



**Fingal East Meath Flood Risk Assessment & Management  
Study**

**(FEM FRAMS)**

**Strategic Environmental Assessment – Environmental Report**

**Non-technical Summary**

**July 2014**



## Contents amendment record

Revision	Description	Date	Signed
0	Draft for client review	24 June 2011	SD
1	Revised to address client comments	13 Sept 2011	SD
2	Minor updates	27 Oct 2011	MCD
3	Final version of Draft Final Report incorporating EPA comments	July 2014	CG

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Halcrow Barry  
Tramway House, 32 Dartry Road, Dublin 6, Ireland  
Tel +353 1 4975716, Fax +353 1 4975716  
[www.halcrow.com](http://www.halcrow.com)  
[www.jbbarry.ie](http://www.jbbarry.ie)

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## Non-Technical Summary

### Introduction

This Non-Technical Summary (NTS) summarises the Strategic Environmental Assessment (SEA) of the draft Fingal East Meath Flood Risk Management Plan (the draft Plan). The draft Plan has been prepared by Fingal County Council (FCC) and their partners, Meath County Council and the Office of Public Works (OPW), and sets out a programme of prioritised studies, actions and works (including both structural and non-structural measures) to manage predicted flood risk in the Fingal East Meath study area (see Figures 1 and 2) in the short to long-term.

The SEA Environmental Report (ER) identifies, evaluates and describes the likely significant effects, both positive and negative, of implementing the draft Plan on the environment of the Fingal East Meath study area. It then recommends actions to mitigate and monitor any identified significant adverse effects and ensure that these are communicated and addressed during the implementation of the Plan. The ER and this NTS have been prepared to meet the requirements of the *European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 to 2011*.

The ER also specifically identifies the impacts of the draft Plan on sites of European nature conservation importance within the study area through a Habitats Directive “Appropriate Assessment” process, as required under European and Irish law, and makes appropriate mitigation requirements.

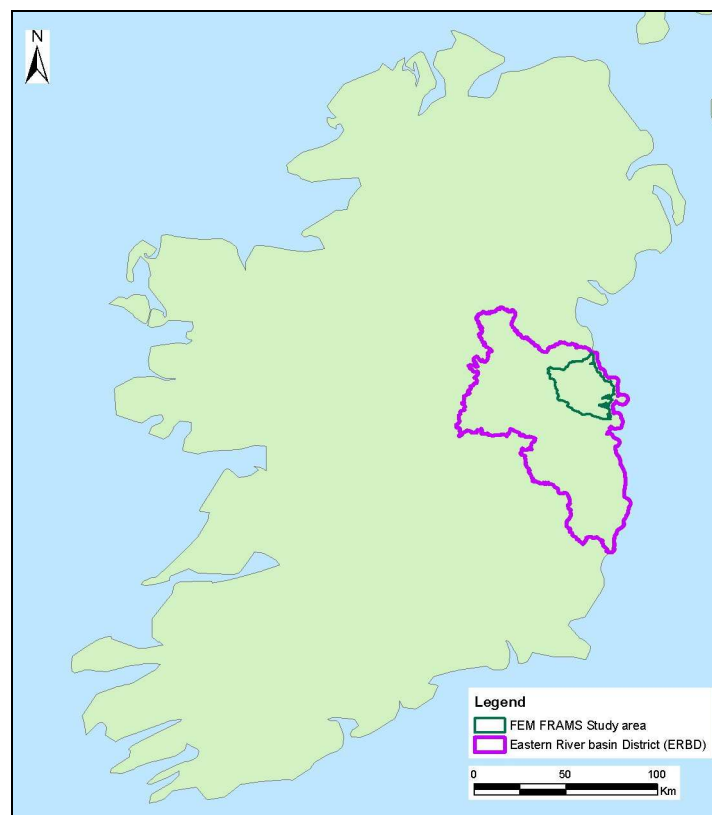


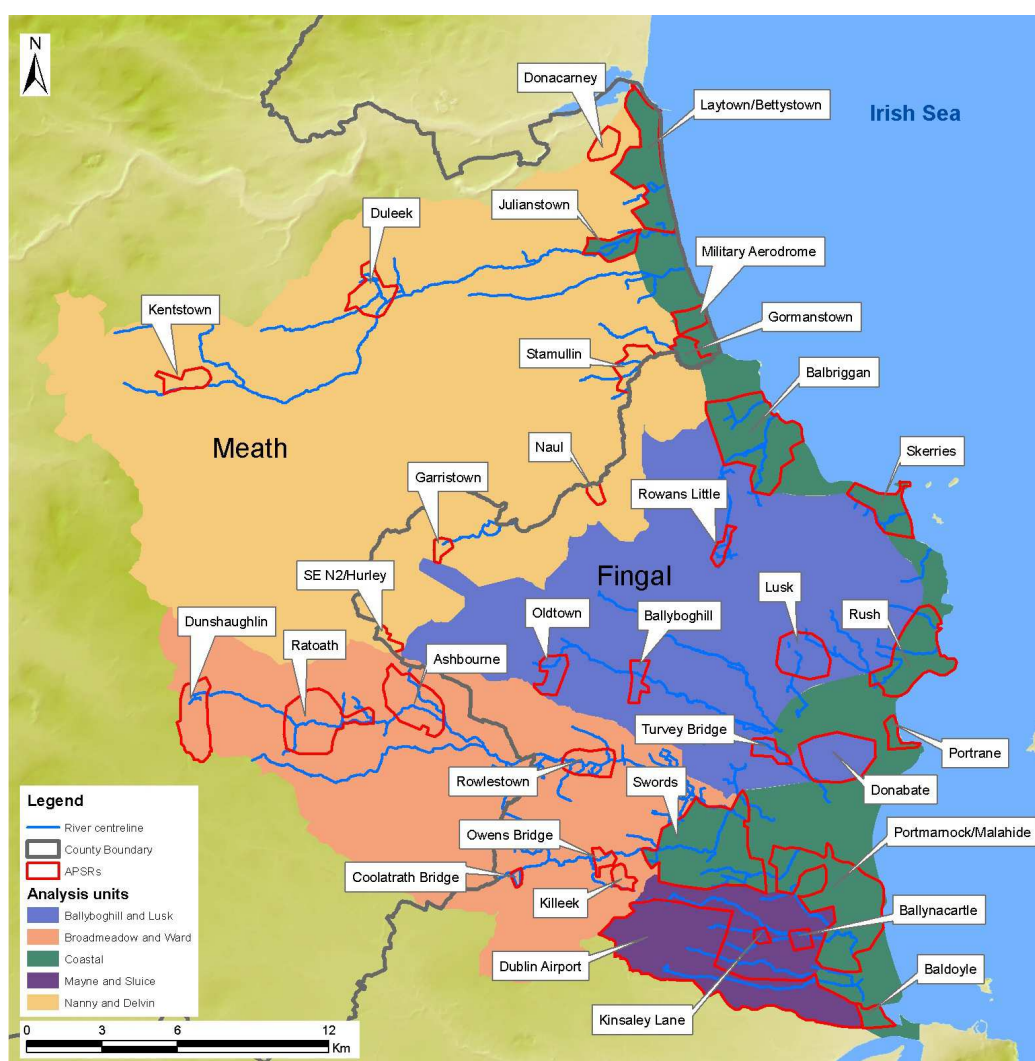
Figure 1 –The location of the FEM study area within the Eastern River Basin District

## The Fingal East Meath Flood Risk Management Plan

The draft Plan covers a 772km<sup>2</sup> area in Fingal and East Meath as shown on Figure 1, and includes 23 rivers and streams, three estuaries and the Fingal and Meath coastline. The study area is bounded by the River Boyne and Mornington River catchment areas to the north and west, the Tolka and Santry river catchments to the south, and by the Irish Sea to the east. Within this study area, a number of urban areas were identified for specific consideration within the study as it was considered that there were at risk from flooding and/or subject to significant development pressure, as shown on Figure 2.

The overall objective of the draft Plan is to implement, at a local level, the following national Government policy objective relating to flood risk management:

*Seek to minimise the level of exposure to flood damages through the identification and management of existing, and particularly potential future, flood risks in an integrated, proactive and river basin based manner.*



*Figure 2 – The extent of the FEM study area, identifying the rivers and urban areas considered*

The draft Plan has been prepared through a comprehensive pilot study that commenced in summer 2008 – the Fingal East Meath Flood Risk Assessment and Management Study. This study has involved extensive data analysis, surveys and computer modelling to produce flood

maps for the entire study area and assess risks to people, property and the environment. Where flood risks were identified as significant, the study has identified a range of potential flood risk management options to manage these risks. A detailed multi-criteria option assessment process was undertaken to select those options which best met the study's specific objectives in terms of technical, economic, social and environmental acceptability.

The FEM FRMP recommends viable structural and non-structural options for managing the flood risks within the study area as a whole and for localised high-risk areas (as detailed in Table 1). The components of the draft Plan include:

- Two options – (1) proactive maintenance and (2) targeted public awareness campaign and individual property flood protection – are proposed for the study area as a whole. Both options are recommended equally and can be implemented independently of each other;
- Fluvial flood forecasting and warning systems (FFWS) are recommended for some of the rivers (Nanny, Broadmeadow and Mayne Rivers), as the other rivers have too short a time to peak and therefore FFWS would be ineffective. Tidal flood forecasting and warning system are proposed for the coastal areas and this should be integrated with the fluvial FFWS and the existing FCC/MCC telemetry systems; and
- At an APSR level the proposals are generally for the construction of flood embankments/walls, improvements in channel conveyance through river widening and/or culvert replacement, installation of demountable defences, and replacement/rehabilitation of flap valves. Details of the proposed option at each location are provided in Table 1.

In addition, the draft Plan recommends measures to reduce flood risk to the critical infrastructure shown on Figure 3, for example, water treatment plants and national roads, (referred to as '*Individual Risk Receptors*' within the study). The proposals are generally for the construction of localised flood defences.

An indicative programme for implementation of the draft Plan is also set out, with timescales suggested according loosely with EU Floods Directive cycles, namely:

- High priority = first phase: Plan implementation to 2015
- Medium priority = second phase: 2016 to 2021; and
- Low priority = third phase: 2022 onwards.

The SEA considers the effects of implementing all elements in parallel to ensure the worst case situation is assessed. In addition to these specific actions, the draft Plan also recommends other supporting/underpinning components of the overall flood risk management strategy:

- Improvement of the hydro-meteorological data collection network;
- Use of the flood maps to inform appropriate development planning in accordance with the 2009 Guidelines for Local Authorities on "*The Planning System and Flood Risk Management*" prepared by the Department for Environment, Heritage and Local Government and the OPW;
- Monitoring of land use management to prevent inappropriate development (such as in a flood plain) with specific attention to planned development extending the urban boundaries to prevent loss of floodplain storage and conveyance;

- Development of a defence asset monitoring and maintenance programme based on the information contained in the defence asset database (prepared as an output of the study); and
- Strengthening of the technical flood risk management capacity and technical capability within FCC and MCC to support the development of local flood relief works, as well as the effective implementation of the guidelines on *The Planning System and Flood Risk Management*.

Table 1 – Proposed flood risk management proposals for specific urban areas

Location	Preferred Options
Duleek area	<b>Raising existing defence embankment</b> to a higher standard of protection (to protect up to 0.1% annual exceedance probability (AEP)) (included in the FRMP as a potential medium to low priority element)
Ratoath area	<b>Improving channel conveyance</b> by replacing a bridge on the Broadmeadow River at the R125 Ratoath Road, and replacing a culvert along a tributary of the Broadmeadow River with a larger capacity culvert
Rowlestown East area	<b>Construction of flood defence embankments</b> along left bank of Broadmeadow River tributaries upstream of R125
St.Margaret's, Dublin Airport, Belcamp & Balgriffin areas	<b>Balgriffin: Improving channel conveyance</b> by removing old bridge structure combined with <b>construction of flood defence embankments and walls</b> upstream of R123 and along left bank of Mayne River
Portmarnock & Malahide areas	<b>Portmarnock: Rehabilitating and raising existing coastal defences</b> at Strand Road (including rehabilitation of flapped outfall) and <b>construction of flood defence embankment</b>
	<b>Construction of demountable flood defences</b> at underpass, along with flood walls/demountable walls and localised raising of existing defences to the north-east of Malahide, to protect at risk properties in Malahide town centre
Laytown, Bettystown & Coastal area	Construction of <b>flood defence embankments</b> to protect properties at risk along the coast and from the <b>Nanny River</b>
Swords area	<b>Improve channel conveyance</b> by widening and deepening of the Gaybrook Stream to reduce fluvial flood risk to properties at <b>Aspen near Kinsaley</b>
Rush area	<b>Improve conveyance</b> by constructing secondary <b>culvert along Channel Road</b> to protect properties at risk from fluvial flooding along the West Rush stream
Skerries area	<b>Improve channel conveyance</b> by replacing culverts under roads and railway with larger capacity culverts, and widening channel through park to reduce fluvial flood risk to properties at <b>Miller Lane and Sherlock Park</b>

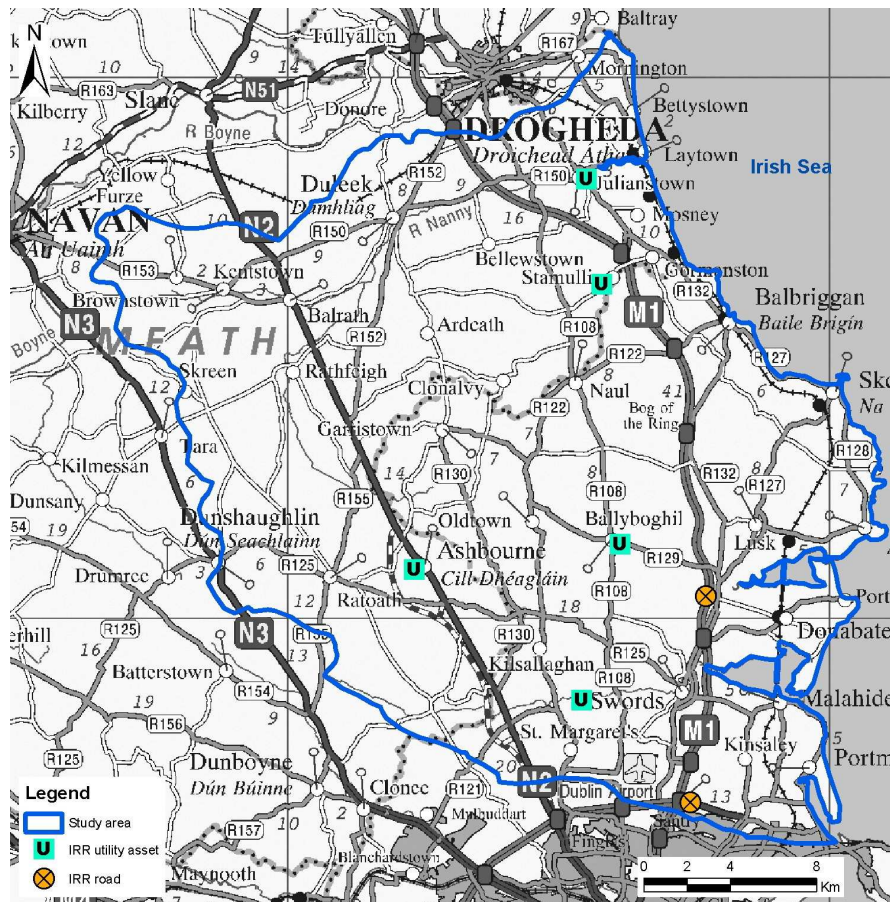


Figure 3 – Individual risk receptors in the study area

### Stakeholder involvement

The involvement of external parties has been essential to the development of the draft Plan and associated SEA. Throughout the development of the draft Plan, it was important to both meet statutory requirements for consultation with relevant parties; and to ensure that the knowledge, experience and views of stakeholders and the general public were taken into account. This was achieved through formal consultation activities including four stakeholder workshops, a series of Public Information Days at various locations around the study area in November 2010, the publication of reports for public comment, various meetings and presentations, and the issue of a quarterly newsletter. In addition, information relating to the study was made available to stakeholders and the general public throughout the development of the draft Plan, through a project website [www.fingaleastmeathframs.ie](http://www.fingaleastmeathframs.ie) and a dedicated e-mail address [femframs@fingalcoco.ie](mailto:femframs@fingalcoco.ie) enabling direct communication with the project team.

### Environmental considerations





*Broadmeadow estuary*



*Swords Castle adjacent to the Ward River*

The study area is an area of significant biodiversity, cultural, social, archaeological and landscape value; and its watercourses, estuaries and harbour provide a range of services, including fisheries, habitat for flora and fauna, industry and amenity. The sensitivity and value of relevant natural and historic environmental features have been considered during the development of the draft Plan through the SEA process.

Flooding is a natural process within the study area and can have both positive and negative effects. Many environmental features require the maintenance of specific environmental conditions, including the management of flows, water levels and channel conditions, and many of these requirements are set out in national and international law. Through the SEA process, the environmental features located within both fluvial and tidal flood extents mapped for the study area have been identified and their sensitivity to

changes in the existing flooding regime considered. This has enabled those features that could be positively or negatively affected by both predicted future changes in the flooding regime and/or the implementation of flood risk management options recommended in the draft Plan to be identified and assessed.

The environmental features considered relevant to the SEA of the draft Plan include:

- The population and communities of the study area; including the risks to human health and life, damage to residential and commercial properties, including community facilities (e.g. hospitals, health centres); and critical infrastructure such as roads, rail, and water supply/treatment. The study has mapped flood risk within population centres and the identified the properties (residential, commercial) and infrastructure at risk.
- The water environment itself, including:
  - The quality and quantity of water essential for human use, provide habitat for flora and fauna (including fisheries and shellfisheries); and the risk of pollution from potential sources such as waste water treatment plants and landfills. Specific actions have been identified within the South River Basin District River Basin Management Plan (RBMP) (2009-2015) prepared under

the EU Water Framework Directive (WFD) to improve water quality within the catchment.

- The physical condition of the river channels and estuaries including their morphology and physical processes, which are essential to provide suitable habitat for flora and fauna and maintain water quality. The assessments undertaken for the study area under the EU WFD have identified that generally there are no significant morphological modifications within the study area, apart from one modified estuary (the Broadmeadow estuary).
- The natural environment, including species of flora and fauna and their supporting habitats within the water bodies and land within the mapped flood extents of the study area, that are reliant on the maintenance of specific environmental conditions.
  - Some aquatic and wetland habitats within the study area, and associated species, rely on periodic flooding. Other terrestrial habitats and associated species are highly sensitive to flooding which can cause adverse changes in species composition as a result of changes to drainage conditions, increased nutrient availability, reduced oxygen in the soil, erosion and increased mobility of toxic metals. Species within the study area also receive legal protection such as freshwater pearl mussels and otters.
  - The study area contains 14 designated sites of international nature conservation importance (comprising Special Protection Areas (SPA) designated for their important bird populations and candidate Special Areas of Conservation (cSAC) designated for their habitats and other species of flora and fauna) as shown on Figure 4. These are located along the coastline and estuaries of the study area and support internationally important communities of water birds and marine, coastal and intertidal habitats and species. The study area also contains 17 designated sites of national nature conservation importance (proposed Natural Heritage Areas), and a wider biodiversity of species of flora and fauna, many of which are relevant to the study.
- The built environment, including sites and structures protected for their cultural heritage value for which flooding has the potential to cause physical damage such as the erosion of and damage to archaeological earthworks, buried sites and standing buildings/structures as a result of repeated floodwater inundation. Flooding can also cause damage to the integrity of protected structures, their construction materials, interior and exterior decoration and significant interior features. The study area contains historic weirs, fords, fortifications, mills, ritual sites, bridges, medieval churches and castles, of which more than 57 sites and structures and parts of eight built Architectural Conservation Areas are located within the mapped flood extents.
- The use and value of the water environment and the surrounding land for recreation and tourism, including riverside access for angling, water-based sports and land-based amenities (e.g. sports fields) located within the mapped flood extents.
- The surrounding land use and landscape of the study area; which includes areas of high quality agricultural land and landscapes and views designated for their scenic value within the mapped flood extents. The landscape of the study area is diverse and includes coastal lowlands in the east, urban development to the south that radiates outwards from the Dublin Metropolitan area with a mixture of smaller rural

settlements, farmland, river corridors and forested hills; and high quality landscapes along the estuaries and coastline.

These environmental characteristics of the study area, including consideration of the relative importance of these features, any existing problems relevant to flood risk management and the predicted future changes if the draft Plan was not implemented, have been taken into account throughout the development of the draft Plan through the SEA process. Further details are provided in the SEA Environmental Report.

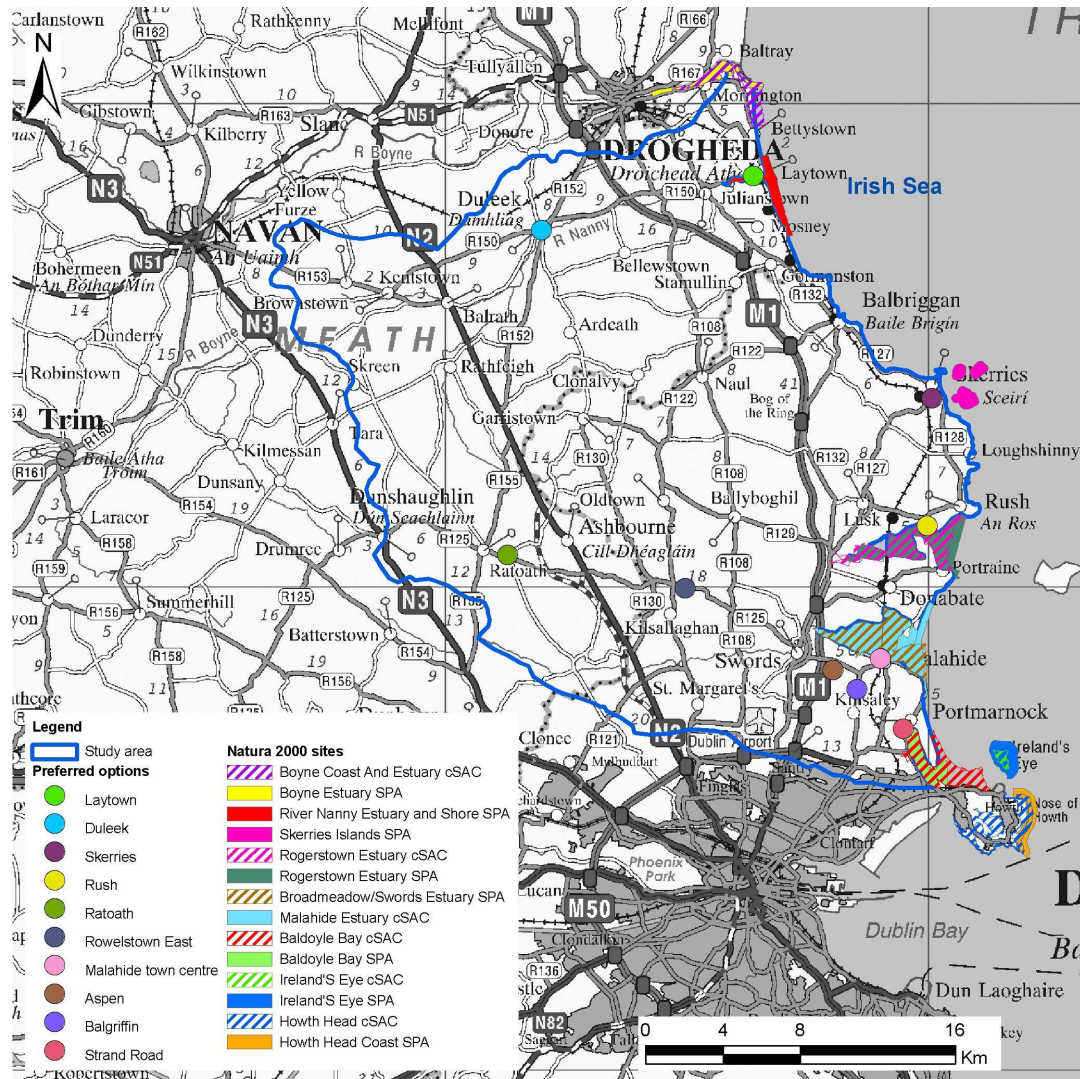


Figure 4 – European-designated nature conservation sites within the study area

### The SEA Objectives

Based on the above environmental considerations, the SEA identified, in consultation with statutory bodies and other stakeholders, the key environmental issues, constraints and opportunities within the Fingal East Meath study area relating to flood risk management. These were set out in a Scoping Report consulted on in June 2009 (available to download on [www.fingaleastmeathframs.ie](http://www.fingaleastmeathframs.ie)) and subsequently used to inform the development of flood risk

management options and define a set of SEA objectives (see Table 2) that were used as part of the multi-criteria option assessment process.

**Table 2: The SEA Objectives used to assess the draft Plan**

- Minimise risk to transport infrastructure
- Minimise risk to utilities infrastructure
- Manage risk to agricultural land
- Minimise risk to human health and life
- Minimise risk to community
- Minimise risk to, or enhance, social amenity
- Support the objectives of the EU Water Framework Directive
- Minimise risk of environmental pollution
- Avoid damage to, and where possible enhance, the flora and fauna of the study area
- Avoid damage to, and where possible enhance, fisheries within the study area
- Protect, and where possible enhance, landscape character and visual amenity within the study area
- Avoid damage to or loss of features of cultural heritage importance, their setting and heritage value within the study area

The SEA process has been fully integrated (as shown on Figure 5) with the development of the draft Plan to ensure that environmental considerations are incorporated within the decision-making process and the recommendations of the draft Plan are sustainable.

During the assessment stages of the SEA, the draft Plan has also been assessed to identify the impacts on the 14 *Natura 2000* sites of European nature conservation importance within the study area and fulfil the requirements of the EU Habitats Directive and Irish law.

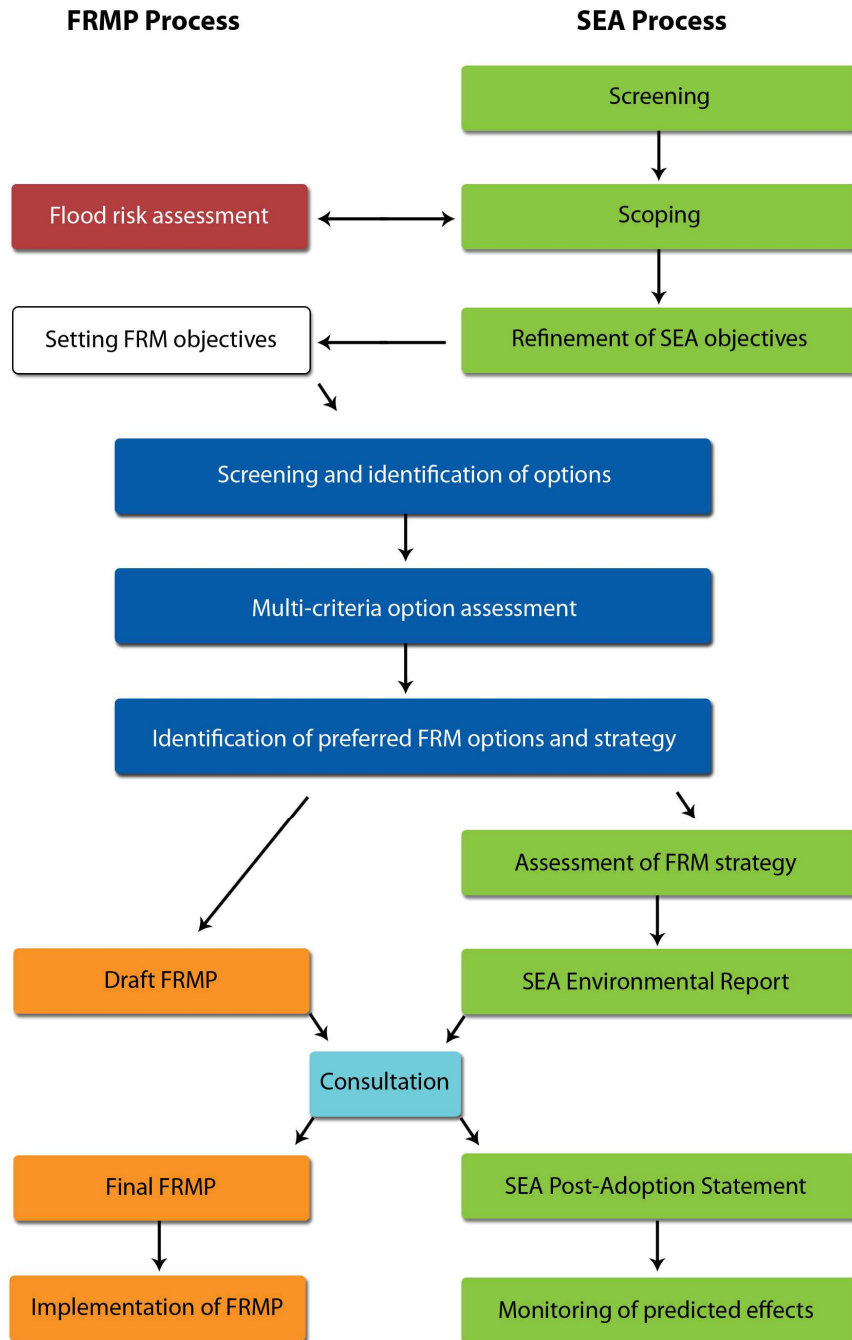


Figure 5 – Integration of the FRMP development and the SEA processes.

### The multi-criteria option assessment process

The development of the draft Plan has included the consideration of a range of flood risk management measures and options at different spatial scales within the study area. These potential measures and options provide alternatives to the preferred options recommended within the draft Plan. Through this process, the types of alternative measures and options considered included different:

- Geographic scales (four spatial scales: the study area, five catchments/sub-catchments, 35 urban areas and individual risk receptors (i.e. critical infrastructure)); and
- Types of flood risk management measures (21 considered for each geographic scale and location).

The selection of the preferred options was based on the performance of options during the multi-criteria assessment process, where a set of 16 flood risk management objectives (including the 12 SEA objectives listed in Table 2) were used to test the technical, economic, social and environmental acceptability of potential options at various spatial scales.

For each objective used, a framework of indicators and targets (including both a minimum requirement and an aspirational target) were established. Using this framework, all proposed options were assessed against each of the 16 objectives to determine how the existing conditions (i.e. the baseline) for each indicator (e.g. numbers and types of properties/cultural heritage features/etc. within the flood plain) would change as a result of each proposed flood risk management option being considered. The accuracy of this assessment process was limited by both the availability and quality of baseline data for each indicator used and any uncertainties associated with the predicted flood mapping prepared as part of the study.

Those options with the highest 'score' from this process were taken forward for potential inclusion within the draft Plan. The preferred options selected following the multi-criteria option assessment process were generally those that scored best in terms of the 12 SEA objectives (i.e. were the most environmentally acceptable); and were those for which likely impacts of the preferred flood risk management options could potentially be avoided or minimised.

### **The predicted environmental effects of the draft Plan**

The focus of the detailed option assessment process and the SEA was on the recommended flood risk management proposals within the draft Plan for the study area as a whole and within localised high-risk areas.

The integration of the SEA process within the development of the draft Plan has ensured that, where possible, these proposed flood risk management options meet the requirements of the SEA objectives set out in Table 2. Where possible, options that could give rise to significant negative environmental effects (i.e. failed to meet the minimum targets set out for each of the SEA objectives) were not favoured during the option selection process.

This assessment has concluded that, prior to the consideration of mitigation measures:

- In locations where structural flood risk management options (i.e. comprising the construction of new and/or improved flood defences) are proposed, the proposals are predicted to give rise to significant permanent positive effects as a result of the reduction in flood risk to people, property and infrastructure (see Table 3).
- Conversely, the proposed construction and operation of structural flood risk management options in potentially sensitive riverine or estuarine/coastal environments, could give rise to both temporary and permanent potentially significant negative effects on environmental features that might be present. The SEA has identified the potential for significant negative (i.e. major or moderate) effects in the following locations (*affected feature in brackets*): Duleek (*landscape*); Rowlestown

East (*landscape*); Balgriffin (*flora and fauna*); Strand Road, Portmarnock (*flora and fauna, landscape*); and Laytown (*flora and fauna, landscape*); prior to the consideration of the effectiveness of potential mitigation measures. The effects of the proposed structural flood risk management options for the other locations were considered to be minor or neutral and are described in detail in the SEA Environmental Report.

- The non-structural measures, including flood forecasting and warning systems, targeted public awareness campaigns and individual property protection, proposed for the study area as a whole and the Nanny, Broadmeadow and Mayne river catchments, are all predicted to have a neutral effect. This is because these non-structural measures do not include the construction of new flood defence structures and so do not have any direct environmental impacts (whether positive or negative). In addition, although these measures reduce flood risk to people, property and infrastructure, these positive effects are less significant than those provided by structural measures, although they can be provided across a wider geographic area. The proactive maintenance proposed for the study area

Mitigation measures are recommended where the proposed flood risk management options are predicted to have negative effects and are detailed in the SEA Environmental Report. The principal recommendation is that the predicted negative effects should be considered further during the next stage of option development, when details of each option (e.g. visual appearance, alignment of flood defences) can be optimised through detailed feasibility studies and design in order to limit identified impacts on sensitive receptors.

Where it is anticipated that mitigation is likely to be effective, and in particular where effects are temporary, this can result in a reduction in the significance of the identified negative environmental effects. This is anticipated to be effective for effects on landscape and visual amenity at the following locations: Duleek, Rowlestown East, Strand Road, Portmarnock and Laytown as it is anticipated that effective and appropriate design, can incorporate the structures within the existing landscape settings. The proposed mitigation measures identified for effects on flora and fauna is anticipated to be effective at the following locations: Balgriffin; Strand Road, Portmarnock; and Laytown; and include the appropriate timing of works, protection and avoidance of intertidal habitats, reduction of noise and visual disturbance and creation of replacement habitat where necessary.

Table 3 summarises the significant (i.e. major or moderate) environmental effects, assuming that proposed mitigation is taken into account, identified for the proposed flood risk management schemes that form the basis of the draft Plan. There are no significant negative effects identified, although Table 3 highlights the permanent negative effects considered to be potentially significant, prior to the consideration of potential mitigation measures, for which it is assumed that mitigation could reduce their significance to minor.

None of the remaining components of the flood risk management strategy (i.e. proposals at a study area and AU scales) are predicted to give rise to significant negative or positive effects, although a number of minor negative and positive effects are also identified. These conclusions are consistent with those of the Appropriate Assessment process.

*Table 3 – Summary of the residual effects of the FEM FRMP components and the associated mitigation recommendations*

APSR - Location	Identified significant residual effects	Mitigation requirements	
<b>Duleek area</b> – raising existing defence embankment (included in the FRMP as a medium to low priority term element)	✓✓	Significant positive effects as a result of the reduction in flood risk to four residential properties and transport infrastructure (a 50m stretch of regional road)	None required
	X	Minor negative effects as a result of permanent changes in landscape and visual amenity in a medium sensitivity landscape setting ( <i>significance reduced from moderate assuming that proposed mitigation measures are effective</i> )	Appropriate design to minimise visual intrusion
<b>Ratoath area</b> – replacing a bridge and culvert (at two separate locations) to improve channel conveyance	✓✓	Significant positive effects as a result of the reduction in flood risk to nine residential properties, transport infrastructure (i.e. 90m of regional road) and 2ha of agricultural land	None required
<b>Rowlestown East area</b> – constructing new flood embankments	✓✓	Significant positive effects as a result of the reduction in flood risk to two residential properties and transport infrastructure (i.e. 80m of regional road)	None required
	X	Minor negative effects as a result of permanent changes in landscape and visual amenity in a medium sensitivity landscape setting ( <i>significance reduced from moderate assuming that proposed mitigation measures are effective</i> )	Appropriate design to minimise visual intrusion
<b>Balgriffin</b> – removing old bridge structure to improve conveyance and constructing new flood embankments and walls	✓✓	Significant positive effects as a result of the reduction in flood risk to 19 residential and two non-residential properties (i.e. positive community effects) and transport infrastructure (i.e. up to 600m of regional road)	None required
	X	Minor negative effects on designated habitats and bird species resulting from a potential change in the pattern of freshwater input received by Baldoyle Bay pNHA/cSAC/SPA 1.5km downstream ( <i>significance reduced from moderate assuming that proposed mitigation measures are effective</i> )	Optimise scheme design to reduce changes in water flows/levels



APSR - Location	Identified significant residual effects	Mitigation requirements	
<b>Strand Road, Portmarnock</b> – <i>rehabilitating and raising existing coastal defences and constructing new embankment</i>	✓✓	<u>Significant positive effects</u> as a result of the reduction in flood risk to 17 residential properties and one non-residential property (i.e. positive community effects) and transport infrastructure (i.e. up to 650m of regional road)	None required
	X	Minor negative effects as a result of potential damage to intertidal saltmarsh habitat and disturbance to designated bird species within Baldoyle Bay cSAC/SPA/pNHA and reduction in saline inputs to transitional features of the Sluice River Marsh pNHA ( <i>significance reduced from moderate assuming that proposed mitigation measures are effective</i> )	Appropriate design to avoid damage to the intertidal saltmarsh, or, if necessary, create replacement habitat. Avoid sensitive periods for birds and reduce noise by appropriate construction methods. Ensure occasional saline incursions into the Sluice River Marsh to maintain transitional habitats and species.
	X	Minor negative effects as a result of permanent changes in landscape and visual amenity within an area designated as an 'Important View' ( <i>significance reduced from moderate assuming that proposed mitigation measures are effective</i> )	Appropriate design to minimise visual intrusion
<b>Malahide town centre</b> – <i>constructing new embankments and demountable defences</i>	✓✓	<u>Significant positive effects</u> as a result of the reduction in flood risk to up to 22 residential and 15 non-residential properties (i.e. positive community effects) and transport infrastructure (i.e. up to 350m of regional road)	None required
<b>Aspen, Swords area</b> – <i>channel widening to improve conveyance</i>	✓✓	<u>Significant positive effects</u> as a result of the reduction in flood risk to 9 residential properties and transport infrastructure (i.e. short stretch of local roads)	None required
<b>Rush area</b> – <i>channel widening to improve conveyance</i>	✓✓	<u>Significant positive effects</u> as a result of the reduction in flood risk to 25 residential properties and transport infrastructure (i.e. up to 600m of local roads)	None required

APSR - Location	Identified significant residual effects	Mitigation requirements
<b>Skerries area</b> – enlarging culverts and widening channel to improve conveyance	✓✓ Significant positive effects as a result of the reduction in flood risk to 49 residential properties; transport infrastructure (i.e. >1.5km of local roads); up to 4ha of agricultural land; and one cultural heritage site	None required
<b>Laytown area</b> – constructing new embankments	✓✓ Significant positive effects as a result of the reduction in flood risk to 10 residential properties and transport infrastructure (i.e. up to 0.45km of regional road)	None required
	X Minor negative effects due to potential disturbance to birds designated as part of the River Nanny Estuary and Shore SPA and permanent loss of habitat which support these birds ( <i>significance reduced from moderate assuming that proposed mitigation measures are effective</i> )	Appropriate design to set back defence from intertidal, or create replacement habitat. Plan to avoid sensitive months for birds. Apply best practice construction measures to minimise disturbance
	X Minor negative effects on landscape character and visual amenity in a high sensitivity landscape ( <i>significance reduced from moderate assuming that proposed mitigation measures are effective</i> )	Appropriate design to minimise visual intrusion

**In-combination effects**

The assessments have been undertaken and are presented separately for each individual plan component, although the effects can be aggregated to provide an overall summary of the effects of implementing the draft Plan. If all elements of the flood risk management strategy identified in the draft Plan were implemented in parallel, it is considered that there would be no additional cumulative effects other than the predicted negative effects assessed independently. This is because the proposed options are either geographically distinct from each other and there is limited potential for interactions; or the nature of the proposed options are such that any impacts would be neutral or mutually beneficial (e.g. the implementation of both a non-structural measure proposed at the a river catchment level and a structural measure proposed for an urban area within that catchment, would provide an increase in flood risk management benefits to any people, property and infrastructure at risk, but without any additional negative environmental effects).

In addition, there are also overall positive effects of assessing and managing flood risk at a strategic level across the study area by means of a large-scale flood risk assessment and

management study. This enables the overall effects of the proposals to be considered collectively across different geographic and time scales – and any combined effects to be identified and avoided or managed. In addition, it provides an opportunity for an increase in awareness of flood risk amongst the population of the study area and for actions needed to be anticipated in advance of any problems occurring and prioritised as needed. This compares favourably to previous piecemeal approach to assessing and managing flood risk at specific locations where problems arose in the past, and the cumulative effects of individual flood risk management schemes could not be effectively assessed.

### **Monitoring**

A monitoring framework has been proposed for the draft Plan. The purpose of this monitoring is twofold; to monitor the predicted negative effects of the draft Plan; and to monitor the baseline environmental conditions for all SEA objectives and inform the six yearly update of the Plan, once adopted, required to meet the requirements of the EU Floods Directive. Regular monitoring will also help to identify any unforeseen effects of the draft Plan, and ensure that where these effects are adverse, action can be taken to reduce or offset them.

### **Links to other plans and strategies**

There are linkages between the draft Plan and various external plans and strategies; giving rise to the potential for mutual benefits and in-combination effects. These include:

- Strategic and local development plans e.g. Fingal and Meath County Development Plans, Greater Dublin Area Regional Planning Guidelines, Local Area Plans) – the requirements of these plans have been considered through the incorporation of mutually-compatible objectives relating to sustainable development and environmental protection; consideration of planned land use proposals within the development of flood risk management options; and the provision of flood maps to inform future sustainable flood risk management planning.
- The Eastern River Basin District River Basin Management Plan (December 2009) – the requirements of this plan have been fully integrated through the inclusion of a SEA objective requiring the achievement of relevant Water Framework Directive objectives and measures.
- Operational and environmental plans and strategies (e.g. Fingal and Meath County Biodiversity Action Plans) – the requirements of these plans have been considered through the development and use of the SEA objectives relating to flora and fauna/biodiversity, pollution risk, cultural heritage, landscape, fisheries, human life and health; infrastructure; agricultural land, community facilities and climate change.

A review of the potential effects of the proposed flood risk management options in-combination with these plans has identified no additional or more significant negative effects, in addition to those identified in Table 3.

### **Next steps**

Submissions regarding the draft Plan, and the accompanying SEA Environmental Report, are currently being invited until 31 January 2012. These documents have been made available on the project website [www.fingaleastmeathframs.ie](http://www.fingaleastmeathframs.ie) and in hard copy at the following FCC, MCC and OPW offices throughout the study area at Fingal County Hall, Main Street, Swords, Co. Dublin; Duleek Civic Offices, Main Street, Duleek, Co. Meath and OPW Headquarters,

Jonathon Swift Street, Trim, Co. Meath. Submissions should be sent by email to our project email address <mailto:femframs@fingalcoco.ie>; or by post to the following address:

*Denise Treacy, Fingal County Council, Grove Road, Blanchardstown, Dublin 15*

Following the completion of this consultation period on 31 January 2012, the draft Plan will be finalised, taking account of submissions received. An assessment of the implications of these changes will also be undertaken to identify the effects of these changes and complete the SEA process. A SEA post-adoption statement will be produced to document this process and published with the final Plan – the FEM FRMP.

Once the final FEM FRMP has been published, the monitoring framework set out within the SEA Environmental Report will be used to assess the impacts of the implementation of the FEM FRMP. This will also be used to inform the future revision of the FEM FRMP on a six-yearly basis. The proposed flood risk management options will be taken forward, in accordance with the proposed phasing set out in the draft Plan. As schemes are developed, the effects identified through the SEA process and the proposed mitigation measures will be reviewed and considered through further detailed environmental assessment.

