

Figure 1.3: Ratio of Zoning Objectives from South Dublin County Development Plan

The zoning from the South Dublin County Development Plan is reproduced in Figure 1.4 below.

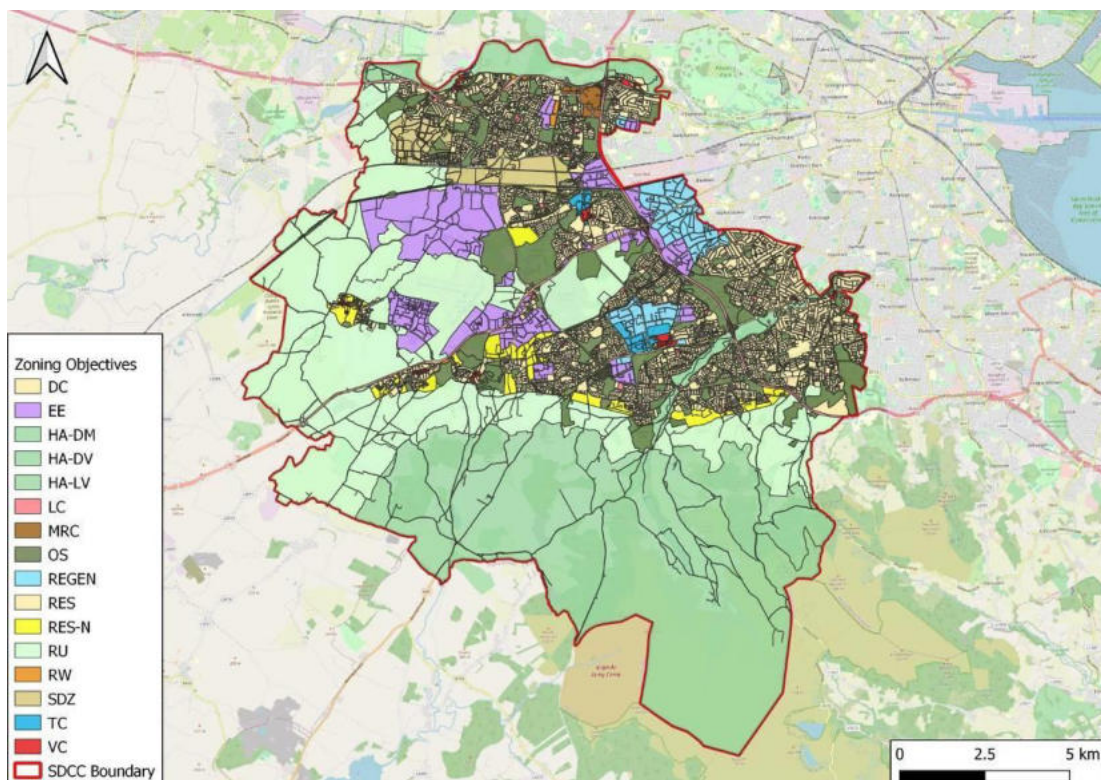


Figure 1.4: South Dublin County Zoning Objectives (SDCC Development Plan © OpenStreetMap)

2. METHODOLOGY

2.1 Introduction

This report has been prepared in accordance with 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' herein referred to as 'The Guidelines' as published by the Office of Public Works (OPW) and Department of Environment, Heritage and Local Government (DoHLE) in 2009.

2.2 Definition of Flood Risk

Flood risk is a combination of the likelihood of a flood event occurring and the potential consequences arising from that flood event and is then normally expressed in terms of the following relationship:

Flood risk = Likelihood of flooding x Consequences of flooding.

To fully assess flood risk an understanding of where the water comes from (i.e. the source), how and where it flows (i.e. the pathways) and the people and assets affected by it (i.e. the receptors) is required. Figure 2.1 below shows a source-pathway-receptor model reproduced from 'The Guidelines'.

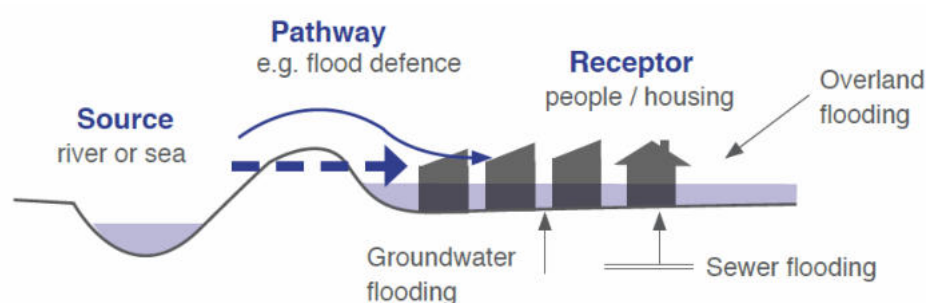


Figure 2.1 Source-Pathway-Receptor Model

The principal sources of flooding are rainfall or higher than normal sea levels. The principal pathways are rivers, drains, sewers, overland flow and river and coastal floodplains. The receptors can include people, their property and the environment. All three elements as well as the vulnerability and exposure of receptors must be examined to determine the potential consequences.

2.3 Likelihood of Flooding

The Guidelines define the likelihood of flooding as the percentage probability of a flood of a given magnitude or severity occurring or being exceeded in any given year. It is generally expressed as a return period or annual exceedance probability (AEP). A 1% AEP flood indicates a flood event that will be equalled or exceeded on average once every hundred years and has a return period of 1 in 100 years. Annual Exceedance Probability is the inverse of return period as shown in Table 2.1 below.

Table 2.1 Correlation between return period and AEP

Return Period (years)	Annual Exceedance Probability (%)
1	100
10	10
50	2
100	1

Return Period (years)	Annual Exceedance Probability (%)
200	0.5
1000	0.1

2.4 Definition of Flood Zones

Flood zones are geographical areas within which the likelihood of flooding is in a particular range and are split into three categories in The Guidelines:

Flood Zone A

Flood Zone A where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding);

Flood Zone B

Flood Zone B where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 and 0.5% or 1 in 200 for coastal flooding);

Flood Zone C

Flood Zone C where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding. Flood Zone C covers all plan areas which are not in zones A or B.

It is important to note that when determining flood zones the presence of flood protection structures should be ignored. This is because areas protected by flood defences still carry a residual risk from overtopping or breach of defences and the fact that there is no guarantee that the defences will be maintained in perpetuity.

2.5 Objectives and Principles of the Planning Guidelines

The principle actions when considering flood risk are set out in the planning guidelines and are summarised below:

- *“Flood hazard and potential risk should be determined at the earliest stage of the planning process...”*
- *“Development should preferentially be located in areas with little or no flood hazard thereby avoiding or minimising the risk....”*
- *“Development should only be permitted in areas at risk of flooding when there are no alternatives, reasonable sites available...”*
- *“Where development is necessary in areas at risk of flooding an appropriate land use should be selected”*
- *A precautionary approach should be applied, where necessary, to reflect uncertainties in flooding datasets and risk assessment techniques...”*
- *“Land required for current and future flood management... should be proactively identified...”*
- *“Flood risk to, and arising from, new development should be managed through location, layout and design incorporating Sustainable Drainage Systems (SuDS) and compensation for any loss of floodplain...”*
- *Strategic environmental assessment (SEA) of regional planning guidelines, development plans and Masterplans should include flood risk as one of the key environmental criteria...”*

2.6 The Sequential Approach and Justification Test

The Guidelines outline the sequential approach that is to be applied to all levels of the planning process. This approach should also be used in the design and layout of a development and the broad philosophy is shown in Figure 2.2 below. In general, development in areas with a high risk of flooding should be avoided as per the sequential approach. However, this is not always possible as many town and city centres are within flood zones and are targeted for development.

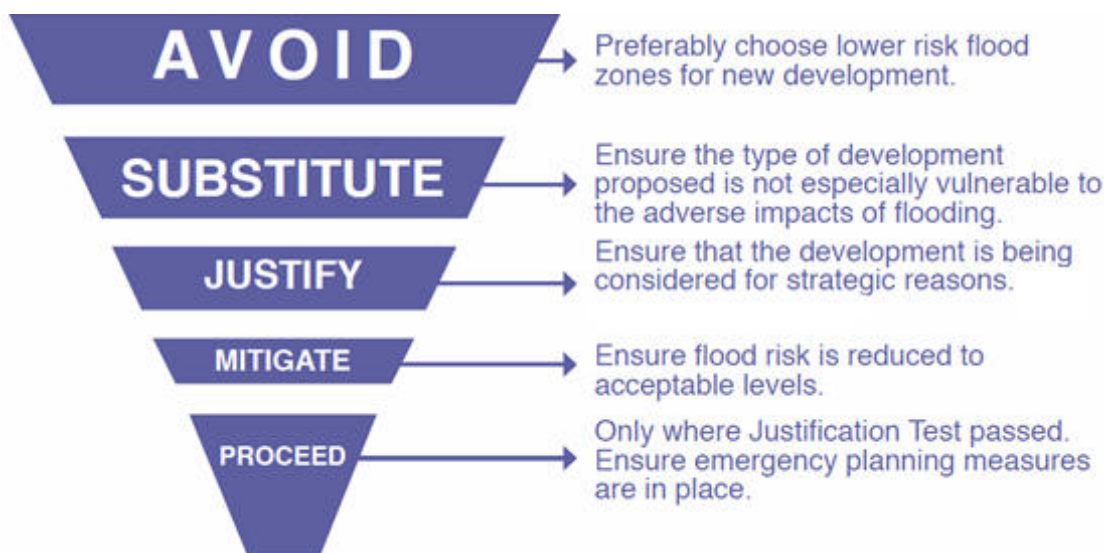


Figure 2.2 Sequential Approach (The Guidelines)

The Justification Test has been designed to rigorously assess the appropriateness, or otherwise, of developments that are being considered in areas of moderate or high flood risk. The test comprises the following two processes.

- The first is the Plan-making Justification Test and is used at the plan preparation and adoption stage where it is intended to zone or otherwise designate land which is at moderate or high risk of flooding.
- The second is the Development Management Justification Test and is used at the planning application stage where it is intended to develop land at moderate or high risk of flooding for uses or development vulnerable to flooding that would generally be inappropriate for that land.

Table 2.2 below illustrates the types of development that would be required to meet the Justification Test.

Table 2.2 Matrix of Vulnerability Versus Flood Zone to Illustrate Appropriate Development and that Required to Meet the Justification Test (The Guidelines)

Vulnerability Class (The Guidelines section 3.5)	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development (including essential infrastructure)	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water-compatible development	Appropriate	Appropriate	Appropriate

2.7 Climate Change

Climate change adaptation and resilience will most likely become the fundamental consideration for strategic planning in the coming decades. Climate Change as a result of human activities is occurring and is going to continue for centuries to come. The likely result of climate change in the East of Ireland Include:

- Sea level rise,
- Increase in the duration of summer with more frequent droughts,
- More intense storms and rainfall events,
- Increased likelihood and magnitude of river and coastal flooding, and
- Adverse impacts on water quality,
- Changes in distribution of plant and animal species.

Nonetheless, properly managed the potential challenge may provide the catalysis for an integrated approach to environmental stewardship that archives long term suitability goals at diverse scales ranging from local community investiture to satisfying our international obligations. With the knowledge of what we as a society may face in the future, land use planning policies can be developed which are mindful of current management practices. As such, an appraisal of the potential impacts of climate change was carried out as part of the Strategic Flood Risk Assessment with regard to the OPW climate change parameters stated in the Flood Risk Management Climate Change Sectoral Adaptation Plan (2019), also international best practice within other European jurisdictions and the latest scientific studies. Climate change. OPW climate change allowances are stated in Table 2.3 below.

Table 2.3 Allowances in Flood Parameters for Mid-Range and High End Future Scenarios

Parameter	MRFS	HEFS
Extreme Rainfall Depths	+ 20%	+ 30%
Peak Flood Flows	+ 20%	+ 30%
Mean Sea Level Rise	+ 500 mm	+ 1000 mm
Land Movement	- 0.5 mm / year ¹	- 0.5 mm / year ¹
Urbanisation	<i>No General Allowance – Review on Case-by-Case Basis</i>	<i>No General Allowance – Review on Case-by-Case Basis</i>
Forestation	- 1/6 Tp ²	- 1/3 Tp ² + 10% SPR ³

Note 1: Applicable to the southern part of the country only (Dublin – Galway and south of this)

Note 2: Reduction in the time to peak (Tp) to allow for potential accelerated runoff that may arise as a result of drainage of afforested land

Note 3: Add 10% to the Standard Percentage Runoff (SPR) rate: This allows for temporary increased runoff rates that may arise following felling of forestry.

There is an increasing likelihood that Irelands climate will be similar to that depicted in the High-End Future climate change scenario by the year 2100. Therefore, it is prudent to consider the HEFS parameters when planning for vulnerable infrastructure and developments. This approach will also assist in achieving our obligations under the Water Framework Directive (WFD). The OPW is currently transitioning to regional based climate models that reflect the likely varied impacts throughout the

island of Ireland. This is likely to be implemented during the lifetime of the proposed county development plan.

2.8 Strategic Hydromorphological Assessment

A Strategic Hydromorphological Assessment has been undertaken of the main watercourses within South Dublin County. The assessment will aid in delineating floodplain boundaries using morphological features to identify functional riparian zones. The goal being to provide the basis for sustainable zoning policies that provides “room for the river” and in time allow river systems to return to a state of equilibrium with rich biodiversity, developed ecosystem service provision and resilience to future shocks such as climate change. This approach will aid in meeting our objectives under the Water Framework and Floods Directives.

2.8.1 Hydromorphological Assessment and Riparian Corridor Designation Methodology

Hydromorphological integrity is identified in the WFD as one of the three key criteria for determining Waterbody Status (the others being ecology and chemical). Currently in WFD Ecoregion 17 (The Island of Ireland) classification of Hydromorphology only contributes to the classification of water bodies at high ecological and chemical status. Nonetheless, high status Hydromorphology is an indicator of overall high-good waterbody status as well as resilience within the catchment. A strategic hydromorphological Assessment of major rivers within South Dublin County has been undertaken for the County Development Plan. The strategic hydromorphological Assessment considered a range of parameters including:

- **Quaternary Alluvial Deposits**
Alluvial sediments are deposited during flood events and can indicate areas of historic flooding or natural routes of subsequently modified watercourses.
- **Slope Analysis - Break in Slope and Terrace Definition**
High-definition LiDAR was assessed to identify prominent changes in slope and terraces adjacent to watercourses. These terraces are formed due to long term erosional processes and their presence often correlate with recurring flood extents. In the uplands of the Dublin mountains breaks in slope defined the extents of steep valleys.
- **Historical Mapping Review**
Mapping available from the early 19th century indicate land uses, areas liable to flood as well as modifications to watercourses and their floodplains.
- **Review of Ariel photographs for Riparian Vegetation Extents.**
Riparian vegetation is crucial to the stability and resilience of riparian corridors and the biodiversity potential they promote. Riparian Corridors boundaries were identified to minimise fracturing of vegetated areas directly adjacent to watercourses.

The key finding of this assessment is the delineation of Riparian Corridors along the major rivers within the county. Riparian Corridors are shown on the drawings within Appendix A of this report.

3. STAGE 1 - FLOOD RISK IDENTIFICATION

3.1 General

This Flood Risk Identification phase includes a review of the existing information and the identification of any flooding or surface water management issues within South Dublin County that may warrant further investigation.

3.2 Sources of Flooding

Flooding from Fluvial & Sea Level Rises / Coastal Flooding

Much of the Irish landscape is defined by the interface between land, rivers and coastlines. For the majority of the time this interface is largely static along historic riverbanks and coastal areas. However, the processes that create these zones primarily result from extreme events and as such flooding can be seen as a natural process that the landscapes we live in. Issues arise when development occurs within natural floodplains creating elevated risk. The primary pathway for fluvial and coastal flooding is simple bank overtopping or storm surges causing extreme tidal inundation. Flooding can be exacerbated when structures such as bridge crossings are inadequately sized or when development happens within the floodplain displacing flood waters.

Surface Water Flooding

Surface water flooding occurs when the local drainage system cannot convey stormwater flows from extreme rainfall events. The rainwater does not drain away through the normal drainage pathways or infiltrate into the ground but instead ponds on or flows over the ground instead. Surface water flooding is unpredictable as it depends on several factors including ground levels, rainfall and the local drainage network.

Groundwater Flooding

Ground water flooding is a result of upwelling in occurrences where the water table or confined aquifers rises above the ground surface. This tends to occur after long periods of sustained rainfall and/or very high tides. High volumes of rainfall and subsequent infiltration to ground will result in a rising of the water table. Groundwater flooding tends to occur in low-lying areas, where with additional groundwater flowing towards these areas, the water table can rise to the surface causing groundwater flooding.

Pluvial Flood Risk

Pluvial flooding results from heavy rainfall that exceeds ground infiltration capacity or more commonly in Ireland where the ground is already saturated from previous rainfall events. This causes ponding and flooding at localised depressions. Pluvial flooding is commonly a result of changes to the natural flow regime such as the implementation of hard surfacing and improper drainage design.

3.3 Information Sources Consulted

The following information sources were consulted as part of the Flood Risk Identification:

Table 3.1 Information Sources Consulted

Source	Comments
OPW Preliminary Flood Risk Assessment (PFRA) maps	Fluvial, Pluvial, Coastal and Groundwater flooding examined;
Catchment Flood Risk Assessment and Management Study (CFRAM)	CFRAM mapping available at www.floodinfo.ie
OPW Benefitting Land Maps	Available at OPW Drainage District Viewer
OPW National Flood Hazard Mapping	www.floodmaps.ie

3.3.1 Predictive Flood Maps and Flood Hazard Records

(i) OPW Preliminary Flood Risk Assessment (PFRA)

The PFRA is a national screening exercise to identify the areas where there may be a significant risk associated with flooding (referred to as Areas for Further Assessment or AFA's). As part of the PFRA study, maps of the country were produced showing the indicative fluvial, coastal, pluvial and groundwater flood extents.

In the past, PFRA maps have been used to largely identify flood zones and flood locations for the Development Plan area. They were used for a broad assessment to help identify areas where flood risk should be explored in greater detail. The PFRA mapping identifies flood areas in Ballycullen/Oldcourt, Brittas and Dublin/Wicklow Mountains. Fluvial flooding areas have been indicated along the Ballycullen Stream and the Orlagh in the area of Ballycullen, the Camac and the Brittas River in the area of Brittas, and the Dodder in the upland areas of Dublin/Wicklow Mountains.

It is important to note that these maps have limitations as any local errors in the digital terrain model (DTM) were not filtered out, local channel works were not included, flood defences were excluded and channel structures were not considered.

(i) Catchment Flood Risk Assessment and Management Study

The plan area is covered within the Eastern CFRAM and (pilot) Dodder CFRAMS) study areas. The CFRAM programme led by the OPW, provides a detailed assessment of flooding in areas identified as AFA's during the PFRA study. All of the main watercourses were considered as part of the CFRAMS programme. Catchment wide Flood Risk Management Plans were also developed as part of the programme.

The CFRAMS flood mapping highlights areas of historic flood risk as well as the impact of key hydraulic constraints along the subject watercourses. The CFRAMS flood extent mapping is seen as the most detailed appraisal of flood risk for majority of the watercourses within South Dublin and forms the basis for much of this assessment.

(ii) OPW Drainage Districts

Under the Arterial Drainage Act, 1945 the OPW undertook a number of arterial drainage schemes to improve land for agricultural production. The OPW has a statutory duty to maintain these schemes, which is delivered through their arterial drainage maintenance programme. The OPW does not have powers to undertake river or channel maintenance other than where these rivers form part of an arterial drainage scheme or flood relief schemes.

The OPW Drainage district maps show that lands at the north-western border of the county close to Celbridge are "benefiting lands", i.e. lands that have

benefited from flood alleviation works previously completed under the Arterial Drainage Act, 1945. Lands in this area form part of the Shinkeen Stream (Hazelhatch) Flood Relief Scheme and contain an OPW Arterial Drainage (AD) Channel.

(iii) OPW National Flood Hazard Mapping

The OPW National Flood Hazard Mapping Web Site, www.floodmaps.ie, was examined to identify any recorded flood events within and in the Development Plan lands. Recurring events have been recorded throughout the plan lands.

3.3.2 Record of Flood Relief Schemes within South Dublin County

Flood Risk Management Schemes completed within the last 30 years are listed below:

- Camac River Phase I Improvement Scheme (1995)
- Shinkeen Stream (Hazelhatch) Drainage Scheme (2001)
- Camac River Phase II Improvement Scheme (2001)
- Griffeen River Flood Alleviation Scheme (2005)
- Tubermaclugg Improvement Scheme (2008)
- Robinhood Stream Improvement Scheme (2008)
- Whitehall Road Flood Alleviation Scheme (2009)
- Ballycullen Flood Alleviation Scheme (2018)

Any planning decisions should also be cognisant of future works in the catchment. Schemes currently being progressed include:

- Whitechurch Flood Alleviation Scheme
- River Poddle Flood Alleviation Scheme
- River Camac Flood Alleviation Scheme

3.4 Flood Risk Identification Summary

In accordance with The Guidelines the sources of flooding within South Dublin County have been identified. The findings of the stage 1 assessment indicate that the lands within the development plan area are at risk of flooding. Therefore, in accordance with The Guidelines (OPW 2009), a Stage 2 flood risk assessment should be carried out.

4. STAGE 2 – INITIAL FLOOD RISK ASSESSMENT

4.1 General

A Stage 2 SFRA (initial flood risk assessment) was undertaken to:

- Confirm the sources of flooding that may affect lands within South Dublin County;
- Appraise the adequacy of existing information as identified by the Stage 1 FRA.

4.2 Identification of Key Areas at Risk Of Flooding

The zoning objectives within the key areas at risk of flooding are identified in the section below. This review will look at the development land use zoning for the lands and comment on the flood risk.

4.2.1 Rathcoole - Saggart

Fluvial flooding deriving from the Camac is indicated west of the Saggart Waterworks at Slade Road, areas East of Rathcoole Park and Naas Road and College Lane. Fluvial flooding emanating from Corbally Stream is indicated north and east of the golf course (along Carraigmore Avenue) and in areas between Naas Road and Parklands Parade. Fluvial flooding from the Fortunestown River is indicated in areas west of CRH De Selby Quarry to and across Blessington Road up until Fortunestown Road. Indicated flooding affects areas currently zoned as “RU – To protect and improve rural amenity and to provide for the development of agriculture”, “OS – To preserve and provide for open space and recreational amenities”, “EE – To provide for enterprise and employment related uses”, “RES – To protect and/or improve residential amenity “ and “RES-N – To provide for new residential communities in accordance with approved area plans“.



Figure 4.1 Indicated flood risk areas and Riparian Corridors (in pink) for Rathcoole - Saggart

4.2.2 Greenogue – Baldonnell:

Indicated fluvial flooding from the Griffeen river and its tributaries affect areas from Naas Road to College Lane, across Greenogue Business Park / Aerodrome Park, and up until Baldonnell Road. Additional flooding from the Camac affects areas between Naas Road and Baldonnell Road (Casement Aerodrome Baldonnell) as well as areas in Corkagh Park and lands west of Grange Castle Road. Flooding is indicated to affect areas currently zoned as “RU – To protect and improve rural amenity and to provide for the development of agriculture”, “OS – To preserve and provide for open space and recreational amenities”, “EE – To provide for enterprise and employment related uses”, “RES – To protect and/or improve residential amenity” and “RES-N – To provide for new residential communities in accordance with approved area plans”.



Figure 4.2 Indicated flood risk areas and Riparian Corridors (in pink) for Greenogue - Baldonnell

4.2.3 Jobstown – Killinarden:

Fluvial flooding emanating from the Kingswood Stream and its tributaries is indicated in areas south of Blessington Road up until residential areas east and south of Mount Seskin Community College (Belfry Green). Fluvial flooding from the Jobstown Stream is indicated south of Tallaght Bypass and between Whitestown Way and Old Bawn Road. Indicated flooding affects areas currently zoned as “RU – To protect and improve rural amenity and to provide for the development of agriculture”, “OS – To preserve and provide for open space and recreational amenities”, “EE – To provide for enterprise and employment related uses”, “RES – To protect and/or improve residential amenity”, “HA-DM - To protect and enhance the outstanding natural character and amenity of the Liffey Valley, Dodder Valley and Dublin Mountains areas” and “RES-N – To provide for new residential communities in accordance with approved area plans”.

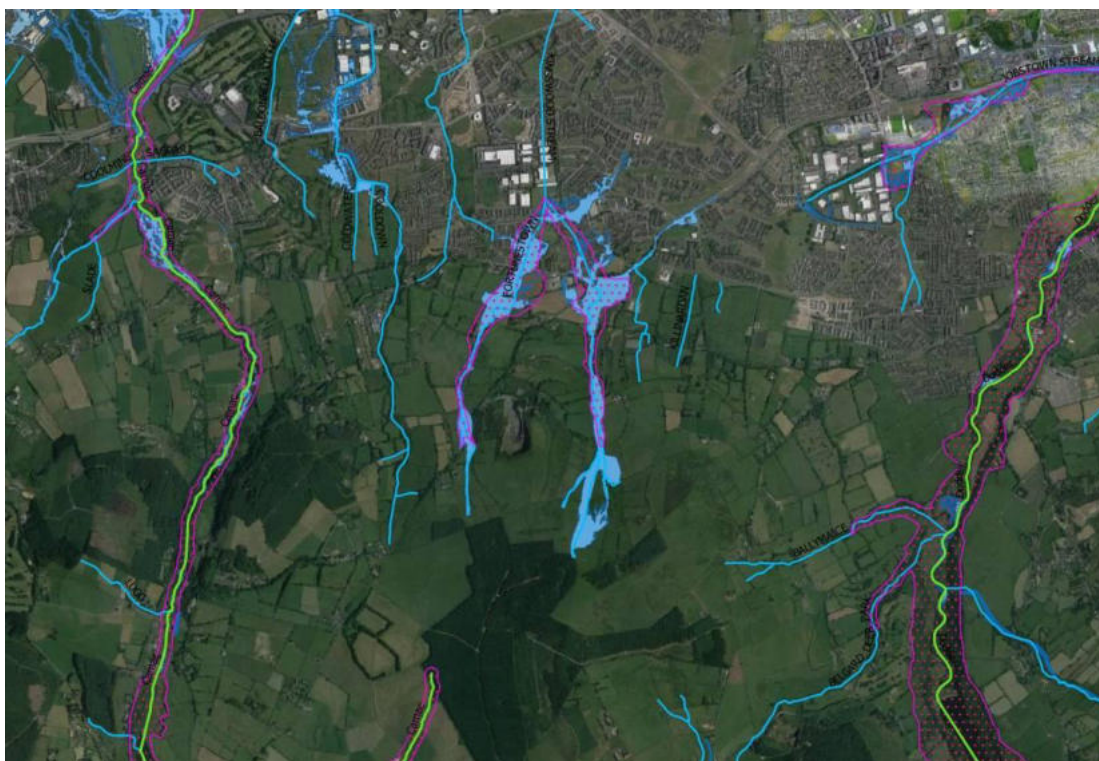


Figure 4.3 Indicated flood risk areas and Riparian Corridors (in pink) for Jobstown - Killinarden

4.2.4 Clondalkin:

Fluvial flooding deriving from the Camac River is indicated in areas between Fonthill Road South to and across Western Parkway Motorway up until areas west of John F Kennedy Industrial Estate (Nangor Road and south of the Grand Canal). Areas affected are currently zoned as “OS – To preserve and provide for open space and recreational amenities”, “EE – To provide for enterprise and employment related uses”, “RES – To protect and/or improve residential amenity”, “REGEN - To facilitate enterprise and/or residential-led regeneration”, “VC - To protect, improve and provide for the future development of Village Centres” and “TC - To protect, improve and provide for the future development of Town Centres”.

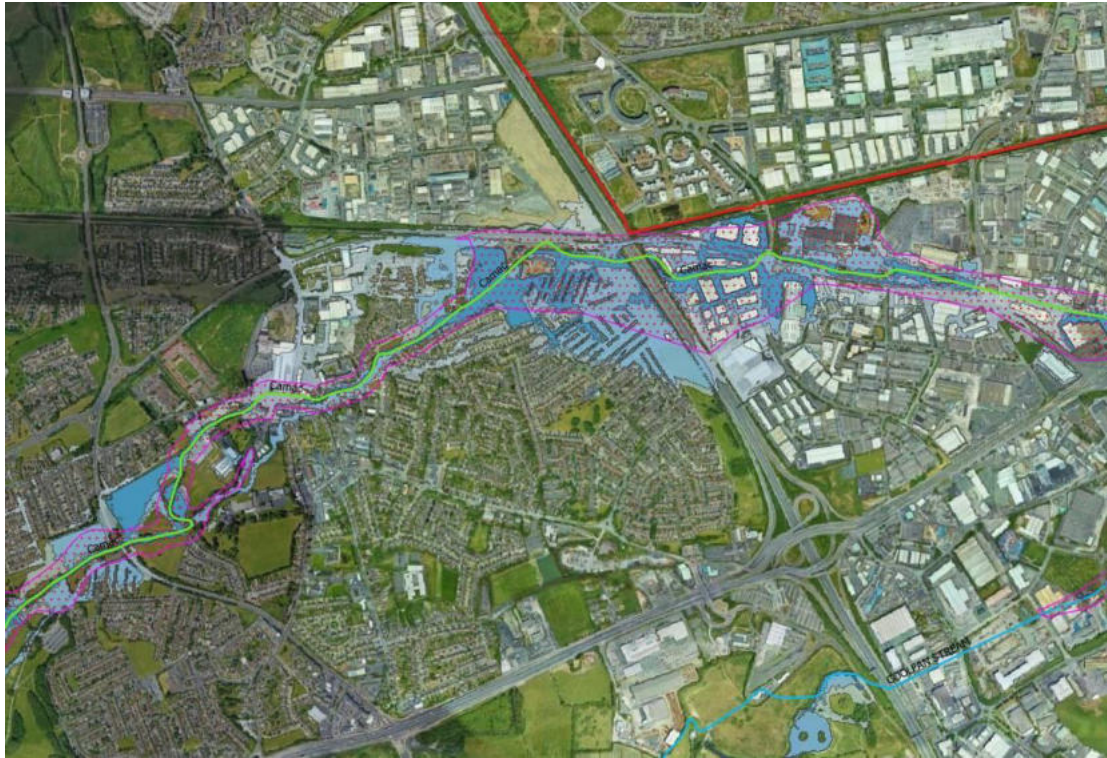


Figure 4.4: Indicated flood risk areas and Riparian Corridors (in pink) for Clondalkin

4.2.5 Naas Road – New Nangor Road:

Indicated flooding from the Coolfan Stream (tributary of the Camac) affects areas in Ballymount Park, Robinhood Industrial Estate and Avonbeg Industrial Estate (between Long Mile Road and Naas Road). Flooding emanating from the Camac river is indicated west of Western Parkway Motorway and all along Nangor Road up until areas between the Grand Canal and Naas Road. Affected areas are currently zoned as “OS – To preserve and provide for open space and recreational amenities”, “RES – To protect and/or improve residential amenity”, and “REGEN - To facilitate enterprise and/or residential-led regeneration”.

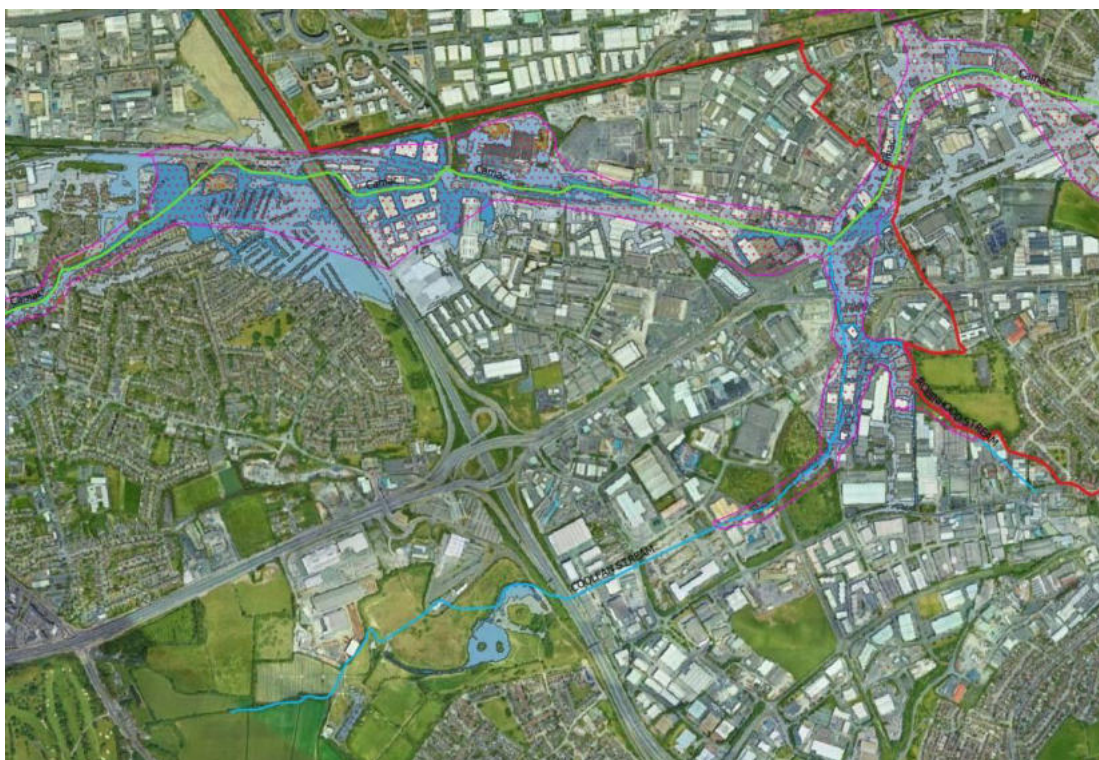


Figure 4.5 Indicated flood risk areas and Riparian Corridors (in pink) for Naas Road – New Nangor Road

4.2.6 Aungierstown and Ballybane:

Indicated flooding emanating from the Griffeen and its tributaries affects areas between Peamount Road and Nangor Road/Grange Castle Road (Casement Aerodrome area) and areas north and west of Microsoft Ireland Data Centres (between railway line and Nangor Road). Indicated flooding emanating from the Camac affects areas north-west of Naas Road, in Corkagh Park and Fonthill Road South. Areas affected are currently zoned as “OS – To preserve and provide for open space and recreational amenities”, “RES – To protect and/or improve residential amenity”, “EE – To provide for enterprise and employment related uses”, and “RU To protect and improve rural amenity and to provide for the development of agriculture”.



Figure 4.6 Indicated flood risk areas and Riparian Corridors (in pink) for Aungierstown – Ballybane

4.2.7 Adamstown:

Flooding deriving from the Lucan Stream is indicated south and north of Adamstown Railway Station and south of Old Celbridge Road. Flooding from the Griffeen is indicated south of the rail line (between Adamstown Road and Grange Castle Road), north of the rail line (Griffeen Valley Park) and north of Lucan Bypass. Areas affected are currently zones as “OS – To preserve and provide for open space and recreational amenities”, “SDZ - To provide for strategic development in accordance with approved planning schemes”, “RES – To protect and/or improve residential amenity”, and “EE - To provide for enterprise and employment related uses”.



Figure 4.7 Indicated flood risk areas and Riparian Corridors (in pink) for Adamstown

4.2.8 Kimmage – Tempelogue:

Indicated flooding deriving from the Poddle river affects areas west and east of Western Parkway Motorway (Tymon Park), across areas up to Templeville Road and across to Kimmage Road West. Flooding emanating from the Dodder is indicated between Templeogue Road and Firhouse Road/Butterfield Avenue. Affected areas are currently zones as “OS – To preserve and provide for open space and recreational amenities”, “RES – To protect and/or improve residential amenity”, and “LC - To protect, improve and provide for the future development of Local Centres”.



Figure 4.8 Indicated flood risk areas and Riparian Corridors (in pink) for Kimmage - Templeogue

4.2.9 Ballycullen – Oldcourt:

Indicated flooding from the Dodder and its tributaries (such as the Orlagh, Ballycullen Stream and Jobstown Stream) affects areas south of Tallaght Bypass, west of Balliharcorney Road/Firhouse Road, and areas south and north of Killiney Road (west of Southern Cross Route). Flooding from the Owenadoher and its tributaries is indicated in areas along Cruagh Road (south of Southern Cross Route) and around junction Edmondstown Road/BallybodenWay/Taylor's Lane. Affected areas are currently zoned as "RES – To protect and/or improve residential amenity", "OS – To preserve and provide for open space and recreational amenities", "HA-DM - To protect and enhance the outstanding natural character and amenity of the Liffey Valley, Dodder Valley and Dublin Mountains areas", "RU – To protect and improve rural amenity and to provide for the development of agriculture" and "RES-N – To provide for new residential communities in accordance with approved area plans".

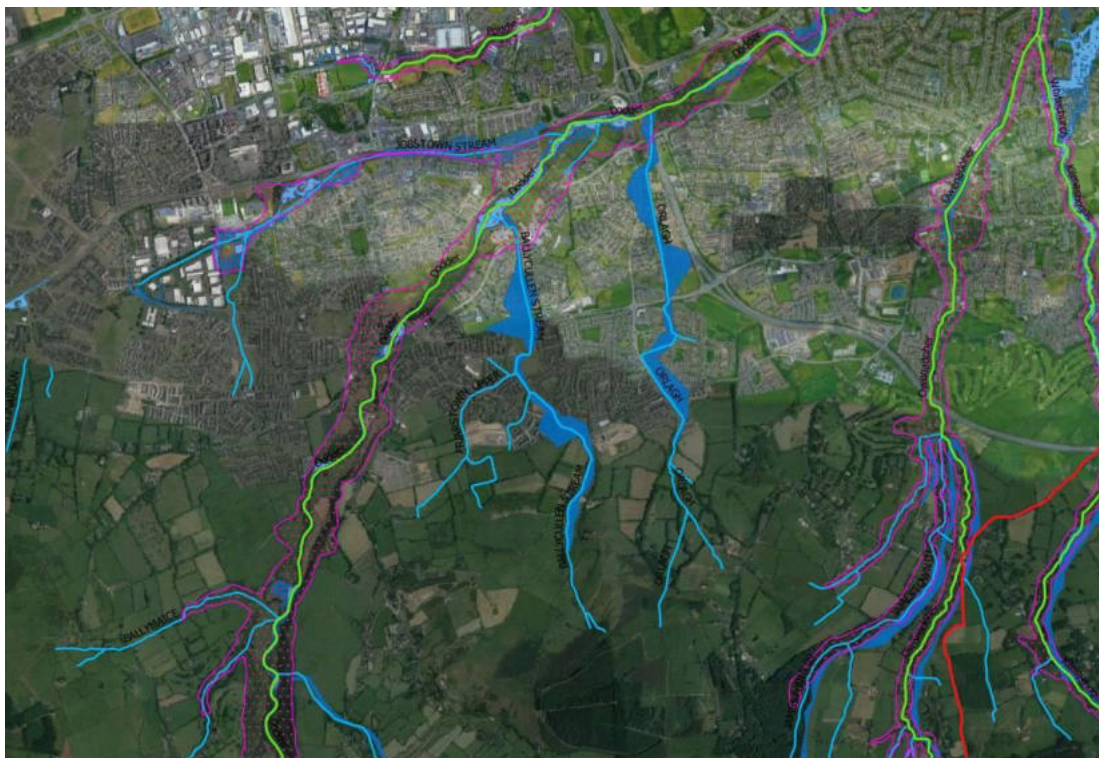


Figure 4.9 Indicated flood risk areas and Riparian Corridors (in pink) for Ballycullen - Oldcourt

4.2.10 Rathfarnham (St. Enda's and Tara Hill):

Indicated flooding from the Dodder and its tributaries (such as Orlagh, Owenadoher, Kilmashogue, Little Dargle, and Slang river) occurs at areas west of Southern Cross Route, the Dodder Valley Park, along Dodder View/Park Road, north of Milltown Golf Club, along Ballyboden Road, along Whitechurch Road and Grange Road. There is further flooding indicated between Brethon Field Road and Southern Cross Route, north-west and west of Wyckham Point, from the junction Overend Way/Sandyford Road across Dundrum Town Centre along Dundrum Road up to Milltown Road. Flooding emanating from the Poddle indicates affected areas south of Limekiln Road and areas between Templeville Road and Kimmage Road West. Lands affected are currently zoned as "OS – To preserve and provide for open space and recreational amenities", "RES – To protect and/or improve residential amenity", "LC - To protect, improve and provide for the future development of Local Centres" and "RES-N – To provide for new residential communities in accordance with approved area plans".

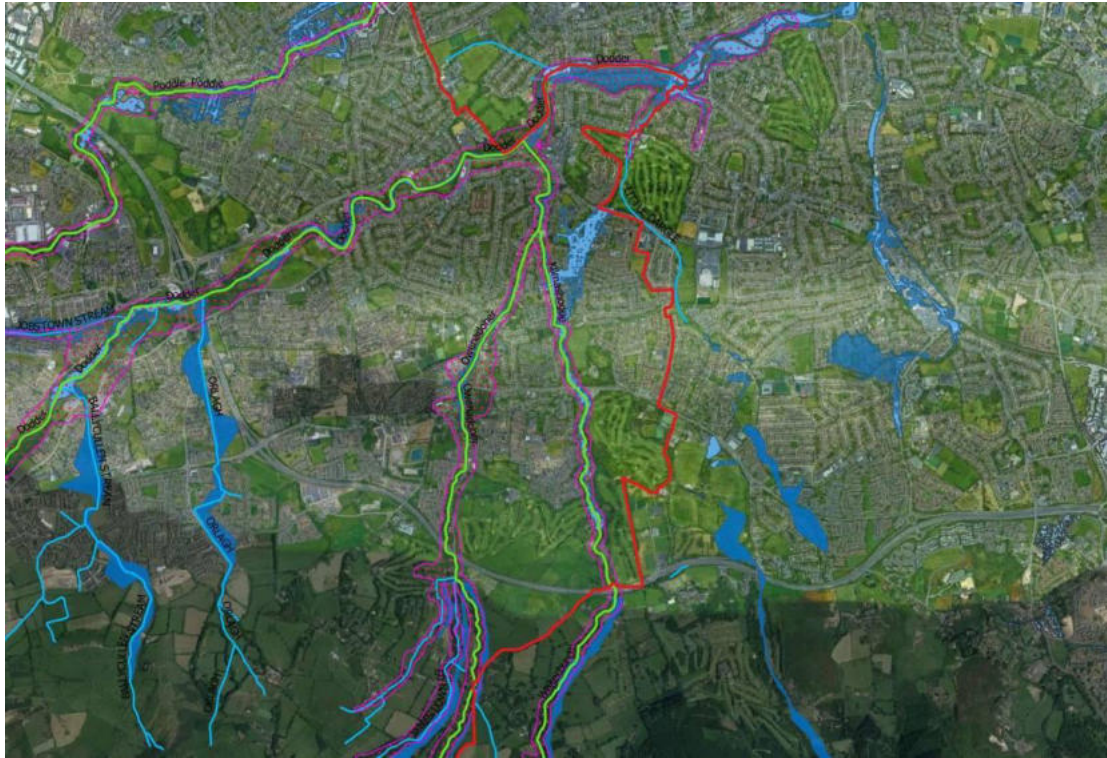


Figure 4.10 Indicated flood risk areas and Riparian Corridors (in pink) for Rathfarnham (St. Enda's and Tara Hill)

4.2.11 Brittas:

Flooding is indicated to emanate from the Brittas river and its tributaries affecting areas between Blessington Road, Aghfarrell Road and Balyfolen Road as well as areas upstream of Brittas Lake. Lands affected are currently zoned as "HA-DM - To protect and enhance the outstanding natural character and amenity of the Liffey Valley, Dodder Valley and Dublin Mountains areas".



Figure 4.11 Indicated flood risk areas and Riparian Corridors (in pink) for Brittas

4.2.12 Hazelhatch:

Flooding deriving from the Grand Canal and the Castletown river is indicated south-east of the Grand Canal at Hazelhatch Road, between the rail line and the Grand Canal (east of Hazelhatch Road), and north-west of the rail line across Hazelhatch Road. Lands affected are currently zoned as “OS – To preserve and provide for open space and recreational amenities” and “RU – To protect and improve rural amenity and to provide for the development of agriculture”.