational corridors to aid the movement of biodiversity and people and to strengthen the overall Green Infrastructure network
G4 objective 3	To enhance and diversify the outdoor recreational potential of public open spaces and parks, subject to the protection of the natural environment
G4 objective 4	To minimise the environmental impact of external lighting at sensitive locations within the Green Infrastructure network to achieve a sustainable balance between the recreational needs of an area, the safety of walking and cycling routes and the protection of light sensitive species such as bats.
G4 objective 5	To promote the planting of woodlands, forestry, community gardens, allotments and parkland meadows within the County's open spaces and parks
G4 objective 6	To take steps, in conjunction with communities and businesses, to plant existing areas of grassed open space to promote the development of multifunctional amenity areas with enhanced biodiversity value
G4 objective	To avoid the cumulative fragmentation and loss of ecologically sensitive areas of the Green Infrastructure network to artificial surfaces and to position recreational facilities that incorporate artificial surfaces at appropriate community-based locations

CDP Policy/Objective	Text
Green infrastructure (G) policy 5	Sustainable Urban Drainage Systems It is the policy of the Council to promote and support the development of Sustainable Urban Drainage Systems (SUDS) in the County and to maximise the amenity and biodiversity value of these systems.
Green infrastructure (G) policy 6	New Development in Urban Areas It is the policy of the Council to support the protection and enhancement of Green Infrastructure in all new development in urban areas, to strengthen Green Infrastructure linkage across the wider urban network and to achieve the highest standards of living and working environments
G6 objective 1	To protect and enhance existing ecological features including tree stands, woodlands, hedgerows and watercourses in all new developments as an essential part of the design process
G6 objective 2	To require new development to provide links into the wider Green Infrastructure network, in particular where similar features exist on adjoining sites
G6 objective 3	To require multifunctional open space provision within all new developments that includes provision for ecology and sustainable water management
Biodiversity and Cultural Assets	
Heritage, conservation and landscapes (HCL) policy 1	Overarching It is the policy of the Council to protect, conserve and enhance natural, built and cultural heritage features, and to support the objectives and actions of the County Heritage Plan
HCL1 objective 1	To protect, conserve and enhance natural, built and cultural heritage features and restrict development that would have a significant negative impact on these assets
HCL1 objective 2	To support the objectives and actions of the County Heritage Plan, including the preparation of a County Biodiversity Plan
Cultural Assets	
Heritage, conservation and landscapes (HCL) policy 2	Archaeological Heritage It is the policy of the Council to manage development in a manner that protects and conserves the Archaeological Heritage of the County and avoids adverse impacts on sites, monuments, features or objects of significant historical or archaeological interest.
Heritage,	Protected Structures

CDP Policy/Objective	Text
conservation and landscapes (HCL) policy 3	It is the policy of the Council to conserve and protect buildings, structures and sites contained in the Record of Protected Structures and to carefully consider any proposals for development that would affect the special character or appearance of a Protected Structure including its historic curtilage, both directly and indirectly.
HCL2 Objective 2	To ensure that development is designed to avoid impacting on archaeological heritage that is of significant interest including previously unknown sites, features and objects.
HCL3 objective 3	To address dereliction and encourage the rehabilitation, renovation, appropriate use and re-use of Protected Structures.
Heritage, conservation and landscapes (HCL) policy 5	Older Buildings, Estates and Streetscapes It is the policy of the Council to encourage the preservation of older features, buildings, and groups of structures that are of historic character including 19th Century and early to mid 20th Century houses, housing estates and streetscapes.
Heritage, conservation and landscapes (HCL) policy 6	Features of Interest It is the policy of the Council to secure the identification, protection and conservation of historic items and features of interest throughout the County including street furniture, surface finishes, roadside installations, items of industrial heritage and other standalone features of interest.
Landscapes	
Heritage, conservation and landscapes (HCL) policy 7	Landscapes It is the policy of the Council to preserve and enhance the character of the County's landscapes particularly areas that have been deemed to have a medium to high Landscape Value or medium to high Landscape Sensitivity and to ensure that landscape considerations are an important factor in the management of development
HCL7 objective 1	To protect and enhance the landscape character of the County by ensuring that development retains, protects and, where necessary, enhances the appearance and character of the landscape, taking full cognisance of the Landscape Character Assessment of South Dublin County (2015).
Cultural Assets	
Heritage, conservation and landscapes (HCL) policy 18	Cultural Heritage It is the policy of the Council to promote the County's cultural heritage.

CDP Policy/Objective	Text
HCL18 objective 1	To work towards establishing an environment for promoting cross cultural understanding, racial harmony, mutual understanding and appreciation of all religious and ethnic traditions through the County.
HCL18 objective 2	To promote the Irish Language and favour its use in the promotion of the Villages Initiative
HCL18 objective 3	To promote local heritage, the naming of any new residential development will reflect the local and historical context of its siting, and should include the use of the Irish language
Climate Change and energy	
Energy (E) policy 1	Responding to European and National Energy Policy & Legislation It is the policy of the Council to respond to the European and National Energy Programme through the County Development Plan – with policies and objectives that promote energy conservation, increased efficiency and the growth of locally based renewable energy alternatives, in an environmentally acceptable and sustainable manner.
Energy (E) policy 2	South Dublin Spatial Energy Demand Analysis It is the policy of the Council to implement the recommendations of the South Dublin Spatial Energy Demand Analysis (SEDA) in conjunction with all relevant stakeholders, promoting energy efficiency and renewable energy measures across the County
Energy (E) policy 3	Energy Performance in Existing Buildings It is the policy of the Council to promote high levels of energy conservation, energy efficiency and the use of renewable energy sources in existing buildings
E3 objective 1	To ensure that medium to large scale residential and commercial developments are designed to take account of the impacts of climate change, including the installation of rainwater harvesting systems and that energy efficiency and renewable energy measures are incorporated in accordance with national building regulations, policy and guidelines.
Energy (E) policy 4	Energy Performance in New Buildings It is the policy of the Council to ensure that new development is designed to take account of the impacts of climate change, and that energy efficiency and renewable energy measures are considered in accordance with national building regulations, policy and guidelines.
Energy (E) policy 6	Low Carbon District Heating Networks (a) It is the policy of the Council to support the development of low carbon district heating networks across the County based on technologies such as combined heat and power (CHP), large scale heat pumps, and renewable energy opportunities

CDP Policy/Objective	Text
	including geothermal energy, energy from waste, biomass and bio-gas. (b) It is the policy of the Council to support the development of both deep and shallow geothermal energy sources throughout the County. Deep geothermal projects are particularly suited to areas demonstrating high heat densities
Energy (E) policy 7	Solar It is the policy of the Council to promote the development of solar energy infrastructure in the County, in particular for on-site energy use, including solar PV, solar thermal and seasonal storage technologies. Such projects will be considered subject to environmental safeguards and the protection of natural or built heritage features, biodiversity and views and prospects.
Energy (E) policy 10	Small to Medium Scale Wind Energy Schemes It is the policy of the Council to encourage small to medium scale wind energy developments within industrial or business parks, and support small community-based proposals in urban areas provided they do not negatively impact upon the environmental quality, and visual or residential amenities of the area
11.8.1 Environmental Impact Assessment	The Planning and Development Regulations 2001 specify mandatory thresholds above which Environmental Impact Statements (EIS) are required, setting out the types and scale of development proposals that require EIS. Where it appears to the Planning Authority that a development proposal that falls below the thresholds set out in the Planning and Development Regulations would be likely to have a significant environmental effect, a subthreshold/discretionary EIS can be requested by the Planning Authority.
11.8.2 Appropriate Assessment	Under Article 6 of the Habitats Directive there is a requirement to establish whether, in relation to plans and projects, Appropriate Assessment (AA) is required. If, following screening, it is considered that AA is required then the proponent of the plan or project must prepare a Natura Impact Statement. A plan or project will only be authorised after the competent authority has ascertained, based on scientific evidence, Screening for Appropriate Assessment, and a Stage 2 Appropriate Assessment where necessary, that: The plan or project will not give rise to significant adverse direct, indirect or secondary effects on the integrity of any Natura 2000 site (either individually or in combination with other plans or projects), or The plan or project will have significant adverse effects on the integrity of any Natura 2000 (that does not host a priority natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest – including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of a Natura 2000 site/network,

CDP Policy/Objective	Text
	or The plan or project will have a significant adverse effect on the integrity of any Natura 2000 site (that hosts a natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest - restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of a Natura 2000 site/network

8.3 Recommended Mitigation Measures for the South Dublin CCAP

	Mitigation Measure	*Included in CCAP? Yes/ no*
	An integrated approach to decision making in relation to these climate change actions is recommended.	
	Transport Actions	
5	Strengthen traditional villages by improving the public realm through enhancement of green infrastructure measures and sustainable transport linkages	Yes
	Flood Resilience	
13	Develop template to capture impacts, response and costs (**including ecosystem services/natural capital costs**) for all major climate events	Yes
15	Update DLA urban drainage and flooding policies for current knowledge of flood risk and the latest best practice in drainage design **promoting natural flood measures as a priority**	Yes
20	Minor flood schemes and general maintenance **that are designed and implemented to promote nature based solutions where practical**	Yes
21	Communication and awareness campaigns on flood risk management **and natural flood management measures**	Yes
	Nature Based Solutions	
22	Include native species into local authority plans ~~where appropriate~~ as a key nature based measure where appropriate	Yes

9 MONITORING

9.1 INTRODUCTION

It is proposed, in accordance with Article 10 of the SEA Directive, 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 pollution levels. Monitoring will focus on the aspects of the environment that are likely to be significantly impacted upon by the implementation of the CCAP 2019-2024.

The targets and indicators are derived from the Strategic Environmental Objectives (SEOs) discussed in Chapter Five. The target underpins the objective whilst the indictors are used to track the progress of the objective and targets in terms of monitoring of impacts.

The monitoring programme will consist of an assessment of the relevant indicators and targets against the data relating to each environmental component. Similarly, monitoring will be carried out frequently to ensure that any changes to the environment can be identified.

Overall, this Climate Change Action Plan will be monitored and updated on an annual basis, with a review and revision every five years. This Climate Change Action Plan was developed through the Environment, Public Realm and Climate Change SPC of South Dublin County Council and approved by the full County Council. The Director of Environment, Water and Climate Change will report on progress to the SPC annually and the SPC will monitor progress towards the set targets. Every five years there will be a full review and revision of the plan taking into account demographic, technical and other changes that have occurred and any new targets that have been introduced.

Consequently, it is recommended that this SEA monitoring regime be undertaken in line with the development plan review process; as the data will be captured through the CCAP monitoring regime, the strategic environmental monitoring can both use these data and also be derived from the planning and landuse data by SDCC.

In turn the list below is subject to review at each reporting stage to reflect new data. Should the monitoring regime identify significant impacts (such as impacts on designated sites) early on in the plan implementation, this should trigger a review of the CCAP and monitoring regime. In addition, the identification of positive impacts from monitoring should also be reported as this will assist in determining successful environmental actions.

South Dublin County Council are responsible for the implementation of the SEA Monitoring Programme including

- Monitoring specific indicators and identifying any significant effects, including cumulative effects;
- Reviewing the effectiveness of monitoring/mitigation measures during the lifetime of the CCAP; and
- Identifying any cumulative effects.

It is recommended that the monitoring report be made available to the public upon its completion. Table 12 below presents the SEA Monitoring Table. This table sets out the strategic environmental objectives, indicators and targets to be applied in monitoring the significant environmental effects of the implementation of the CCAP, in accordance with Section 13J(2) of the Planning and Development (SEA) Regulations 2004, as amended. It is proposed that the SEA monitoring reporting should go parallel with the reviewing of the CCAP to the CDP and when the next plan is being prepared.

Table 12 Monitoring Measures

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
Biodiversity Flora and Fauna	To avoid loss of habitats, geological features, species or their sustaining resources in designated ecological sites	Percentage of relevant habitats lost as a result of implementation of the CCAP	No losses of relevant habitats, species or their sustaining resources in designated ecological sites as a result of implementation of the CCAP	Designated ecological sites mapping, CORINE Mapping, National Parks and Wildlife Service Records & Development Management Process in SDCC.
	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites.	Number of significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites as a result of implementation of the CCAP	No significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites as a result of implementation of the CCAP	Designated ecological sites mapping, Development Management Process in SDCC Council & Consultation with the National Parks and Wildlife Service Primary ecological corridors mapping, CORINE mapping and Development Management Process in SDCC.
	To sustain,	Area of	No ecological	

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
	enhance or - where relevant - prevent the loss of ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity.	Biodiversity Network (County's primary ecological corridors which has been lost without mitigation) Percentage loss of functional connectivity without remediation resulting from development provided for in the CCAP	connectivity provided by the area' s primary ecological corridors to be lost without mitigation as a result of implementation of the CCAP. No significant ecological networks or parts thereof which provide functional connectivity to be lost without remediation resulting from development provided for in the CCAP	
Population and human health Noise	To protect human health from hazards or nuisances arising from traffic and incompatible landuses in particular noise and light pollution.	Number of occasions that PM^{10} limits have been exceeded in at Air Monitoring stations closest to CCAP lands[17]. Number of complaints from the CCAP re; noise, light and air quality.	Reduce number of people exposed to traffic noise and air quality levels which endanger health and quality of life.	South Dublin County Council, EPA
Air Quality and Noise	To minimise air, noise and light pollution where possible.	Number of air, noise and light pollution measures including in each	Air, noise and light pollution measures designed into CCAP	South Dublin County Council

[17] Currently air quality monitoring closest station is at Tallaght.

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
		phase (may be in conjunction with green infrastructure measures)		
Water	To maintain and improve, where possible, the quality of rivers, lakes and surface water.	Biotic Quality Rating (Q Value) and risk assessment.	To maintain a biotic quality rating of Q4, in line with the requirement to achieve good water status under the Water Framework Directive, by 2027. To improve biotic quality ratings, where possible, to Q5.	Environmental Protection Agency. Environmental Protection Agency As noted under Section 2.3.1, data may not be available for this indicator when the monitoring evaluation is being prepared.
	To prevent pollution and contamination of ground water.	Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC.	Compliance with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC.	SDCC Irish Water EPA
	To prevent development on lands which pose - or are likely to pose in the future – a significant flood risk	Implementation and monitoring of Strategic Flood Risk Assessment for CCAP	No significant flood events associated with development activities on CCAP.	Development Management Process in South Dublin County Council
Soil and	To conserve soil	Area of greenfield	S1ii: To reduce	Development

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
Geology	resources where possible.	land developed. Number of contaminated sites identified and remediated. Volume of waste recycled and volume of waste sent to landfill.	the amount of Greenfield lands developed subject to CCAP Objectives To meet national and EU targets on the recycling of municipal waste and its diversion from landfill	Management Process in SDCC As above Environmental Services Dept. SDCC Annual Waste Arisings Report from Environmental Services Dept. SDCC
Material Assets	To maintain and improve the quality of drinking water supplies.	Drinking water quality standards, (Microbiological, Chemical and Indicator parameters)	To maintain and improve drinking water quality in South Dublin County to comply with requirements of the European Communities (Drinking Water) Regulations 2000	SDCC Irish Water EPA
	To serve new development under the CCAP with appropriate waste water treatment	Phasing Programme of CCAP	All new developments to require appropriate waste water systems.	SDCC Irish Water EPA
	To reduce car dependency within the CCAP by way of, inter alia, encouraging modal change from car to more sustainable forms of public transport and encouraging development which will not be	Extent of developments built within the CCAP lands of high quality public transport accessibility. Percentage of population within the CCAP lands travelling to work or school by	An increase in the percentage of the population within the County travelling to work or school by public transport or non-mechanical means. A decrease in	SDCC CSO Census

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
	dependent on private transport.	public transport or non-mechanical means	the average distance travelled to work or school by the population of the County.	
	To minimise waste production and reduce the volume of waste to landfill and to operate sustainable waste management practices	Volume of waste recycled and volume of waste sent to landfill	To meet national and EU targets on the recycling of municipal waste and its diversion from landfill	Development Management Process in SDCC As above Environmental Services Dept. SDCC Annual Waste Arisings Report from Environmental Services Dept. SDCC
Cultural Heritage	To protect the archaeological heritage of South Dublin with regard to entries to the Record of Monuments and Places - including Zones of Archaeological Potential - and the context of the above within the surrounding landscape where relevant.	Percentage of entries to the Record of Monuments and Places - including Zones of Archaeological Potential (and the context of the above within the surrounding landscape where relevant) - protected Number of archaeological surveys required as part of planning applications Conditions	Protect entries to the Record of Monuments and Places - including Zones of Archaeological Potential (and their context of the above within the surrounding landscape where relevant) Protect unknown archaeological resources within CCAP area.	SDCC Development Control

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
		attached to permissions on archaeological monitoring during excavations.		
	To preserve and protect the special interest and character of the CCAP lands architectural heritage with regard to entries to the Record of Protected Structures, the Architectural Conservation Area and their context within the surrounding landscape where relevant.	Percentage of entries to the Record of Protected Structures (and/or their context within the surrounding landscape where relevant) protected. Number of architectural condition surveys attached to planning applications.	Protect entries to the Record of Protected Structures (and/or their context within the surrounding landscape where relevant) Renovate and reuse architectural heritage structures and features	SDCC
Landscape	To protect and avoid significant adverse impacts on the landscape, landscape features and designated scenic routes; especially with regard to areas of high amenity**.**	The creation of a sense of place and coherence/ appreciation for the overall setting and context of the CCAP. Number of development applications with landscape and habitat plans and Design Statements. Amount of land	Creation of sense of place with all phases of development associated with CCAP	SDCC

SEA Topic	Strategic Environmental Objectives	Indicator	Target	Data Source
		allocated to temporary greening measures.		
Climate Change and energy	To integrate climate change adaptation to the CCAP process	Number of SUDs measures included and developed as part of CCAP Number/extent of additional tree planting as part of applications.	Integrated blue and green infrastructure through the CCAP	***SDCC***
	Interrelationships Maintain and improve the health of people, ecosystems and natural processes Actively seek to integrate opportunities for environmental enhancement during adaptation to climate change	***Blue and Green Infrastructure measures implemented over lifetime of plan*** Number of Blue infrastructure features included in development.	Integration of blue and green infrastructure measures including in approved planning applications within South Dublin including SUDS, Integrated Wetlands, Hedgerows, Native tree planting scheme	***SDCC***

9.3 Conclusion

This SEA Environmental Report demonstrates how environmental parameters have been addressed in the plan preparation process. Consultation has been undertaken for the Scoping of this Environmental Report and further opportunity to comment on the CCAP will be possible over the forthcoming weeks.

The SEA Appropriate Assessment processes have been undertaken in line with the Planning and Development (Strategic Environmental Assessment) Regulations 2004 to 2011 (as amended). Subject to the full and proper implementation of the mitigation measures outlined in this SEA Environmental Report and the Proposed CCAP, it is considered that significant adverse impacts on the environment will be avoided.

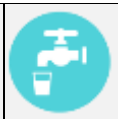
No likely interaction with /insignificant impact with SEOs	0	Potential conflict with SEOs – likely to be mitigated	⇳
Likely to improve status of SEOs	↑	Probable conflict with SEOs – unlikely to be mitigated	↓

SEA Topic								
Biodiversity Flora and Fauna	Population and human health Noise	Water Resources including flood	Soil and Geology	Material Assets	Air Quality and Climatic Factors	Cultural Heritage	Landscape	Interrelationship

CCAP Actions: Energy and Buildings

										
1	Create Energy Master Plan for the Dublin Region	⇳	↑	⇳	⇳	⇳	↑	⇳	⇳	↑
2	Develop Public Lighting Master Plan	⇳	↑	O	O	O	↑	O	O	↑
3	Prepare South Dublin Sustainable Energy and Climate Action Plan	↑	↑	↑	↑	↑	↑	↑	↑	↑
4	Evidence based Climate Change Chapter in County Development Plan 2022-2028	↑	↑	↑	↑	↑	↑	↑	↑	↑
5	Evidence-based climate change chapter in *Tallaght Town Centre Local Area Plan*	↑	↑	↑	↑	↑	↑	↑	↑	↑
6	Comply with obligations for local authorities set under S.I. No. 426/2014	↑	↑	↑	↑	↑	↑	↑	↑	↑
7	Display Energy Certificates for SDCC's public buildings	O	↑	O	O	↑	↑	O	O	↑
8	Annual Monitoring and Reporting to SEAI	O	↑	O	O	↑	↑	O	O	↑

										
9	Development of yearly Energy Review for SDCC	O	↑	O	O	↑	↑	O	O	↑
10	Development of South Dublin District Heating System	↑	↑	↑	↑	↑	↑	↑	↑	↑
11	Deep retrofits of the Council's housing stock	↕	↑				↑			↑
12	Energy efficiency works in Council owned and operated buildings		↑			↑	↑			↑
13	Ongoing upgrading of lights in County Hall to LEDs		↑			↑	↑			↑
	Energy Performance Contract carried out in Tallaght and Clondalkin Leisure Centres		↑			↑	↑			↑
15	Replace 4,000 SOX lamps with LEDs		↑			↑	↑			↑
16	Expand and develop Small Business Innovation and Research (SBIR) programme		↑			↑	↑			↑

										
17	Monitor and develop the Home Energy Savings Kit scheme in SDCC libraries		↑			↑	↑			↑
NO										**Action**
18	*Assess feasibility of additional low carbon district heating networks: Clonburris and Grange Castle*	↕	↑	↑	↑	↑	↑	↑	↑	↑
19	*Expand housing assistance programme to include tenant energy awareness*	*O*	↑	*O*	*O*	↑	↑	*O*	↑	↑

Comment: For all of the above actions there are positive, long term impacts regarding climate change, air quality, population and human health and overall will achieve consistency with the Interrelationship SEOs.
For a number of the actions, there are no significant interactions identified for a number of SEOS, examples being energy awareness raising and SEOs relating to water.

A small number of SEOs could, in the absence of mitigation give rise to potential adverse effects; these relate to the following:
Action 1: Create an Energy Masterplan for Dublin, and
Action 2: Develop a Public Lighting Masterplan "
However the above targets relate to plan preparation and website for this CCAP timeframe as well as replacement of SOX public lighting with LEDs.
There are sufficient and appropriate mitigation measures through environmental protection measures in the South Dublin CDP 2016-2022 to address these and provide appropriate mitigation.
Action 18 Assess feasibility of additional low carbon district heating networks at Clonburris and Grange Castle- the Grand Canal pNHA forms the southern and northern boundary of these two lands. However the Clonburris Planning Scheme includes a number of protective measures relating to the Grand Canal and the South Dublin CDP 2016-2022, as well as recent Variation to the CDP provide for buffers for the Grand Canal ecological corridor and appropriate ecological mitigation measures.

CCAP Actions: Transport

										
	OPERATIONS									
1	Implement transport energy management system	O	↑	O	O	↑	↑	O	O	↑
2	Ongoing replacement of Council vehicles with more energy-efficient alternatives, including EVs	O	↑	O	O	↑	↑	O	O	↑
3	Use mobile canteens with operational crews	O	↑	O	O	↑	↑	O	O	↑
4	Promotion of Cycle-to-Work Scheme to Council staff	↑	↑	O	O	↑	↑	O	O	↑
5	Strengthen traditional villages by improving the public realm through **enhancement of**	↑	↑	↑	↑	↑	↑	↑	↑	↑

										
	green infrastructure measures and sustainable transport linkages									
6	Regular maintenance of regional and local roads	⇳	↑	⇳	⇳	↑	↑	O	⇳	↑
7	Improve road safety at schools with additional school wardens	O	↑	O	O	↑	↑	O	O	↑
8	Organised walks to promote healthy lifestyles, i.e. Clondalkin Route	O	↑	O	O	↑	↑	O	O	↑
9	Develop cycle network strategy	↑	↑	↑	↑	↑	↑	↑	↑	↑
10	Build out County Cycle Network	⇳		⇳	⇳	↑	↑	⇳	⇳	⇳
11	Development of cycle/pedestrian greenways	⇳		⇳	⇳	↑	↑	⇳	⇳	⇳
12	Increase number of public bike facilities	O	↑	O	O	↑	↑	O		↑
13	Extend BleeperBike		↑			↑	↑			↑

	public bike scheme									
14	Facilitate the delivery of public transport routes	⇳	↑	⇳	⇳	↑	↑	⇳	⇳	↑
NO	**Action**									
15	*Cycle training programme for 6th Class students/ pedal power labs*		↑			↑	↑			↑
16	*Pilot VMS on Naas road*									
17	*Expand availability of EV charging points in County*		↑	↑						

Comment: As with the energy actions, all of these actions for Transport generate positive, medium to long term effects across Climate change, Air quality, Material Assets and Human Health.
Cumulatively and in combination, several of this actions encourage a modal shift and in turn this would give rise to indirect positive effects, for example by creating more physical activity in terms of travel to work and school, positively affecting air quality with accompanying benefits to both populations, human health and with a reduction in emissions associated with Particulate Matter and Nitrogen Dioxide positive effects on Biodiversity, flora and fauna and surface water features.

A number of these Transport Actions are recommended for mitigation either due to the potential in the absence of mitigation on conservation management objectives of European Sites (Actions 10 and 11) or the opportunity to increase environmental enhancement and provide for greater co-benefits (Action 5)

CCAP Actions: Flood Resilience

										
1	Transpose national legislation and regulations on climate change adaptation and flood management into development guidelines	↑	↑	↑	↑	↑	↑	↑	↑	↑
2	Implement flood risk management guidelines	↑	↑	↑	↑	↑	↑	↑	↑	↑
3	Cross-boundary flood management with neighbouring local authorities	↑	↑	↑	↑	↑	↑	↑	↑	↑
4	Flood event emergency response plans	↑	↑	↑	↑	↑	↑	↑	↑	↑
5	Support the development of flood forecasting and warning system	↑	↑	↑	↑	↑	↑	↑	↑	↑

6	Implement and demonstrate SuDS guidelines in own buildings, SDZs and LAPs	↑	↑	↑	↑	↑	↑	↑	↑	↑
7	Undertake strategic flood risk assessment of all LAPs, SDZs and Development Plans	↑	↑	↑	↑	↑	↑	↑	↑	↑
8	Tree planting for water attenuation	↑	↑	↑	↑	↑	↑	↑	↑	↑
9	Develop demonstration sites to show how to combine SuDS/flood attenuation systems with existing land uses	↑	↑	↑	↑	↑	↑	↑	↑	↑
10	Protect and conserve floodplains, wetlands, rivers and watercourses subject to flooding	↑	↑	↑	↑	↑	↑	↑	↑	↑
11	Integrated constructed wetlands for water attenuation and purification	↑	↑	↑	↑	↑	↑	↑	↑	↑

12	Develop a climate change impact GIS risk map with scenarios for the Dublin Region	↑	↑	↑	↑	↑	↑	↑	↑	↑
13	Develop template to capture impacts, response and costs (**including ecosystem services/natural capital costs** for all major climate events	↑	↑	↑	↑	↑	↑	↑	↑	↑
14	Establish a Working Group to deal with the Issue of Pluvial Flood Risk. This shall include: • How to manage "urban creep" and the increase in impermeable surfaces • Promotion of SUDS early in design process	↑	↑	↑	↑	↑	↑	↑	↑	↑

	• Development of pluvial flood forecasting through use of point rainfall forecasting									
15	Update DLA urban drainage and flooding policies for current knowledge of flood risk and the latest best practice in drainage design **promoting natural flood measures as a priority**		↑							
16	Risk workshops to assess impacts on council services		↑							
17	Whitechurch Flood Alleviation Scheme									
18	Poddle Flood Alleviation Scheme									

										
19	19 River Camac Flood Alleviation Scheme									
20	Minor flood schemes and general maintenance **that are designed and implemented to promote nature based solutions where practical**									
NO										
21	*Communication and awareness campaigns on flood risk management **and natural flood management measures***									
22	*Promote and encourage community involvement in the retrofit of SuDS in existing developments*	↑	↑	↑	↑	↑	↑	↑	↑	↑
Comment: *The majority of the Flood Resilient measures are identified as being consistent and positive across all SEOs, in particular measures that promote natural based solutions such as tree planting and SUDs*										

are all positive across all parameters and can provide multi functional benefits in the landscape.

Actions 13 and 15 are recommended for mitigation to allow for the inclusion of 'environmental externalities' in any costing exercise, as well as promotion of natural flood measures as a priority in any updated guidelines or policies. Similarly with Action 21 awareness raising, the action is recommended for mitigation to help raise awareness and understanding of more nature based flood measures

An update on the Whitestream (Action 17), Poddle (Action 18) and and River Camac (Action 19) is provided below:

Whitechurch Flood Relief Works:
The Whitechurch Stream is a tributary of the River Dodder and due to this was included in the Dodder Catchment Flood Risk Management Plan of 2014 which proposed that flood defences be placed along certain sections of the stream to provide protection to vulnerable properties from flooding adjacent to the stream. As part of the FRAM process a Strategic Environmental Assessment (SEA) was compiled in 2012.
In October 2018, RPS Group were appointed as consultants to the scheme and are currently assessing the needs for an Environmental Impact Assessment Report (EIAR) following the recent issue of the Draft Preliminary Options Reports. As part of the Environmental Reporting for the scheme, surveys have recently been carried out to determine the presence of Otters with Aquatic, Habitat and Bird Surveys to be held in Q1 2019.
River Poddle

The River Poddle Flood Alleviation was derived from the Eastern CFRAM Study which commenced in 2011 and a follow up Poddle Options Report in 2014.
Following the appointment of Nicholas O'Dwyer Ltd as consultants to the scheme in March 2018, the scheme is currently progressing through Stage (i) Preliminary Design. As part of the works for this stage of design, a Screening report for Environmental Impact Assessment was compiled in August 2018 which concluded that an EIAR is required for the scheme.
In October 2018 an Appropriate Assessment (AA) Screening report was produced which concluded that an Appropriate Assessment was not required.

River Camac
Potential flood measures for the River Camac have to date not been subject to planning consent or design. However, a number of measures are included in the South Dublin CDP regarding the Camac and should apply.
Moreover, as a significant tributary of the River Liffey which emanates in the foothills of the Wicklow Mountains to the south of Dublin City, opportunities to integrate natural based solutions on a catchment basis could provide a pilot, demonstration approach, particularly given that a variety of different nature based solutions could apply from the upper reaches to the urbanised lowland section.
The catchment area is 58 km2 and is highly urbanised in the lower reaches (50% of the total catchment). The catchment is also characterised by many sub-catchments or branches many of which represent urban drainage networks.
Whilst one upper stream of the Camac is classified as good, the remainder is moderate and poor.

CCAP Actions: Nature Based Solutions

NO	Action									
	OPERATIONS									
1	Establish regional working group to identify areas and	↑	↑	↑	↑	↑	↑	↑	↑	↑

NO	Action									
	priorities for actions									
2	Establish a cross-departmental Trees and SUDS Working Group to promote and pilot water-sensitive urban design (WSUD) incorporating urban tree planting	↑	↑	↑	↑	↑	↑	↑	↑	↑
3	Workshop to develop Dublin Risk Assessment for nature and climate change	↑	↑	↑	↑	↑	↑	↑	↑	↑
4	Workshop on NBS, green infrastructure and Sustainable urban Drainage Systems (SuDS)	↑	↑	↑	↑	↑	↑	↑	↑	↑
5	Produce regional floodplain management guidelines - use Santry River as a demonstration	↑	↑	↑	↑	↑	↑	↑	↑	↑
6	Finalise draft Biodiversity Action Plan	↑	↑	↑	↑	↑	↑	↑	↑	↑
7	Develop Green Infrastructure Strategy that identifies areas and priorities for green infrastructure and investment	↑	↑	↑	↑	↑	↑	↑	↑	↑
8	Develop Public Open Space and Parks Strategy that incorporates climate change mitigation and adaptation	↑	↑	↑	↑	↑	↑	↑↑	↑	↑
9	Incorporate natural play space into existing parks for recreation and as SuDS	↑	↑	↑	↑	↑	↑	↑	↑	↑

NO	Action									
10	Implement policies in the development plan avoiding artificial underground storage of attenuation water, where possible, in favour of nature-based solutions	↑	↑	↑	↑	↑	↑	↑	↑	↑
11	Develop a hedgerow plan for the County, with actions to map, protect and develop hedgerows county-wide	↑	↑	↑	↑	↑	↑	↑	↑	↑
12	Develop urban woodland management strategy and action plan	↑	↑	↑	↑	↑	↑	↑	↑	↑
13	Implement Tree Management Policy	↑	↑	↑	↑	↑	↑	↑	↑	↑
14	Increase tree canopy cover in the County through annual planting and maintenance	↑	↑	↑	↑	↑	↑	↑	↑	↑
15	Develop coordinated regional planning approach to prevent the removal of healthy, established trees	↑	↑	↑	↑	↑	↑	↑	↑	↑
16	Measure and maintain species diversity in urban tree population	↑	↑	↑	↑	↑	↑	↑	↑	↑
17	Develop and promote establishment of tree trails in public parks across the County	↑	↑	↑	↑	↑	↑	↑	↑	↑
18	Develop demonstration	↑	↑	↑	↑	↑	↑	↑	↑	↑

NO	Action									
	projects for successful planting and establishment of trees in urban hardscapes									
19	Provide opportunities for community engagement, involvement and activities to raise awareness	↑	↑	↑	↑	↑	↑	↑	↑	↑
20	Review and climate-proof Biodiversity Action Plan, Invasive Alien Species Plan, and Tree Management Policy	↑	↑	↑	↑	↑	↑	↑	↑	↑
21	Develop list of species native to County and map of habitats that are at risk for use in EIAs	↑	↑	↑	↑	↑	↑	↑	↑	↑
22	Include native species into plans where appropriate	↑	↑	↑	↑	↑	↑	↑	↑	↑
23	Survey, map and implement control plan of invasive species	↑	↑	↑	↑	↑	↑	↑	↑	↑
24	Incorporate actions from national pollinator plan into Green Infrastructure Strategy	↑	↑	↑	↑	↑	↑	↑	↑	↑
25	Manage and monitor identified 'Pollinator Protection sites'	↑	↑	↑	↑	↑	↑	↑	↑	↑
26	Maintain and expand community gardens and allotments for local food production	↑	↑	↑	↑	↑	↑	↑	↑	↑

NO	Action									
27	*Support local communities with biodiversity education*	↑	↑	↑	↑	↑	↑	↑	↑	↑
28	*Sustainable gardening workshops*	↑	↑	↑	↑	↑	↑	↑	↑	↑
NO										
29	*Develop demonstration sites to show how to combine nature conservation with existing land uses*	↑	↑	↑	↑	↑	↑	↑	↑	↑
30	*Deliver green roofs on civic buildings*	↑	↑	↑	↑	↑	↑	↑	↑	↑
31	*Maintain and increase Green Schools Programme participation*	↑	↑	↑	↑	↑	↑	↑	↑	↑
32	*Engage with residents and relevant stakeholders on climate change and biodiversity to incorporate their ideas into council strategies and plans*	↑	↑	↑	↑	↑	↑	↑	↑	↑
33	*Assess the benefit of increasing buffer distance of 10m from water courses to protect biodiversity and provide greater flood attenuation for distances of 20m, 50m and 100m*	↑	↑	↑	↑	↑	↑	↑	↑	↑
Comment: the nature based solutions provide for consistency with all the SEOs. This is largely due to the multi-benefit effects of such actions, for example expanding county tree canopy and a woodland strategy will all provide co-benefits to biodiversity, flora and fauna, assist with air quality purification, with accompanying positive effects on human health, assist with carbon storage, and provide landscape benefits.										

CCAP Actions: Resource Management

NO	Action									
	Monitor and enforce waste regulation	↑	↑	↑	↑	↑	↑	↑	↑	↑
2	Introduce measures to reduce waste in Council buildings		↑			↑	↑			↑
3	Introduce measures to increase recycling in Council buildings		↑			↑	↑			↑
4	Civic amenity waste stations		↑			↑	↑			↑
5	Apply for Local Authority Prevention Network grants		↑			↑	↑			↑
6	Create Stop Food Waste campaign for businesses and schools	↑	↑	↑	↑	↑	↑	↑	↑	↑
7	Promote Eco-Week	↑	↑	↑	↑	↑	↑	↑	↑	↑
8	Promote Re-Use Month annually	↑	↑	↑	↑	↑	↑	↑	↑	↑
9	Use €co-Merit programme to advise businesses on reducing waste		↑			↑	↑			↑
10	Recycling Ambassador Programme		↑			↑	↑			↑

NO	Action									
11	Reduce single-use plastics at Council organised events	↑	↑	↑	↑	↑	↑	↑	↑	↑
12	Ongoing support of the Conscious Cup Campaign / promotion of reusables over disposables		↑			↑	↑			↑
13	Ongoing Support of the Small Business Innovation Research (SBIR) for illegal dumping		↑		↑	↑	↑			↑
14	Run anti-dumping/anti-litter campaigns		↑		↑	↑	↑			↑
15	Waste Prevention Fund	↑	↑	↑	↑	↑	↑	↑	↑	↑
16	Introduce measures to reduce waste and increase recycling	↑	↑	↑	↑	↑	↑	↑	↑	↑
17	Provide more glass recycling in public realm		↑			↑	↑			↑
18	Introduce leaf composting programme	↑	↑	↑	↑	↑	↑	↑	↑	↑
19	Support and promote tidy towns initiatives in County	↑	↑	↑	↑	↑	↑	↑	↑	↑
20	Examine the potential of Arthurstown landfill		↑			↑	↑			↑

NO	Action									
	for development of green energy uses									
21	Implement water conservation campaign in civic buildings		↑			↑	↑			↑
22	Identify pilot locations for water access points		↑	↑	↑	↑	↑			↑
NO										
23	*Trial of low-flush toilets in council headquarters and social housing*		↑			↑	↑			↑
24	*Research feasibility of rainwater harvesting in council buildings*		↑	↑	↑	↑	↑			↑

Comment again most of themeasures are consistent with the SEOs in particular material assets, population and human health, climatic change and air quality.
For several SEOS the indirect and long term effects are positive, for example the water conservation measures, rainwater harvesting and water access points.
Actions that address illegal dumping and potential reuse of emissions from landfills generate positive effects as a reduction in illegal dumping creates long term positive effects on soil and geology, water and biodiversity ,as well as Landscape and Population. In turn an indirect positive effect may relate to accidental introduction of invasive species both through illegal dumping from construction or industry or plastic rubbish which has been identified as a vector for invasive species through water bodies.

ANNEX B REVIEW OF PLANS, POLICIES AND PROGRAMMES-

International Level

Title	Summary
Sustainable Development	
UN convention of Biological Diversity, 1992	The UN convention of Biological diversity was opened for signature at the Earth Summit in Rio de Janeiro on 5 June 1992 and entered into force on 29 December 1993. To date, there are 193 Parties signed up. The CBD is often seen as the key international instrument for sustainable development. The Ecosystem Approach, an integrated strategy for the management of resources, is the framework for action under the Convention.
EU Environmental Action Programme to 2020	The 7th EU Environmental Action Programme is more strategic in nature and identifies three main areas to guide EU environmental policy and research. The three thematic priority objectives are intended to: • Protect nature and strengthen ecological resilience • Boost sustainable resource-efficient low-carbon growth, and • Effectively address environment-related threats to health.
Environmental Assessment	
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 adopted.
Environmental Impact Assessment Directive (85/337/EEC) .	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. This has been amended with Directive 2011/92/EU and the 2014 Directive (see below).
Environmental Impact Assessment Directive (2014/52/EC)	It is necessary to amend Directive 2011/92/EU in order to strengthen the quality of the environmental impact assessment procedure, align that procedure with the principles of smart regulation and enhance coherence and synergies with other Union legislation and policies, as well as strategies and policies developed by Member States in areas of national competence. The Directive now applies from May 2017.
Biodiversity, Flora and Fauna	

Title	Summary
UN Convention of Biological Diversity, 1992	The Convention on Biological Diversity (CBD) entered into force in December 1993. It has 3 main objectives: 1. The conservation of biological diversity. 2. The sustainable use of the components of biological diversity. 3. The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.
The Convention on Wetlands of International Importance (The Ramsar Convention) 1971 and subsequent amendments	Protection and conservation of wetlands and habitats of importance to waterfowl
EU Biodiversity Strategy to 2020	In 2011 the European Commission adopted a new strategy to halt the loss of biodiversity and ecosystem services in the EU by 2020. There are six main targets, and 20 actions to help Europe reach its goal. The six targets cover: · Full implementation of EU nature legislation to protect biodiversity. · Better protection for ecosystems, and more use of green infrastructure. · More sustainable agriculture and forestry. · Better management of fish stocks. · Tighter controls on invasive alien species. · A bigger EU contribution to averting global biodiversity loss.
EU Directive on the Conservation of Wild Birds, (2009/147/EC) 1979. Known as the Birds Directive	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. 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 established under the Habitats Directive 92/43/EEC.
EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, (92/43/EEC), 1992 known as the Habitats Directive	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.
European Communities	These regulations consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds

Title	Summary
(Birds and Natural Habitats) Regulations 2011	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.
Green Infrastructure Strategy	The European Commission in May 2013 adopted a Green Infrastructure Strategy, '*to promote the deployment of green infrastructure in the EU in urban and rural areas'.* This is a key step in implementing the EU 2020 Biodiversity Strategy and specifically Target 2 that requires that 'by 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15% of degraded ecosystems'. Green Infrastructure (GI) is contributing to all other targets of the EU Biodiversity strategy – in particular the full implementation of the Birds and Habitats Directive (target 1) – and to maintain and enhance biodiversity in the wider countryside and the marine environment (targets 3 and 4).
Population and Human Health	
The Stockholm Convention	The Stockholm Convention on Persistent Organic Pollutants is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have adverse effects to human health or to the environment.
Several environmental parameters interact and impact on human health including water quality, infrastructure, air quality, soil, cultural heritage and landscape; the plans, policies and programmes associated with these are presented under thematic headings as appropriate.	
Geology and Soil	
EU Soil Thematic Strategy	In September 2006, the European Commission published the final Thematic Strategy for Soil Protection (COM(2006)231 final) and a proposal for a Directive establishing a framework for the protection of soil across the EU (COM(2006)232). The objective of the strategy is to protect and ensure the sustainable use of soil, based on the guiding principles of preserving soil functions, preventing further degradation and

Title	Summary
	restoring degraded soils to a level of functionality consistent with current and intended use. Once adopted the European Soil Thematic Strategy will guide and frame Ireland's approach to developing its own soil protection strategy.
Water Resources	
Water Framework Directive (2000/60/EC) as amended	The Water Framework Directive (WFD) was adopted in 2000 in an effort to establish a framework for the protection of waterbodies within the EU including: inland surface waters; groundwater; transitional waters; and coastal waters. The key aims of the WFD are: expanding the scope of water protection to all waters, surface waters and groundwater; achieving "good status" for all waters by a set deadline water management based on river basins; "combined approach" of emission limit values and quality standards. getting the prices right; getting the citizen involved more closely, and streamlining legislation. Its ultimate objective is to achieve "good ecological and chemical status" for all Community waters by 2015.
Floods Directive (2007/60/EC)	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.
The Drinking Water Directive (DWD), (98/83/EC) 1998	This Directive is intended to protect human health by laying down healthiness and purity requirements which must be met by drinking water within the Community.
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.
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.
Climate and Air Quality	
Paris (Climate Change) Agreement	The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC), dealing with greenhouse-gas-emissions mitigation, adaptation, and finance, starting in the year 2020.There are 197 parties signed to the agreement, The

Title	Summary
	main aim is to reduce the impacts of climate change through setting emission reduction Plans & guidelines.
Kyoto Protocol	The Protocol was initially adopted on 11 December 1997 in Kyoto, Japan, and entered into force on 16 February 2005. To date 191 states have signed and ratified the protocol. Following the Conference of Parties to the Climate Change Convention (COP) meeting in Copenhagen 2009, the EU revised its commitment to reducing greenhouse gases by increasing the target to 20% reduction on 1990 levels by 2020.
The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive	The EU objective in relation to air quality is 'to achieve levels of air quality that do not result in unacceptable impacts on, and risks to, human health and the environment'.
Material Assets	
EU Directive on Waste, (2006/12/EC), 2006	This Directive requires EU States to publish waste management plans. It requires a system of permits and registrations to be put in place to authorise all waste management infrastructure, as well as setting down the basic requirements that need to be satisfied for these statutory authorisations to be issued.
EU Directive on Waste (2008/98/EC), 2008	This Directive establishes a legal framework for the treatment of waste within the Community. It aims at protecting the environment and human health through the prevention of the harmful effects of waste generation and waste management. The Directive requires Member States to take measures for the treatment of their waste in line with the following hierarchy which is listed in order of priority:· prevention;· preparing for reuse;· recycling;· other recovery, notably energy recovery;· disposal.
EU Urban Waste Water Treatment Directive (91/271/EEC), 1991	The aim of the Urban Waste Water Directive is to protect inland surface waters from the adverse effects of discharges of urban wastewater and discharge of certain biodegradable industrial waste water (particularly from the agro-food industry).
Directive 2009/28/EC on the promotion of the use of energy from renewable sources	Directive 2009/28/EC on the promotion of the use of energy from renewable sources establishes the basis for the achievement of the EU's 20% renewable energy target by 2020. Under the terms of the Directive, each Member State is set an individually binding renewable energy target, which will contribute to the achievement of the overall EU goal. Each Member State is required to adopt a national renewable energy action plan.
Cultural Heritage Archaeology and Built Heritage	
The World Heritage Convention	The World Heritage Convention was adopted by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in November 1972. The World Heritage Convention aims to promote cooperation among nations to protect heritage around the world that is of such outstanding universal value that its conservation is important for current and future generations.. The following sites are on the tentative list for World Heritage Site Designation in the county: Inis Cealtra and the Burren.

Title	Summary
European Convention on the Protection of the Archaeological Heritage, 1992 (The Valletta Convention)	This Convention was ratified by Ireland in 1997 and as such the Planning Authority is legally bound by it. The aim of the Convention is to 'protect the archaeological heritage as a source of the European collective memory and as an instrument for historical and scientific study'. It requires that appropriate consideration be given to archaeological issues at all stages of the planning and development process.
Convention for the Protection of the Architectural Heritage of Europe, 1985 (Granada Convention)	Ratified by Ireland in 1997, the 1985 Convention for the Protection of the Architectural Heritage of Europe is intended to reinforce and promote policies for the conservation and enhancement of Europe's heritage. The Convention is dual purpose, involving the promotion of architectural heritage policies while fostering European-wide co-operation measures. Covering monuments, groups of buildings and sites of importance, the Convention requires a national inventory of architectural heritage to be developed. Legal protection measures must be established, with a system of formal authorisation required for works affecting protected sites and structures. Architectural heritage conservation considerations are required to feature in the Convention signatories' town and Regional planning processes.
Landscape	
The European Landscape Convention 2000	The 2000 European Landscape Convention, adopted in Florence (and was ratified by Ireland in 2002), requires a commitment to introduce policies on landscape protection and management. It promotes the protection, management and planning of EU landscapes as a response to European-wide concerns that the quality and diversity of landscapes were deteriorating. The underlying purpose of the Convention is to encourage public authorities to adopt policies and measures at local, Regional, National and International level to protect and manage landscapes throughout Europe.
Other relevant conventions, plans, policies and programmes	
The Aarhus Convention	The Aarhus Convention establishes a number of rights of the public (individuals and their associations) with regard to the environment. The Parties to the Convention are required to make the necessary provisions so that public authorities (at national, regional or local level) will contribute to these rights to become effective.
Environmental Liability Directive 2004/35/EC	The overall objective of the Directive and the Regulations is to prevent and remedy environmental damage by holding operators whose activities have caused environmental damage financially liable for remedying the damage. The Environmental Liability Regulations 2008 define environmental damage under three categories: Damage to natural habitats and protected species - any damage that has significant adverse effects on reaching or maintaining the favourable conservation status of European designated habitats or species (i.e. those covered by the Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC)). Water damage - damage which significantly adversely affects the ecological, chemical and/or quantitative status and/or ecological potential of waters covered in the Water Framework Directive (2000/60/EC). Land damage - any contamination that creates a significant risk of

Title	Summary
	human health being adversely affected as a result of the direct or indirect introduction in or under the land of substances, preparations, organisms or micro-organisms.

National Level

Title	Summary
Sustainable Development	
Our Sustainable Future A framework for sustainable development in Ireland	Our Sustainable Future timeframe is to 2020 to tie in with other national and international frameworks, but a longer-term horizon to 2050 is also taken where appropriate, to provide a framework for guiding and reporting on long-term broad development trends such as on climate change.
Water Framework Directive River basin management plans 2018	On April 17th 2018 the Government published the River Basin Management Plan for Ireland 2018-2021. The Plan sets out the actions that Ireland will take to improve water quality and achieve 'good' ecological status in water bodies (rivers, lakes, estuaries and coastal waters) by 2027.
National Mitigation plan	The National Mitigation Plan contains a series of mitigation measures and actions to address the immediate challenge of climate change to 2020 and to prepare for the EU targets that Ireland will take on for 2030. It will also begin the development of work to meet the objectives of the National Policy Position for 2050. The National Mitigation Plan covers greenhouse gas emissions in the Electricity Generation, Built Environment, Transport, and Agriculture, Forest and Land Use sectors, Environmental analysis was undertaken as part of the development of the Plan with appropriate assessment and environmental assessment taking place.
Sectoral Climate Adaptation Plans 2018	Sectoral Planning Guidelines for Climate Change Adaptation have been developed for, and are primarily intended for the use of, the sectors required to prepare statutory sectoral adaptation plans under the Framework(NAF). The guidelines aim to ensure that a coherent and consistent approach to adaptation planning is adopted by the key sectors in Ireland. With each specific region having a plan tailored to their specifics
Local Authority Adaptation strategy development Guidelines, EPA 2016	The guidelines are based on a staged and proportionate approach to adaptation planning and are structured around a 6-step planning cycle, these are: 1) Preparing the Ground; 2) Climate Impact Screening; 3) Prioritisation;

Title	Summary
	Executive Summary - Sectoral Planning Guidelines for Climate Change Adaptation iii 4) Priority Impact Assessment; 5) Develop your Plan; 6) Implement, Evaluate and Review
The National Planning Framework 2040	Is a national document that will guide at a high-level strategic planning and development for the country over the next 20+ years, so that as the population grows, that growth is sustainable (in economic, social and environmental terms). Finalisation of the NPF alongside the ten-year National Development Plan will put together one plan to guide strategic development and infrastructure investment at national level. The NPF with the National Development Plan will also set the context for each of Ireland's three regional assemblies to develop their Regional Spatial and Economic Strategies taking account of and co-ordinating local authority County and City Development Plans in a manner that will ensure national, regional and local plans align.
Biodiversity, Flora and Fauna	
Actions for Biodiversity 2017 – 2021, Ireland's 3rd National Biodiversity Plan	The National Biodiversity Plan is intended to play a central part in Ireland's efforts to halt biodiversity loss and was developed as in line with the EU and International Biodiversity strategies and policies. It sets out the strategic objectives of the government in relation to biodiversity They include: 1. mainstreaming biodiversity across the decision making process in the State; 2. strengthening the knowledge base underpinning work on biodiversity issues; 3. increasing public awareness and participation; 4. ensuring conservation of biodiversity in the wider countryside; 5. ensuring conservation of biodiversity in the marine environment; 6. expanding and improving on the management of protected areas and protected species; 7. enhancing the contribution to international biodiversity issues.
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.
National Heritage Plan	The Department of Arts Heritage Gaeltacht and the Islands published the National Heritage Plan in April 2002. The plan sets out a vision for the

Title	Summary
(2002)	management of the heritage of Ireland. A key element of the process of formulating the National Heritage Plan is the requirement to prepare Local Heritage Plans at County and City level.
All Ireland Pollinator Plan 2015-2020	The All-Ireland Pollinator Plan: A shared plan of action has been developed by a fifteen member steering group and identifies 81 actions across five objectives. Sixty-eight partner organisations from both public, private and NGO sectors have supported the Plan, with responsibility for delivering the 81 actions shared out between these organisations. It is a voluntary Plan. The Pollinator Plan has 5 key objectives: 1. Making Ireland pollinator friendly (farmland, public land & private land) 2. Raising awareness of pollinators and how to protect them 3. Managed pollinators – supporting beekeepers and growers 4. Expanding our knowledge on pollinators and pollination service 5. Collecting evidence to track change and measure success
European Union (Invasive alien species) (Freshwater Crayfish) regulations 2018	The European Union (Invasive Alien Species) (Freshwater Crayfish) Regulations 2018 (SI 354/18) came into force on 18 September 2018. The new measures are designed to combat the threat of disease spread from several species of non-native crayfish. The new regulations will give Irish authorities the powers to prevent the arrival and spread of the five non-native species of crayfish included on the EU list of invasive alien species.
Irish waters Capital Investment programme	This is a plan by Irish water to develop and implement investment in improvements in drinking water quality, leakage, water availability, wastewater compliance, efficiencies and customer service across 380 projects around Ireland. The main objectives are 1. Eliminating Boil Water Notices in Roscommon 2. Providing more water and in particular reducing disruption to supply in the Dublin area 3. Improving Water Quality 4. Investing for economic development 5. Tackling leakage 6. Increasing wastewater treatment capacity and improving environmental compliance 7. Better Control and Monitoring 8. Improving existing plants
Irish waters Capital Investment programme 2017-2021 including forthcoming planning	The capital investment programme outlines the number of projects being invested in across the country by Irish water. An application to upgrade the Ringsend WWTP has been commissioned the application seeks permission for works required to facilitate the use of Aerobic Granular Sludge (AGS) technology, to omit the previously permitted long sea outfall tunnel and to upgrade the sludge treatment facilities at Ringsend, Dublin 4, and to provide for a Regional Biosolids Storage Facility in Newtown, Dublin 11. Environmental impact assessment and

Title	Summary
application for ring send WWTP upgrade	appropriate assessment were both carried out on this project.
Waterways Ireland Heritage Plan 2014-2020	The Waterways Ireland Heritage Plan provides, a strategic framework for the integration of built, natural and cultural heritage into the future management of the waterways of Ireland.
Population and Human Health	
Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas (Cities, Towns & Villages)(2009)	The aim of these guidelines is to set out the key planning principles which should be reflected in development plans and local area plans, and which should guide the preparation and assessment of planning applications for residential development in urban areas.

Geology and Soil	
Geological Heritage Sites Designation (under the Wildlife Amendment Act 2000)	The Wildlife (Amendment) Act 2000 provides for designation of Natural Heritage Areas (NHAs) which will include geological sites. Until actually designated, there is no real protection for any important sites identified by GSI and recommended for NHA status. However, a number of geological features are protected because they are the underlying reason for a biological or ecological site protected as a National Nature Reserve, National Park or as a Special Area of Conservation (SAC). In addition many local authorities have scheduled County Geological Sites within their County Development Plans.
Water Resources	
National River Basin District Management Plan 2018	The National River Basin District Management Plan is now published (2018). The second cycle River Basin Management Plan aims to build on the progress made during the first cycle with a greater emphasis on ensuring the evidence base is available and the administration supports are fully in place to support key measures. The approach to the plan development involves characterisation of Ireland's water bodies in order to develop a tailored programme of measures to allow for the protection of good status or the restoration of good status for all water bodies. The outcomes are then monitored in order to feed into further characterisation and measures setting as the cycle moves forward. The plan was subject to SEA and Appropriate Asssesment.
Water Services Act (2007)	The Act sets down a comprehensive modern legislative code governing functions, standards, obligations and practice in relation to the planning, management, and delivery of water supply and waste water collection and treatment services. The Act focuses on management of water "in the pipe", as distinct from broader water resources issues such as river water quality, etc.
Water Services	The 2012 Act amends the 2007 Water Services Act in order to comply with a European Court of Justice ruling against Ireland in October 2009.

(Amendment) Act (2012)	The Court found that Ireland had failed to fulfil its obligations under the Waste Directive (75/442/EEC) regarding domestic waste waters disposed of through septic tanks and other individual waste water treatment systems. The new Part 4A requires each water services authority to establish and maintain a register of domestic waste water treatment systems situated within their functional area.
Irish Water Services Strategic Plan SEA and AA	The 25 year plan for strategic delivery of water services is currently being prepared and the SEA Scoping report was issued for consultation with a deadline in September 2014.
The Planning System and Flood Risk Management Guidelines (and Technical Appendices) for Planning Authorities (DoEHLG, OPW), 2009	In relation to planning at the County level the guidelines require planning authorities to: • introduce flood risk assessment as an integral and leading element of their development 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 the County Development Plan. • 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.
Climate and Air Quality	
National Adaptation Framework 2018	Ireland's first statutory National Adaptation Framework (NAF) was published in 2018. The NAF sets out the national strategy to reduce the vulnerability of the country to the negative effects of climate change and to avail of positive impacts. The NAF was developed under the Climate Action and Low Carbon Development Act 2015. The NAF builds on the work already carried out under the National Climate Change Adaptation Framework (NCCAF, 2012). The NAF outlines a whole of government and society approach to climate adaptation in Ireland. Under the NAF a number of Government Departments will be required to prepare sectoral adaptation plans in relation to a priority area that they are responsible for. Work on these plans will begin in 2018. Local authorities are required to prepare local adaptation strategies The NAF will be reviewed at least once every five years. The NAF also aims to improve the enabling environment for adaptation through ongoing engagement with civil society, the private sector and the research community.
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
Review of Ireland's climate change policy and Climate	The National Economic and Social Council submitted a review of Ireland's climate change policy to the Minister of Environment in late 2012. The review includes the development of potential policies and measures to reduce greenhouse gas emissions in agriculture, transport, heat in

Action and Low Carbon Bill 2013	buildings and renewable energy supply and a basis for a national transition to a low-carbon future by 2050.
Material Assets	
Smarter Travel, A Sustainable Transport Future, A New Transport Policy for Ireland 2009-2020	Smarter Travel is the transport policy for Ireland that sets out how the vision of a sustainable travel and transport system can be achieved.
Design Manual for Urban Roads and Streets 2013	Design Manual for Urban Roads and Streets incorporates good planning and design practice to support and encourage more sustainable travel patterns in urban areas.
Electric Vehicle Grant scheme and VRT relief	The electric Vehicle grant scheme is a government initiative to promote electric car use throughout the country. The scheme provides grants of up to 5,000 euro that are incentivised to promote electric and hybrid car use and thus reduce carbon emissions and is carried out through the SEAI . VRT or vehicle registration tax is a measure introduced to tax accordingly in relation to emissions produced by vehicle.
Spatial Planning and National Roads Guidelines 2012	These guidelines set out planning policy considerations relating to development affecting national primary and secondary roads, including motorways and associated junctions, outside the 50-60 kmh speed limit zones for cities, towns and villages.
National Transport Strategy for Greater Dublin Area 2016-2023	The Transport Strategy for the Greater Dublin Area, 2016-2035 has been prepared and published by the National Transport Authority in accordance with Section 12 of the Dublin Transport Authority Act, 2008. It sets out how transport will be developed across the region, covering Dublin, Meath, Wicklow and Kildare, over the period of the strategy and has been approved by the Minister for Transport, Tourism and Sport in accordance with the relevant legislation
Cultural Heritage Archaeology and Built Heritage	
National Monuments Act 1930 with subsequent amendments	This is the primary legal protection to archaeology in Ireland and has been amended a number of times, most recently 2004.
Architectural Heritage Protection - Guidelines for Planning Authorities (2011)	The 2004 guidelines were reissued in 2011 following the transfer of architectural heritage protection functions to the Department of Arts, Heritage and the Gaeltacht. Part IV of the Planning and Development Acts 2000 – 2011 sets out the legislative provisions for the protection and conservation of our architectural heritage
National Inventory of Architectural Heritage (NIAH)	The National Inventory of Architectural Heritage (NIAH) is a state initiative under the administration of the Department of Arts, Heritage and the Gaeltacht. The purpose of the NIAH is to identify, record, and evaluate the post-1700 architectural heritage of Ireland, uniformly and

	consistently as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS).
Planning policy statement 2015	This document sets out the outline for the future of planning in Ireland and the objectives and guidelines for the continued development of Irish planning. It is a non-statutory statement that's main objectives are to set out: (1) Key principles that it expects planning authorities, other public bodies and those that engage with the planning process will observe; and (2) High level priorities for the continued enhancement of the planning system in Ireland.
Green Low Carbon Agriculture Environment scheme (GLAS)	The Green, Low-Carbon Agri-Environment Scheme is part of the Rural Development Programme 2014-2020. It provides funding to farmers in return for delivering environmental management on their land. Farmers must commit to the scheme for a minimum period of 5 years. GLAS has a number of interlinked aims, which include: • Protecting agricultural land, its habitats and biodiversity • Promoting environmentally sustainable methods of farming • Addressing issues of climate change mitigation, water quality and the preservation of habitats and species • Maintaining features such as traditional drystone walls and hedgerow The overall target for GLAS is to attract 50,000 farmers into the new scheme over its lifetime
Landscape	
A National Landscape Strategy for Ireland –2015	The Department of Arts, Heritage and the Gaeltacht has issued A National Landscape Strategy for Ireland which sets out objectives and principles in the context of a proposed National Landscape Strategy for Ireland.
Draft Landscape and Landscape Assessment Guidelines, (2000)	These Guidelines attempt to approach landscape appraisal in a systematic manner and recommend Landscape Character Assessment (LCA) as the method for assessment. LCA involves the characterisation of landscape based primarily on landcover (trees, vegetation, water etc.) and secondly on the value (i.e. historical, cultural, etc.). LCA is intended to aid the development management process as it gives indicators of development types which would be suited to certain locations using certain design criteria and consequently the character of the landscape remains intact.
National Cycle Policy Framework 2009-2020	The Government's 2009-2020 National Cycle Policy Framework. ... It outlined 19 high level objectives and detailed the 109 individual but integrated actions, aimed at ensuring that a strong cycling culture is developed in Ireland so that by 2020 10% of all journeys will be by bike,
National Transport authority Permeability best practice guide	The National transport Authority NTA published this guide in 2015. The document outlines how Dublin can improve and implement better walking and cycling throughout the city. Permeability, for the purpose of this guidance, describes the extent to which an urban area permits the movement of people by walking or s such, the Authority, in collaboration with South Dublin County Council and AECOM, has developed this policy guidance on how best to facilitate demand for walking and cycling in existing built-up areas.
Public Transport Act 2016	An Act to amend and extend the Dublin Transport Authority Act 2008 , the Taxi Regulation Act 2013 and the Railway Safety Act 2005 , section

	66 of the Transport (Railway Infrastructure) Act 2001 , to amend sections 27 and 27A of the State Airports Act 2004 and section 106 of the Road Traffic Act 1961 , to give the force of law to the Protocol of 3 June 1999 for the Modification of the Convention concerning International Carriage by Rail (COTIF) of 9 May 1980 (Protocol 1999) and to change the name of the Railway Safety Commission.
Planning and Development Act 2000 (as amended). **This Act consolidated all planning legislation from 1963 to 1999 and remains the basis for the Irish planning code, setting out the detail of regional planning guidelines, development plans and local area plans as well as the basic framework of the development management and consent system. Among other things, it provides the statutory basis for protecting our natural and architectural heritage, the carrying out of Environmental Impact Statements and the provision of social and affordable housing.** **There have been a number of changes to the legislation since 2000, the most significant of which are set out in The Planning and Development (Amendment) Act 2002 and the Housing (Miscellaneous Provisions) Act 2004, which made substantial changes to Part V of the Act.** **In addition, a suite of new planning policies are being prepared most notably the National Planning Framework due to be finalised first quarter of 2017 which will replace the National Spatial Strategy. Prior to this a non-statutory Planning Policy Statement was issued in 2015 establishing then key principles including the following:** **- No. 8. Planning will conserve and enhance the rich qualities of natural and cultural heritage of Ireland –** **No. 9. Planning will support the protection and enhancement of environmental quality.**	

County level

Title	Summary
Regional Planning Guidelines 2010-2020- to be replaced by Regional Economic and Spatial Strategies	The aim of the Regional Planning Guidelines (RPGs) is to provide a framework for long term strategic development of the Greater Dublin Region for the period 2010 – 2022 which is consistent with the National Spatial Strategy (NSS) 2002 – 2020 and which ensures the successful implementation of the NSS at regional, county and local level. A key aspect of the RPGs is integrating sustainable economic development with the protection and enhancement of the environment. The RPGs are influenced by a wide range of international, national and regional level plans, programmes and legislation and also establish a framework for other lower level plans and programmes.
South Dublin County Development Plan 2016-2022	The Development Plan is a plan for South Dublin and as such the assessment has been limited geographically to activities occurring within the functional area of the Development Plan. The Development Plan will cover the period from 2016 up to 2022 It was subject to SEA and AA.
Eastern & Midland assembly regional spatial and economic strategy 2018	The Draft RSES is a strategic plan which identifies regional assets, opportunities and pressures and provides appropriate policy responses in the form of Regional Policy Objectives. At this strategic level it provides a framework for investment to better manage spatial planning and economic development throughout the Region.

	The Draft RSES provides a: • Spatial Strategy – to manage future growth and ensure the creation of healthy and attractive places to live, work, study, visit and invest in. • Economic Strategy – that builds on our strengths to sustain a strong economy and support the creation of quality jobs that ensure a good living standard for all. • Metropolitan Plan – to ensure a supply of strategic development areas for the sustainable growth and continued success and competitiveness of the Dublin metropolitan area. • Investment Framework – to prioritise the delivery of key enabling infrastructure and services by government and state agencies. • Climate Action Strategy – to accelerate climate action, ensure a clean and healthy environment and to promote sustainable transport and strategic green infrastructure.
Eastern-Midlands regional waste management plan 2015	The Eastern-Midlands Region (EMR) Waste Management Plan 2015-2021 provides a framework for the prevention and management of waste in a sustainable manner in 12 local authority areas. The Eastern-Midlands Region comprises Dublin City Council, Dún Laoghaire-Rathdown, Fingal, South Dublin, Kildare, Louth, Laois, Longford, Meath, Offaly, Westmeath and Wicklow County Councils. The three key objectives of the Eastern-Midlands Region Waste Management Plan are: • Prevent waste: a reduction of one per cent per annum in the amount of household waste generated over the period of the plan. • More recycling: increase the recycle rate of domestic and commercial waste from 40 to 50 per cent by 2020. • Further reduce landfill: eliminate all unprocessed waste going to landfill from 2016.
Greater Dublin area Transport strategy 2016-2035	The Transport Strategy for the Greater Dublin Area, 2016-2035 has been prepared and published by the National Transport Authority in accordance with Section 12 of the Dublin Transport Authority Act, 2008. It sets out how transport will be developed across the region, covering Dublin, Meath, Wicklow and Kildare, over the period of the strategy and has been approved by the Minister for Transport, Tourism and Sport in accordance with the relevant legislation. Environmental assessment was carried out for this plan This transport strategy (Strategy) provides a framework for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (GDA) over the next two decades. It also provides a transport planning policy around which other agencies involved in land use planning, environmental protection, and delivery of other infrastructure such as housing, water and power, can align their investment priorities.
Eastern Catchment Based Flood risk Management (CFRAM)	The Eastern CFRAM study has been commissioned in order to meet the requirements of the Floods Directive, as well as to deliver on core components of the 2004 National Flood Policy, in the Eastern district. The main aims of the Eastern CFRAM Study are to

study 2011-2016	• assess flood risk, through the identification of flood hazard areas and the associated impacts of flooding; • identify viable structural and non-structural measures and options for managing the flood risks for localised high-risk areas and within the catchment as a whole; • prepare a strategic Flood Risk Management Plan (FRMP) and associated Strategic Environmental Assessment (SEA) that sets out the measures and policies that should be pursued to achieve the most cost effective and sustainable management of flood risk; • ensure that full and thorough public and stakeholder consultation and engagement is achieved
Greater Dublin Strategic Drainage study	The Greater Dublin Strategic Drainage Study was commissioned in 2001 to carry out a strategic analysis of the existing foul and surface water systems in the local authority areas of Dublin City, Fingal, South Dublin, Dun Laoghaire Rathdown and the greater Dublin area. The study examined the new infrastructural requirements to 2031 in three-time frames: • The existing situation: - This examined drainage requirements for all development to year 2002, this year being the study baseline. • The short term situation:- This examined drainage requirements for all anticipated developments due for completion to year 2011 • The long term situation: - This identified the broad drainage requirements to cater for anticipated and/or assumed development in the Greater Dublin Region to year 2031.