

# **Cobh Town Development Plan 2013**

## **Volume 2: Strategic Flood Risk Assessment**

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## **Section 1 Introduction**

### **1.1 Scope and Objectives**

1.1.1 As part of the review of the Cobh Town Plan and in order to meet the needs of the Strategic Environmental Assessment process and the requirements of the Department of the Environment, Heritage and Local Government / Office of Public Works Guidelines, “The Planning System and Flood Risk Management” (2009), Cobh Town Council undertook a Strategic Flood Risk Assessment for lands within its boundary. This assessment provides a broad evaluation of flood risk within the plan area and has accordingly informed strategic land-use planning decisions within the town plan process.

1.1.2 The assessment provides for an improved understanding of flood risk issues within the town and includes a series of flood extent maps covering the town council area. The maps identify the extent of areas at risk to coastal flooding that should be safeguarded from development and will support the application of the sequential approach and the justification test as appropriate, in areas where development is proposed.

1.1.3 This report sets out how the Flood Risk Assessment was undertaken, as well as how its findings were addressed and integrated into the Cobh Town Development Plan 2013. The report should be read in conjunction with the Cobh Town Development Plan 2013.

### **1.2 Report Structure**

1.2.1 Section 2 of this report provides a brief introduction to Cobh Town, outlining the key population and household growth targets.

1.2.2 Section 3 examines the main sources of flood risk within the town and recent flood events.

1.2.3 Section 4 examines how the issue of managing flood risk was addressed in the review of the Cobh Town Plan and outlines the main provisions of the adopted strategy.

1.2.4 Section 5 sets out what this assessment has achieved in terms of managing the adverse effects of flooding within the Cobh Town Council Area and how the flood risk management strategy, identified in the Plan, should be reviewed and monitored over the lifetime of the plan.

### **1.3 The Planning System and Flood Risk**

1.3.1 ‘The Planning System and Flood Risk Management: Guidelines for Planning Authorities’, published in November 2009, describe flooding as a natural process that can occur at any time and in a wide variety of locations. Flooding can often be beneficial and many habitats rely on periodic inundation. However, when flooding interacts with human development, it can threaten people, their property and the environment. Flooding may be from rivers, the sea, groundwater, sewers or overland flow caused by intense or prolonged periods of rainfall. Climate change effects suggest that the frequency and severity of flooding is likely to increase in the future.

1.3.2 The Guidelines describe good flood risk practice in planning and development management and seek to integrate flood risk management into the planning process, thereby assisting in the delivery of sustainable development. Planning authorities are directed to have regard to the guidelines in the preparation of Development Plans and Local Area Plans, and for development control purposes. For this to be achieved, flood risk must be assessed as early as possible in the planning process.

1.3.3 Paragraph 1.6 of the Guidelines states that the core objectives 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 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.

1.3.4 The guidelines aim to facilitate 'the transparent consideration of flood risk at all levels of the planning process, ensuring a consistency of approach throughout the country. The guidelines work on a number of key principles, including:

- Adopting a staged and hierarchical approach to the assessment of flood risk;
- Adopting a sequential approach to the management of flood risk, based on the frequency of flooding (identified through Flood Zones) and the vulnerability of the proposed land use.

#### **1.4 Definition of Flood Risk**

1.4.1 Prior to discussing the management of flood risk, it is helpful to understand what is meant by the term. It is also important to define the components of flood risk in order to apply the principles of the Guidelines in a consistent manner.

1.4.2 Flood risk is generally accepted to be a combination of the likelihood of flooding and the potential consequences arising, and is normally expressed in terms of the following relationship:

**Flood risk = Probability of flooding x Consequences of flooding**

1.4.3 Likelihood of flooding is normally defined as the percentage probability of a flood of a given severity occurring in any given year. For example, a 1% probability indicates the severity of a flood that is expected to be exceeded on average once in 100 years, i.e. it has a 1 in 100 chance of occurring in any given year.

1.4.4 In the Cobh Town Development Plan, flood risks are defined in relation to the following zones;

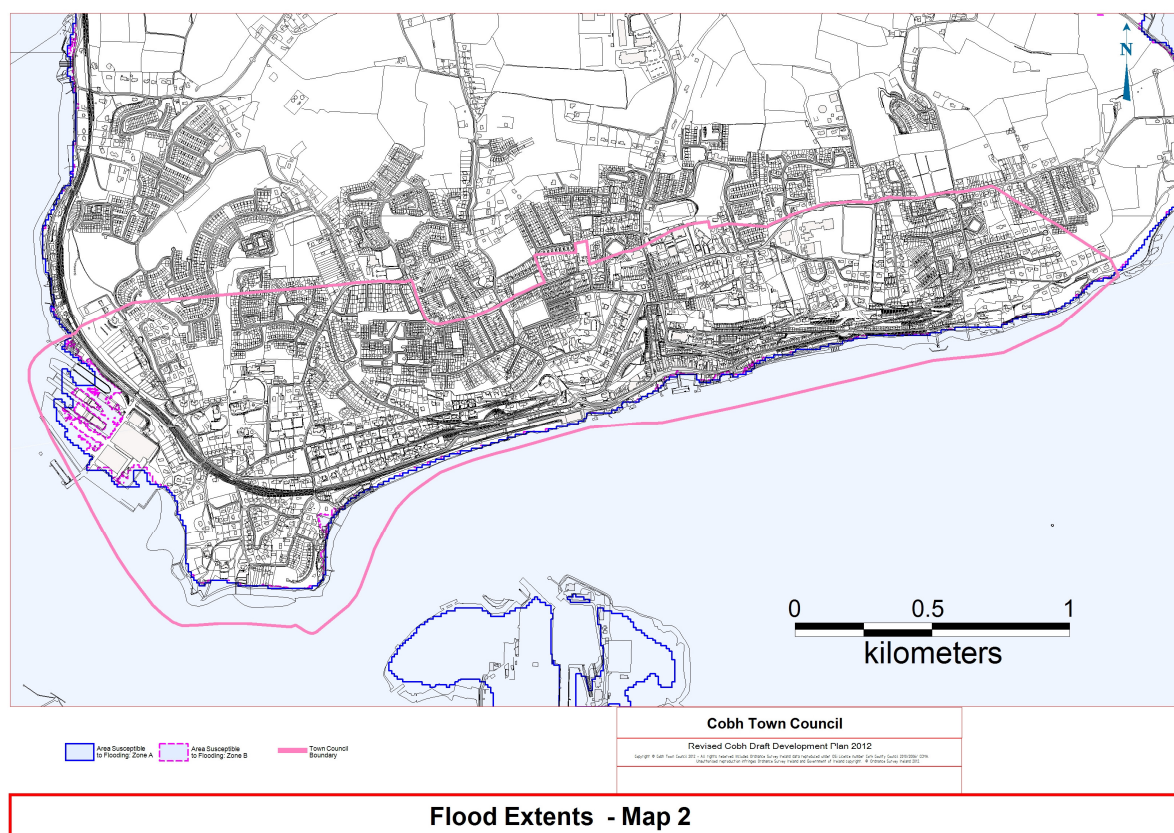
- **Flood Zone A:** where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding);
- **Flood Zone B:** where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding or between 0.1% or 1 in 1000 and 0.5% or 1 in 200 for coastal flooding);
- **Elsewhere**, sometimes referred to as **Zone C**, 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). This zone covers all areas of the plan which are not in zones A or B.

1.4.5 Consequences of flooding depend on the hazards caused by flooding (depth of water, speed of flow, rate of onset, duration, wave-action effects, water quality) and the vulnerability of receptors (type of development, nature, e.g. age-structure of the population, presence and reliability of mitigation measures etc).

1.4.6 The 'Planning System and Flood Risk Management' provides three vulnerability categories, based on the type of development, which are detailed in table 3.1 of the Guidelines, and are summarised as:

- Highly vulnerable, including residential properties, essential infrastructure and emergency service facilities;
- Less vulnerable, such as retail and commercial and local transport infrastructure
- Water compatible, including open space, outdoor recreation and associated essential facilities, such as changing rooms.

## Section 2 Local Study Area



### 2.1 Introduction: The Cobh Town Plan Area

2.1.1 The overall strategy of the County Development Plan recognises Cobh as a Metropolitan town in the County Metropolitan Strategic Planning Area. The strategic aims for the settlement recognise the town's important residential development opportunities based on its accessibility by rail, the promotion of the town's distinctive character and scenic harbour setting.

### 2.2 Population and Household Growth

2.2.1 In 2011 the population of Cobh town and its environs was 12,347, an increase of 1,044 people or 9% over that recorded in 2006. All of the growth occurred in the environs of the town and the population in the town council area actually fell by 0.7% in the same period.

2.2.2 The County Development Plan Strategy makes provision for population growth of 2,196 persons in Cobh in the period 2011-2020. The number of households is expected to grow by 1,433 in the same period.

2.2.3 The target population for the Town Council area is 6,798 persons in 2020 which would be an increase of 298 persons over the 2011 census figure.

	<b>Census 2006</b>	<b>Census 2011</b>	<b>Target 2020</b>	<b>Growth 2011-2020</b>
<b>Population</b>				
<b>Town &amp; Environs</b>	11,303	12,347	14,543*	2, 196
Town Council Area	6,541	6,500	6,798	298
Environs	4762	5,847	7,745	1,898
<b>Households</b>				
<b>Town &amp; Environs</b>	4,142	4,618	6,034#	1,433
Town Council Area	2,444	2,568	2,821	388
Environs	1,698	2,050	3,213	1,163

*\*Sourced from Cork County Development Plan 2009 – Core Strategy (2011)*

*# population divided by household occupancy of 2.41.*

2.2.4 The disparity in overall growth rate targets between the town and environs reflects the strong supply of greenfield development land within the environs while there is very little such land within the town boundary. The brownfield and infill development opportunities available within the town will need to be designed to optimise densities on these relatively small sites, work with the topography, and respect the character of adjacent area.

### **Housing Demand and Land Supply**

2.2.5 Within the Town Council Area Average Household size stood at 2.53 persons in 2011. National trends for falling household size show that this is reducing by an average of 0.28 persons per annum suggesting that by 2020 average household size within Cobh town could be down to 2.3 persons and this would be consistent with wider European trends.

2.2.6 It is estimated that population growth in the period to 2020 will give rise to an additional 388 new households, necessitating the provision of an additional 446 new housing units.

	<b>Population Growth 2011-2020</b>	<b>Household Growth 2011-2020</b>	<b>Housing Units 2011-2020</b>
<b>Cobh Town</b>	298	388	446

2.2.7 Within the Town Council Area two plots of land that are zoned for residential use in the 2005 Plan remain undeveloped. Planning permission has been granted on both sites

(which comprise 3.53ha in total) for a total of 81 dwelling units but construction has yet to commence. One of the permissions for 20 units has recently expired. In order to achieve the target level of growth set out in this Plan, and optimise the housing yield from the development land available within the Town Council Area, the Council will encourage higher density development at appropriate locations within the town, will promote living over the shop schemes in the town centre and encourage the conversion of former retail premises, such as those along Harbour Row to residential use. While it is acknowledged that there is a plentiful supply of land in the Environs, the Town Council's priority is to direct as much population growth as possible to the town.

	Total Zoned Land (ha)	Yield from zoned Lands	Infill Yield	Total Housing Yield	Phase 1 2011-2016
<b>Cobh Town</b>	3.53	81 units	32 units	113 units	113

## 2.3 Environment and Heritage

2.3.1 European and National legislation now protect the most valuable of our natural habitats, through designation of sites as proposed Natural Heritage Areas, candidate Special Areas of Conservation and Special Protection Areas. The current list of protected sites is contained in the County Development Plan 2009 and is shown on the Heritage and Scenic Amenity Maps in Volume 3 in that Plan. The following table lists all of the designated natural heritage sites within a 15km radius of Cobh. The potential for policy in this plan to impact on each of these sites was considered through the processes of Strategic Environmental Assessment and Appropriate Assessment.

Code	Description	Natura 2000 Site
SPA 004030	Cork Harbour	Yes
SAC 001058	Great Island Channel	Yes
pNHA 001046	Douglas Estuary	No
pNHA 001058	Great Island Channel	No
pNHA 001054	Glanmire Wood	No
pNHA 001082	Dunkettle Shore	No
pNHA 001979	Monkstown Creek	No

Table 2.4: Designated Sites considered to be within the area of potential influence of Cobh town		
pNHA 001074	Rockfarm Quarry	No
pNHA 001066	Louth Beg	No
PNHA 001064	Leamlara Wood	No
pNHA 001966	Minane Bridge Marsh	No
pNHA 001987	Cuskinny marsh	No
pNHA 001084	Whitegate Bay	No
pNHA 001076	Rostellan Lough	No
pNHA 001408	Carrigacrump Caves	No
pNHA 000371	Fountainstown Swamp	No
pNHA 001042	Carrigshane Hill	No
pNHA 000446	Loughs Addery and Ballybutler	No

2.3.2 To date, sites of geological interest have not been comprehensively covered by the existing nature conservation designations. This is currently being addressed by the Department of Environment, Heritage & Local Government and the Geological Survey of Ireland who are drawing up a list of sites of geological interest that will be proposed as Natural Heritage Areas.

2.3.3 In the meantime, Cork County Council recognises the importance of geological heritage and to this end has listed in the County Development Plan 2009 the important geological features within the County with the intention of maintaining their possible conservation value. The list has been produced in consultation with the Geological Survey of Ireland and the Geology Department of the National University of Ireland, Cork. Cork Harbour is among the areas included.

2.3.4 In terms of built heritage, there are 377 protected structures recorded with the town council area and five designated architectural conservation areas.

## 2.4 Infrastructure

2.4.1 The Town has adequate water supply to cater for the planned level of growth for the town to 2020. Wastewater infrastructure deficiencies pose a significant impediment to the future growth of the town, however. At present effluent from the Cobh Town Council area discharges untreated to Cork Harbour via 12 outfall points around the town, as the town

does not have any waste water treatment facility. The discharge of untreated effluent into Cork Harbour is of significant concern as the Harbour is a Protected Area under the South West River Basin District Plan (SWRBDP) and it contains Natura 2000 sites and a Nutrient Sensitive Area. There are also designated Shell fish Waters at Rostellan North, Rostellan South and Cork Great Island North Channel. The South West River Basin District Plan 2010 identifies Cork Harbour as having 'moderate' water quality status and includes an objective to restore it to 'good' status by 2021. The necessary improvement in water quality required to meet the objectives of the SWRBD Plan is dependent on the delivery of adequate wastewater facilities to meet the needs of existing and planned development.

2.4.2 A Waste Water Discharge Licence was issued by the EPA for the agglomeration of Cobh on 20th July 2010 allowing untreated discharges to Cork Harbour. It is a condition of this license that a specified improvement programme (Cork Lower Harbour Sewerage Scheme) be completed by 1st January 2015 and discharges are discontinued from that date.

2.4.3 The Lower Harbour Scheme will serve a number of towns around the lower harbour including Cobh, Passage West, Monkstown, Carrigaline, Crosshaven and Ringaskiddy. Within Cobh the scheme proposes a new upgraded collection system to convey all effluent to a proposed harbour crossing pumping station at Carrigaloe. Twin rising mains will cross the harbour between Carrigaloe and Glenbrook, ultimately draining to a new water treatment plant to be constructed at Shanbally, Ringaskiddy. The EIS for this scheme was approved by An Bord Pleanála in June 2009. The cost of the entire scheme is estimated at €90 million. The Scheme is currently out to tender for the appointment of consultants to undertake the detailed design and construction of the scheme and it is envisaged that construction will commence in 2014 but it will not be commissioned in time for the 2015 deadline set by the license.

2.4.4 Cobh is only one of many settlements within the lower harbour and throughout the county as a whole, that has inadequate waste water treatment facilities and discharge licences requiring the cessation of discharges / upgrading of treatment facilities, placing an enormous financial burden on the Council, and the state, in terms of funding investment in new facilities and there is no easy or immediate solution available to deal with this issue. As the 2015 deadline approaches it is likely that the Council will apply to the EPA to amend or vary the terms of the discharge licence for Cobh in line with the most up to date timeframe available at that stage for the completion of the Lower Harbour Scheme.

2.4.5 Cork County Council is the sanitary authority for all wastewater infrastructure serving the town but this responsibility is expected to transfer to Irish Water during the lifetime of the Plan. Both the County Council as the sanitary authority, and the Town Council as planning authority, will need to take care to ensure that any additional development permitted in the town does not result in an increase in untreated discharges beyond the threshold established by the licence granted by the EPA. Were development to be permitted within the Town Council area, it may be feasible to release some capacity within the system by directing existing flow from part of the town and pumping it to the North Cobh Sewerage Scheme which currently serves the environs of the town. This would require the laying of new mains and the provision of a pumping station, the cost of which would have to be met by Cork County Council/ Irish Water / Developers.

2.4.6 Pending the delivery of the Lower Harbour scheme, the Town Council may also consider allowing development on the basis of temporary onsite treatment facilities where feasible and otherwise appropriate.

## **Section 3 Flood Risk in the Cobh Town Plan Area**

### **3.1 Flooding Data**

3.1.1 In order to provide information about possible flood risks, Cork County Council, in close association with the OPW, compiled a series of indicative maps showing areas that could be at risk from flooding. To facilitate the preparation of the Cobh Town Plan, the information about flood risks that has been used in the preparation of this plan has been collated from a number of sources including:

- 'Floodmaps.ie' – The national flood hazard mapping website operated by the Office of Public Works, where information about past flood events is recorded and made available to the public. 'Flood point' information available on this site has not been included for technical reasons.
- 'Flood Hazard Mapping' for fluvial and tidal areas commissioned by Cork County Council from JBA Consulting. These indicative flood extent maps provide flood extent information for river catchments where a more detailed CFRAMS study is not currently available.

3.1.2 In line with advice from the OPW, the Town Council has amalgamated the information from these sources into a single 'Indicative Flood Extent Map' for the settlement. The map has been used as the basis for the flood risk assessment of this Plan and is included as part of the mapping package within the Appendices.

### **3.2 Sources of Flooding**

3.2.1 This SFRA has primarily reviewed flood risk from fluvial sources. Flood risks from pluvial and groundwater sources or from drainage systems, reservoirs and canals and other artificial or man-made systems have not been considered in detail in this study and risks must be individually assessed at the project stage.

3.2.2 This approach has been adopted for two main reasons. Firstly, the review of flooding in the Cobh Town Council Area shows coastal flooding to be the most common source of damage and it is this source of flooding that has been taken account of in the Town Plan process. Other sources of flooding are considered to present a lesser risk in the Town Council Area but should be considered at the planning application stage. Secondly, Flood Zones in the 'Planning System and Flood Risk Management' are defined on the basis of fluvial, and where appropriate, tidal flood risk. In addition, the SFRA should be based on readily derivable information, and records and indicators for fluvial flood risk are generally more abundant than for other sources of flooding.

### **3.3 Tidal/Coastal Flooding**

3.3.1 Coastal flooding is caused by higher than normal sea levels largely as a result of storm surges, resulting in the sea overflowing onto the land. Coastal flooding is influenced by three factors which can often work in combination. These include high tide level, storm surges and wave action. Cobh's location adjoining Cork's Lower Harbour renders it vulnerable to this type of flood risk. The topography of the settlement, however, limits the impacts to a small flat area adjoining the coastline.

### 3.4 Fluvial Flooding

3.4.1 Flooding of watercourses is associated with the exceedance of channel capacity during higher flows. The process of flooding on watercourses depends on a number of characteristics associated with the catchment including; geographical location and variation in rainfall, steepness of the channel and surrounding floodplain and infiltration and rate of runoff associated with urban and rural catchments. Generally there are two main types of catchments; large and relatively flat or small and steep, each giving a very different response during large rainfall events.

3.4.2 This type of flood risk is not relevant to the Cobh Town Council area as the area is not drained by any river body.

### 3.5 Other Sources of Flooding

3.5.1 Other sources of flooding including pluvial, ground water, drainage systems and reservoirs are detailed below. Risks from these sources have not been specifically addressed in the Flood Risk Assessment undertaken for the Cobh Town Plan and needs to be assessed at the planning application stage.

- **Pluvial Flooding:** Pluvial flooding is a result of rainfall generated overland flows of water. Flooding of land from surface water runoff is usually caused by intense rainfall that may only last a few hours. The resulting water follows natural valley lines, creating flow paths along roads and through and around developments and ponding in low spots, which often coincide with fluvial floodplains in low lying areas.
- **Groundwater Flooding:** Groundwater flooding is caused by the emergence of water originating from underground, and is particularly common in karstic landscapes. This can emerge from either point or diffuse locations. The occurrence of groundwater flooding is usually very local and unlike flooding from rivers and the sea, does not generally pose a significant risk to life due to the slow rate at which the water level rises.
- **Flooding from Drainage Systems:** Flooding from artificial drainage systems occurs when flow entering a system, such as an urban storm water drainage system, exceeds its discharge capacity, it becomes blocked or it cannot discharge due to a high water level in the receiving watercourse. Sewer flooding problems will often be associated with regularly occurring storm events during which sewers and associated infrastructure can become blocked or fail.
- **Flooding from Reservoirs, Lakes and other Artificial Sources:** Reservoirs can be a major source of flood risk, as demonstrated in the 2009 flooding, when waters released from the Inniscarra dam flooded significant sections of Cork City.

## Section 4 Addressing Flood Risk in the Cobh Town Plan

### 4.1 Introduction

4.1.1 This section details the approach to Flood Risk Management adopted in the Cobh Town Plan.

### 4.2 Flood Risk Management Strategy

4.2.1 In preparing its strategy for the management of flood risks, the Council has had regard to its obligations under the Guidelines in completing the assessment of flood risks and in formulating the strategy which has informed the preparation the Cobh Town Plan.

4.2.2 The location of the town adjoining the Lower Harbour of the River Lee renders it vulnerable to tidal flooding. The extent of the flood risk zone is limited to a small stretch of land adjoining the coastline.

4.2.3 The approach adopted has generally been to:

- Include 'Indicative Flood Extent Maps' to Identify the areas within settlements which are at risk of flooding;
- Avoid development in areas at risk of flooding; and
- Where development in flood risk areas cannot be avoided, to take a sequential approach to flood risk management based on avoidance, reduction and mitigation of risk.

### 4.3 Indicative Flood Extent Maps / Flood Zones A & B

4.3.1 Completion of the county wide flood risk assessment has provided information in relation to the areas at risk of flooding within Cobh and this has been included within the Town Plan in the form of 'Indicative Flood Extent Maps' which provide information on three main areas of flood risk:

- Zone A – High probability of flooding. Most areas of the County that are subject to flood risks fall into this category. Here, most types of development would be considered inappropriate. Development in this zone should be avoided and/or only considered in exceptional circumstances, such as in major urban or town centres, or in the case of essential infrastructure that cannot be located elsewhere. A Justification Test set out in Ministerial Guidelines applies to proposals in this zone. Only water-compatible development, such as docks and marinas, dockside activities that require a waterside location, amenity open space, outdoor sports and recreation, would be considered appropriate in this zone.
- Zone B - Moderate probability of flooding. In most parts of the County this designation applies only to limited areas of land. In only a few locations do significant sites fall into this category. Here, highly vulnerable development, such as hospitals, residential care homes, Garda, fire and ambulance stations, dwelling houses and primary strategic transport and utilities infrastructure, would generally be considered inappropriate. Less vulnerable development, such as retail, commercial and industrial uses, sites used for short-let for caravans and camping and secondary strategic transport and utilities infrastructure, and water-compatible development might be considered appropriate in this zone.

- Elsewhere (referred to in the Guidelines as Zone C) – Localised flooding from sources other than rivers and the coast can still occur and may need to be taken into account at the planning application stage.

4.3.2 The inclusion of Indicative Flood Extent maps for the settlement is the first step in managing flood risk in the future. The maps are indicative in nature and are intended to primarily function as a screening tool. The areas at risk may be more or less extensive in practice than indicated in the flood mapping. The mapping will be refined where possible over time as more detailed flood risk assessments are completed by the OPW. The maps do not take into account flood defences or manmade structures such as bridges, weirs or culverts. This is in accordance with the requirements of the Guidelines which specify an undefended assessment of risk.

4.3.3 Flood risk has been appraised based on the Flood Zones which cross the settlement boundary, and is summarised in Table 4.1. Where zoned lands within the settlement is within either Flood Zone A or B, the need for a further review of flood risk, and the specific zoning objectives, is required.

<b>Settlement</b>	<b>Tidal Flood Risk within Development Boundary</b>	<b>Comment</b>
Cobh	Yes	All development proposals within the Indicative Flood Risk Areas must satisfy the 'Development Plan' justification test for projects in Flood Zone A/B either as part of the preparation of this Town Plan (see table 4.2) or at the planning application stage. Where the 'Development Plan' justification test is satisfied, site specific Flood Risk Assessment is necessary.

#### **4.4 The Approach to Zoning in the Town Plan in Areas at Risk of Flooding**

4.4.1 Within the areas identified as being at risk (Zone A or B), all proposals for development will need to comply with the Ministerial Guidelines – 'The Planning System and Flood Risk Management. In this Plan, proposals for development within the Indicative Flood Risk Areas have been included in the plan where either:

- The proposal has satisfied the 'Development Plan Justification Test' set out in the Ministerial Guidelines, or;
- The proposal stemmed from a similar proposal in a previous plan and has been included in this plan in order to facilitate the local verification of the Indicative Flood Risk Maps at the project planning/planning application stage.

4.4.2 Generally, the purpose of zoning is to indicate to property owners and members of the public the types of development which the Planning Authority considers most appropriate in each land use category. Zoning is designed to reduce conflicting uses within areas, to protect resources and, in association with phasing,

to ensure that land suitable for development is used to the best advantage of the community as a whole.

4.4.3 In the preparation of the Cobh Town Plan, proposed zonings were generally assessed relative to the provisions of the Guidelines and the Justification Test for Development Plans as detailed in the Guidelines. The Justification Test is required in situations where the planning authority needs to consider future development in areas at a high or moderate risk of flooding, for uses or development vulnerable to flooding that would otherwise be inappropriate. In such circumstances, all of the following criteria must be satisfied :

- the urban settlement is targeted for growth in the NSS, RPGs, or statutory plans defined under the provisions of the Planning and Development Act, 2000, as amended.
- the zoning is required to achieve the proper planning and sustainable development of an urban settlement and is
  - 1) Essential to facilitate the regeneration and/or expansion of the centre of the urban settlement;
  - 2) Comprises significant previously developed and/or under-utilised lands;
  - 3) Is within or adjoining the core of an established or designated urban settlement;
  - 4) Will be essential to achieving compact and sustainable urban growth; and
  - 5) There are no suitable alternative lands for the particular use in areas at lower risk of flooding within or adjoining the core of the urban settlement
- A flood assessment to the appropriate level of detail has been carried out as part of the SEA, which demonstrates that flood risk to the development can be adequately managed and the development will not cause adverse impacts elsewhere.

4.4.4 In the preparation of the Cobh Town Plan the final element of the justification test, which requires a site specific flood risk assessment to be carried out, was not undertaken. Instead, precautionary text has been included in the specific objectives relevant to areas risk and this recognises the need for a Site Specific Flood Risk Assessment at the project stage.

4.4.5 Development proposals on zoned lands within areas at risk of flooding will also be subject to the Development Management Justification Test, details of which are set out in the Guidelines.

4.4.6 The table below lists the specific zoned sites within the Cobh Town Council Area that are located within either Flood Zone A or B and the circumstances of their inclusion.

Table 4.2: Specific land Use Zonings located within Flood Zone A or B				
Settlement	Zoning Objective	Development Plan Justification Test and Other Assessment Criteria	Reason for inclusion in the Town Plan.	Comment
Cobh	I-01	Justification Test	☐	Precautionary text has been included in the specific objective recognising the need for a Site Specific Flood Risk Assessment at the project stage.
		Historical Zonings	-	-
		Other	-	-
Cobh	U-02	Justification Test	X	The nature of the proposed use is flood compatible and so the Justification Test does not apply. An appropriate flood risk assessment will be necessary at the project planning/ planning application stage and this is included as part of the zoning objective text.
		Historical Zonings	-	-
		Other	-	-

#### 4.5 Requirements for Site Specific Flood Risk Assessments

4.5.1 Within Indicative Flood Risk Areas, only development proposals that are consistent with a specific zoning objective that satisfied the 'Development Plan Justification Test' as part of this Plan (see table 4.2) may proceed to site specific flood risk assessment at the planning application stage.

4.5.2 In order to reflect the possibility that the 'Indicative Flood Extent Maps' may inevitably include some localised uncertainties, the site-specific flood risk assessment process is divided into two stages. The initial stage in the process has been provided in order to allow the Indicative Flood Risk Map to be locally verified in cases of uncertainty. This stage is intended to be carried out relatively quickly and at modest expense.

4.5.3 The first stage in the assessment process will include:

- An examination of all sources of flooding that may affect a particular location, in addition to the fluvial and tidal risk represented in the indicative flood risk maps.
- A review of all available flood related information, including the flood zone maps and historical flood records (from [www.floodmaps.ie](http://www.floodmaps.ie), and through wider internet / newspaper / library search/ local knowledge of flooding in the area).
- An appraisal of the relevance and likely accuracy / adequacy of the existing information. For example, if the outline is from CFRAM or other detailed study they can be relied on to a greater extent than if they are from other sources.
- Site cross sections or spot levels, including the river and surrounding lands.
- Description of the site and surrounding area, including ground conditions, levels and land use.
- Commentary on any localised uncertainty in the existing flood mapping and other sources of flood risk information and the site area.
- Proposal as to the appropriate course of action which could be either:
  - further study;
  - revision of proposals to avoid area shown at risk of flooding; or
  - continue with development as proposed (if the site is clearly demonstrated to be outside flood zones A or B and has been shown to be not at flood risk).

4.5.4 It is recommended that intending applicants for planning permission should carry out this first stage of the site-specific flood risk assessment process well in advance of the submission of their application for planning permission and that its recommendations should be brought to the attention of Council staff as part of a pre-planning meeting.

4.5.5 Where the first stage of the site-specific flood risk assessment indicates further study is required then, if the 'Development Plan Justification Test' was satisfied as part of the making of this Town Plan (see table 4.2) the normal course of action will be to carry out a detailed site specific flood risk assessment in line with Chapter 5 of the Ministerial Guidelines before an application for planning permission can be considered. If the 'Development Plan Justification Test' was not satisfied as part of this Town Plan, then it will normally be considered inappropriate to take the proposal to a further stage of assessment unless the Town Council has indicated in writing that the proposal is considered to satisfy that test.

4.5.6 Where the Town Council have indicated in writing that they are in agreement with any proposals for avoidance or that the initial study shows satisfactorily that the site is not at risk of flooding then, subject to other proper planning considerations, an application for planning permission may be favourably considered.

4.5.7 Where it can be satisfactorily shown in the detailed site-specific flood risk assessment that the proposed development, and its infrastructure, will avoid significant risks of flooding in line with the principles set out in the Ministerial Guidelines, then, subject to other relevant proper planning considerations, permission may be granted for the development.

4.5.8 However, where the site does **not** benefit from a specific zoning objective and there are significant residual flood risks to the proposed development or its occupiers, conflicting with the approach recommended in the Ministerial Guidelines, it is unlikely that permission will be granted unless all of the following are satisfied:

- The proposal is within an urban settlement, targeted for growth under the National Spatial Strategy, regional planning guidelines, and statutory plans (including this town plan).
- The development of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and, in particular:
  - Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;
  - Comprises significant previously developed and/or under-utilised lands;
  - Is within or adjoining the core of an established or designated urban settlement;
  - Will be essential in achieving compact and sustainable urban growth; and
  - There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.

## Section 5 Managing Flood Risk in the Future

### 5.1 What has the Cobh Town Development Plan Achieved?

5.1.1 The inclusion of indicative Flood Extent maps for the settlement is the first step in managing flood risk in the future. The maps are primarily intended to function as a screening tool. They are not a substitute for detailed hydraulic modelling, such as may be required to assess the level of flood risk for a specific development. The flood maps should be used to guide decision making when determining whether a detailed Flood Risk Assessment is required for any given site. The maps are intended for guidance, and cannot provide details for individual properties.

### 5.2 Flood Risk and Development Management

5.2.1 The following key requirements for the management of development in areas at risk of flooding shall be adhered to:

- a) All development proposals within, or incorporating, areas at risk of flooding are required to undertake a flood risk assessment. This can be carried out in two stages as outlined in section 4.5 of this document.
- b) Where the first stage of the site-specific flood risk assessment indicates further study is required then the normal course of action will be to proceed to a Stage Two Strategic Flood Risk Assessment. The findings of this assessment will need to demonstrate that the proposed development satisfies all the provisions of the Development Management Justification Test, as detailed in the Guidelines.
- c) Thereafter, where development has to take place in areas at risk of flooding, the risks should be mitigated and managed through the location, layout and design of the development to reduce such risks to an acceptable level.
- d) Minor proposals for development, for example small extensions to existing houses or changes of use, in areas at moderate to high risk of flooding should be assessed in accordance with Planning Guidelines: The Planning System and Flood Risk Management.
- e) Where flood risk constitutes a significant environmental effect of a development proposal, a sub-threshold EIS may be triggered. Screening for EIA should be an integral part of all planning applications in areas at risk of flooding.
- f) Any proposal in an area at risk of flooding that is considered acceptable in principle must demonstrate that appropriate mitigation measures can be put in place and that residual risks can be managed to acceptable levels. Addressing flood risk in the design of new development should consider the following:
  - Locating development away from areas at risk of flooding, where possible.
  - Substituting more vulnerable land uses with less vulnerable ones.
  - Identifying and protecting land required for current and future flood risk management, such as conveyance routes, flood storage areas and flood protection schemes etc.
  - Addressing the need for effective emergency response planning for flood events in areas of new development.

- g) Site layout, landscape planning and drainage of new development must be closely integrated to play an effective role in flood-reduction. As such, proposals should clearly indicate:
- The use of Sustainable Drainage Systems (SuDS) to manage surface water run-off.
  - Water conveyancing routes free of barriers such as walls or buildings.
  - The signing of floodplain areas to indicate the shared use of the land and to identify safe access routes.
- h) To ensure that adequate measures are put in place to deal with residual risks, proposals should demonstrate the use of flood-resistant construction measures that are aimed at preventing water from entering a building and that mitigate the damage floodwater causes to buildings. Alternatively, designs for flood resilient construction may be adopted where it can be demonstrated that entry of floodwater into buildings is preferable to limit damage caused by floodwater and allow relatively quick recovery. Such measures include the design and specification of internal building services and finishes. Further detail on flood resilience and flood resistance are included in the Technical Appendices of the Planning Guidelines, The Planning System and Flood Risk Management.

### 5.3 Monitoring and Review

5.3.1 Information in relation to flood risk will be monitored and reviewed by the Town Council and the Flood Risk Assessment will be updated as appropriate as new information becomes available. There are a number of key outputs from possible future studies and datasets which could inform any update of the FRA as availability allows. A list of potential sources of information which will inform an FRA review is provided in the table below.

Potential Sources of Information on Flood Risk		
Data	Source	Timeframe
Preliminary flood risk maps - including pluvial and groundwater	OPW under the Floods Directive	2013
CFRAM Studies (a) Preliminary Flood Risk Assessment (b) production of the flood maps (c) production of Flood Risk Management Plans	OPW	(a) end of 2011.  (b) 2013.  (c) 2015
Flood maps of other sources, such as canal breach and drainage networks	Various	Unknown
Significant flood events	Various	Unknown
Changes to Planning and / or Flood Management Policy	DoEHLG / OPW / Cobh Town Council	Unknown
SFRAs for Town Plans	Cobh Town Council	Upon Plan review
Detailed FRAs	Various	Unknown
Flood Defence Feasibility / Design Reports	OPW primarily	Unknown

