OPW
Oifig na nOibreacha Poiblí
The Office of Public Works

Implementing the National Flood Risk Policy

Report on Measures in Place and Proposed to Address Ireland's Flood Risk

May 2018

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Foreword

I have seen first-hand the significant impact that flooding can have on communities, which continues long after the flood event recedes. While we cannot eliminate flooding, we can manage the risk and take steps to protect areas and reduce the impact.

Kevin 'Boxer' Moran, T.D.
Minister of State with Special Responsibility
for the Office of Public Works and Flood Relief

Since 2004, Ireland's Flood Risk Policy is being effectively delivered though a cross-sectoral approach to flood risk management led by the Office of Public Works (OPW) and takes the potential impacts of climate change into account.

Over 700 successful major and minor flood relief projects have been delivered or are underway. Other important measures are also supporting our efforts to prevent and mitigate flood risk including planning guidelines to prevent building in flood risk areas, development of a national flood forecasting service that will further improve our emergency response and humanitarian supports to people and businesses impacted by flood events.

The OPW has now examined 80% of Ireland's major source of flooding, across 300 communities, in the largest study of flood risk ever undertaken by the State. The findings from this Catchment Flood Risk Assessment and Management (CFRAM) Programme are set out in a series of Flood Risk Management Plans. The development of these Plans was co-ordinated with similar Plans developed in Northern Ireland as well as Plans developed on water quality and their implementation will not negatively impact on our environment.

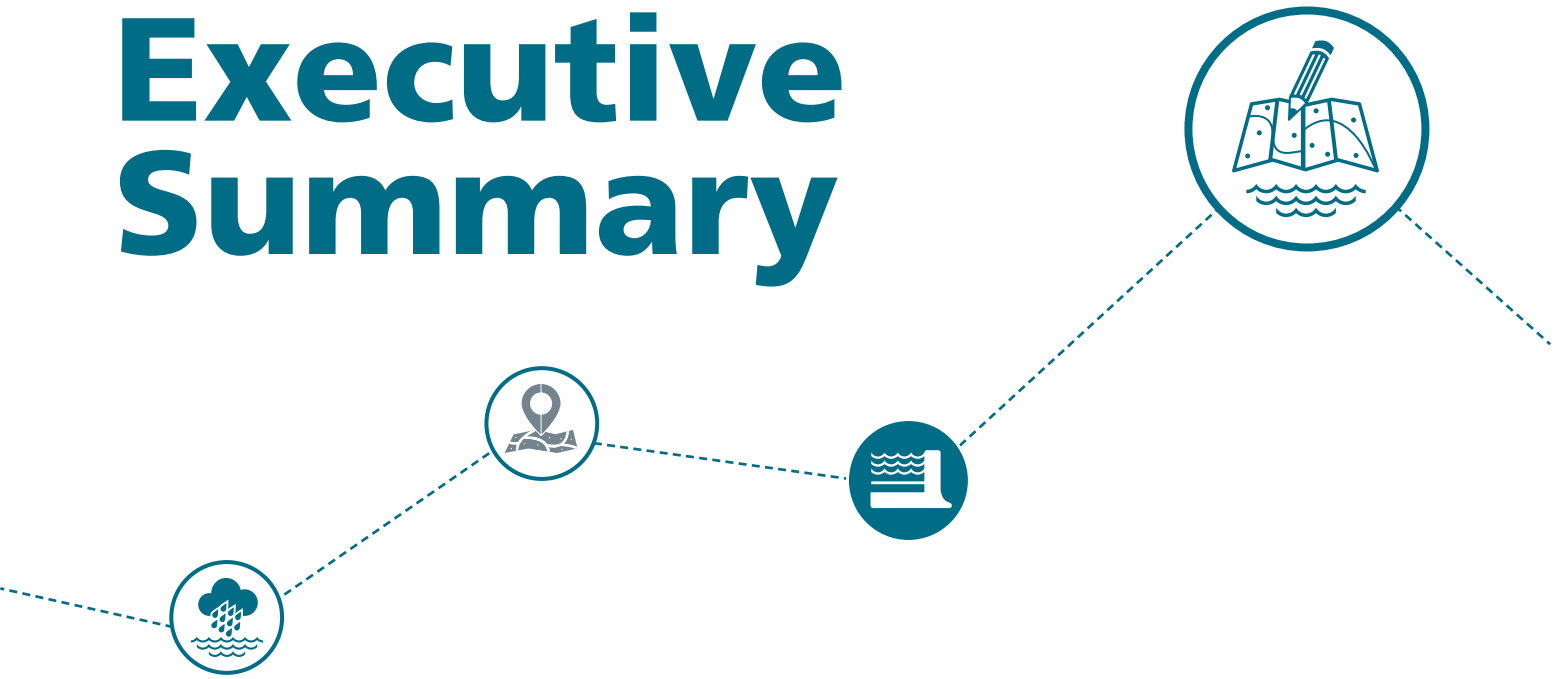
Our annual investment in flood risk management is being doubled to build on initiatives already in place and underway. The CFRAM Plans provide the evidence for a clear roadmap to prioritise Government's investment of up to €1 billion in the coming decade on flood risk management. This investment will protect 95% of properties at assessed risk. In addition, the Minor Works Scheme and arterial drainage maintenance are delivering local solutions to flood problems for other communities.

I acknowledge the assistance and input by a large number of organisations to these Plans, including the Local Authorities and consultant engineers. The extensive consultation with the public, representative organisations and other groups gives confidence that proposed measures set out in the Plans are generally welcomed.

The Plans are a major milestone to further tackling flood risk in Ireland now and into the future. The implementation of these Plans will benefit human health and wellbeing, economic prosperity, the natural environment and our cultural heritage.

The Interdepartmental Flood Policy Co-ordination Group will continue to oversee the Government's flood risk policy and use the evidence in these Plans to ensure that all measures to manage and mitigate flood risk in Ireland are implemented to protect communities.

Executive Summary



Managing Flood Risk in Ireland

Flooding in Ireland can have a significant impact on homes, businesses, people and communities. The flooding problem cannot be eliminated but can be managed or mitigated to reduce its likelihood, severity or impact.

The Office of Public Works (OPW) is leading a proactive and whole of Government response to flooding, across three strategic areas:

- **Prevention**
  avoiding construction in flood-prone areas.
- **Protection**
  taking feasible measures to protect areas against flooding.
- **Preparedness**
  planning and responding to reduce the impacts of flood events.

A number of policy co-ordination structures were established following the Government's approval of the 2004 National Flood Risk Policy, including an Interdepartmental Flood Policy Co-ordination Group.

Since 2004, a broad range of both structural and non-structural measures have been implemented to address flood risk, including in response to the experience of the flood events in Winter 2015/2016. While structural flood relief schemes are in place for specific communities, other measures such as emergency response and planning guidelines benefit all at risk properties. The Government's approach to flood risk management has been independently endorsed by Dutch experts.

Investment to Date

Since 1995, the OPW's flood relief capital works programme has seen the completion of 42 major flood relief schemes which, in addition to other flood relief works undertaken by Local Authorities under their own works programmes, are protecting approximately 9,500 properties. As at the start of 2018, under the OPW's programme eight major schemes are under construction with 25 at design and planning stages. These together with other works by Local Authorities will protect approximately 12,000 properties.

To complement the delivery of major schemes, almost 500 minor works projects have been delivered so far by Local Authorities, providing local flooding solutions to approximately 6,500 properties. These types of projects are funded through the OPW's Minor Flood Mitigation Works and Coastal Protection Scheme.

Largest ever Study of Flood Risk in Ireland

The assessment and management of flood risks in Ireland was aligned to meet the requirements of the 2007 EU Floods Directive through the Catchment Flood Risk Assessment and Management (CFRAM) Programme.

In 2012, the OPW designated 300 areas or communities believed to be at significant flood risk, 90 of which are coastal. The OPW, through its CFRAM Programme, carried out the largest ever flood risk study in Ireland to date, undertaking a detailed engineering assessment in each of these communities. This study assessed 80% of properties at risk from Ireland's main causes of flooding.

The key outputs of the CFRAM Programme include:

- 40,000 Flood Maps showing the flood risk for each community that support planning decisions and emergency response, and
- 29 Flood Risk Management Plans to cover the whole country with the proposed flood relief measures – informed by costs, benefits and environmental factors – to address the flood risk in each community and nationwide.

The Plans were informed by associated Strategic Environmental and Habitats Directive (Appropriate) Assessments. The OPW website www.floodinfo.ie provides access to the Plans and Maps developed by the OPW and information on flood risk management in Ireland.

Implementing the Measures set out in the Plans

Investment in Flood Relief Schemes

The key conclusion of the Plans is that 95% of properties assessed as at risk can be protected through continued investment in flood relief schemes.

The Plans set out the flood relief schemes that have already been constructed and those that are currently underway. The Plans also provide the outline of 118 proposed schemes that can protect a further 11,500 properties and the evidence to prioritise their delivery to where its benefit is greatest.

The OPW is now working closely with the Local Authorities to commence the implementation of a first tranche of new schemes that have been prioritised. This first tranche includes five major flood relief schemes each costing more than €15 million, along with a range of mid-sized and small schemes.

The National Development Plan 2018-2027 commits to almost €1 billion in funding for flood relief schemes, with annual Capital funding for flood relief for the OPW doubling to €100m by 2021.

Importance of Other Measures

The Plans also include those proposed measures that can benefit all at risk properties, including those communities that were not assessed in the CFRAM Programme.

The outcome of the CFRAM Programme has provided the evidence to further analyse and where appropriate, develop additional flood policies to protect at risk properties where it is not feasible, through structural measures, to protect these properties against their assessed or known flood risk.

The Interdepartmental Flood Policy Co-ordination Group is continuing to focus on flood policy initiatives including:

- Individual Property Protection
- Flood Forecasting
- Developing Community Resilience

Monitoring and Reviewing

A co-ordinated approach will be taken to monitor the implementation of the Plans, in part to meet the six yearly cycle required under the EU Floods Directive. The OPW will continue to refine and improve the understanding and management of flood risk nationally and will report to Government routinely on the delivery of increased investment in flood relief measures over the coming years.

Part 1

Introduction and Purpose of Report

1.1 Introduction

Flooding is a natural phenomenon. It has a significant impact on homes, businesses, people and communities. The causes, extent and impacts of flooding are varied and complex. The flooding problem cannot be eliminated but can be managed or mitigated to reduce its likelihood, severity or impact.

The OPW has responsibility for leading and co-ordinating the implementation of the 2004 National Flood Policy, which involves the development of a planned programme of feasible works, with a greater emphasis on non-structural flood risk management measures.

The OPW carries out this role by co-ordinating the implementation of flood risk management policy and measures across the following strategic areas:

- **Prevention**
  avoiding construction in flood-prone areas.
- **Protection**
  taking feasible measures to protect areas against flooding.
- **Preparedness**
  planning and responding to reduce the impacts of flood events.

Significant investment in flood relief measures has taken place since 1995 and the Government has committed to a doubling of investment in order to prioritise the delivery of future investment to where its benefit is greatest.

In 2015/2016 Ireland benchmarked its flood risk strategy and approach to flood risk management against international best practice. The main finding of the Dutch Risk Reduction Team, undertaking the Peer Review, was that Irish flood risk management complies with international best practice and is well on track.

The EU Directive on the assessment and management of flood risk, often referred to as the 'Floods Directive', came into force in 2007. The assessment and management of flood risks in Ireland was aligned to meet the requirements of the EU Floods Directive through the Catchment Flood Risk Assessment and Management (CFRAM) Programme.

The OPW has now completed that Programme and the Minister for Finance and Public Expenditure and Reform has approved 29 Flood Risk Management Plans that set out the planned measures to be taken forward to manage the assessed flood risk in the most at risk communities. The Plans also set out other measures that can help reduce and manage flood risk nationally.

1.2 Purpose of Report

The purpose of this Report is to:

- summarise the measures in place to manage Ireland's flood risk, including an update on progress with the implementation of the 2004 Flood Policy and the additional measures that have been put in place since Winter 2015/2016,
- provide a summary of the outputs of the national CFRAM Programme, and
- outline the arrangements for the implementation of the proposed measures set out in the 29 Flood Risk Management Plans, including progress with the development of non-structural measures that can benefit all at risk properties.

1.3 Layout of Report

This report sets out all of the flood risk management measures in place and being developed, including non-structural measures, to benefit all at risk properties and flood relief schemes now proposed to protect the most at risk communities. This report is structured into four other parts.

Part 2. Background

Information on flooding, policy and legislative background and whole of Government approach to flood risk management.

Part 3. Flood Risk Measures in Place

The Government's investment in flood risk management since 2004 has introduced a broad range of flood risk measures to address flood risk, including those in response to the experience of the flood events in Winter 2015/2016. While flood relief schemes are in place for specific communities, other measures, such as emergency response, benefit all at risk properties. These measures are summarised to provide a comprehensive overview of all measures in place at this time.

Part 4. Output from the CFRAM Programme

The CFRAM Programme has assessed and identified the most feasible measures to manage flood risk in those areas at most significant risk. The Programme, informed by the national Preliminary Flood Risk Assessment (PFRA), is now completed and has assessed and mapped the flood risk in these areas and prepared 29 Flood Risk Management Plans that set out feasible proposed measures to address their flood risk. The Plans have been informed by associated Strategic Environmental and Habitats Directive (Appropriate) Assessments. The Plans include those proposed measures that can benefit all at risk properties, including those communities that were not assessed in the CFRAM Programme.

Part 5. Implementing the Proposed Measures set out in the Plans

The CFRAM Programme was developed taking a consistent national approach. This has allowed for a prioritised approach to Government investment in flood relief schemes that return the greatest benefit. Work to develop additional feasible non-structural measures that can benefit all at risk properties is also outlined.

The main finding of the Dutch Risk Reduction Team, undertaking the Peer Review, was that Irish flood risk management complies with international best practice and is well on track.

Part 2
Background

2.1 Information on Flooding

Flooding is a temporary covering by water of land not normally covered by water, and is a natural process that can happen at any time.

Flooding can occur from a range of sources, individually or combined, including:

- coastal flooding (from the sea or estuaries),
- fluvial flooding (from rivers or streams),
- pluvial flooding (from intense rainfall events and overland flow),
- groundwater flooding (typically from Turloughs in Ireland), and
- other sources, such as from blocked culverts.

Flooding can be positive for the environment, such as where many wetland habitats and species depend on periodic flooding for their conservation. Flooding can however also cause damage, loss or harm in a number of ways, including:

- impacts on people and society, including physical injury, illness, stress and even loss of life,
- damage to property, such as homes and businesses,
- damage to and loss of critical infrastructure, such as water supply or roads,
- impacts on the environment, such as damage or pollution of habitats, and
- damage to our cultural heritage, such as monuments and historic buildings.

Flood hazard is the potential threat posed by flooding to people, property, the environment and our cultural heritage. The degree of hazard is dependent on a variety of factors that can vary from location to location and from one flood event to another. These factors include the extent and depth of flooding, the speed of flow, the rate of onset and the duration of the flood.

Flooding only presents a risk when people, property, the environment and our cultural heritage can be potentially damaged.

2.2 Policy and Legislative Background

2004 Flood Risk Policy

Historically, flood risk management focused on arterial drainage for the benefit of agricultural improvement. Arising from increasing flood risk in urban areas, the Arterial Drainage Act, 1945, was amended in 1995 to permit the OPW to implement flood relief schemes to provide flood protection for cities, towns and villages.

In line with changing national and international approaches on how to efficiently manage flood risk, a review of national flood policy was undertaken in 2003-2004. The review was undertaken by an Interdepartmental Review Group, led by the Minister of State at the Department of Finance with special responsibility for the OPW. The Review Group prepared a report that was considered by Government, and subsequently approved and published in September 2004.

The scope of the report included a review of the roles and responsibilities of the different bodies with responsibilities for managing flood risk and it also set out a new policy for flood risk management in Ireland.

The adopted policy was accompanied by many specific recommendations (approved by Government in September 2004), including:

- the OPW is responsible for leading and co-ordinating the implementation of national flood risk management policy,
- structural (i.e. engineered) flood relief measures to continue to play an important role in flood management but with increased emphasis to be placed on non-structural measures (e.g. flood forecasting, planning guidelines, etc.), and
- the OPW with input from other relevant State bodies, where necessary, to develop a programme to implement the detailed recommendations of the Report.

Three specific recommendations of the Report, led to the development and implementation of the Catchment Flood Risk Assessment and Management (CFRAM) Programme. These were:

- focus on managing flood risk, rather than relying only on flood protection measures aimed at reducing flooding,
- taking a catchment-based approach to assessing and managing risks within the whole-catchment context, and
- being proactive in assessing and managing flood risks, including the preparation of flood maps and Flood Risk Management Plans.

Further details of the CFRAM Programme are set out in Part 4 of this Report.

EU Floods Directive 2007

The adoption of the National Flood Risk Policy corresponded with the subsequent requirements, in 2007, of the EU Floods Directive. Protecting communities from the risk and impact of flooding is at the heart of the EU Floods Directive (2007/60/EC).

The OPW is the Competent Authority for the implementation of the EU Floods Directive in Ireland. It is a framework directive that requires Member States to follow a certain process, one that Ireland had already started in 2004, namely:

- undertake a Preliminary Flood Risk Assessment (PFRA), to identify areas of existing or foreseeable future potentially significant flood risk (referred to as 'Areas for Further Assessment', or AFAs),
- prepare flood hazard and risk maps for the AFAs, and
- prepare Flood Risk Management Plans, setting objectives for managing the flood risk within the AFAs and setting out a prioritised set of measures for achieving those objectives.

The EU Floods Directive was transposed into Irish law by the European Communities (Assessment and Management of Flood Risks) Regulations 2010, S.I. No. 122 of 2010 and amended by the European Communities (Assessment and Management of Flood Risks) (Amendment) Regulations 2015, S.I. No. 495 of 2015.

The Regulations set out the responsibilities of the OPW and other public bodies in the implementation of the Directive including public consultation.

2.3 Interdepartmental Flood Policy Co-ordination Group

The role of the Interdepartmental Flood Policy Co-ordination Group was to co-ordinate and inform the implementation of the recommendations in the Flood Policy Review. The Group met on four occasions between March 2006 and September 2009. During this period, many elements of the Implementation Plan for the 2004 National Flood Risk Policy were initiated and/or completed.

In 2009, the Group also set the direction for the development of the National CFRAM Programme and was reconvened by Government in July 2015 to recommend policies and measures, informed by the CFRAM outputs, that could support individuals and communities to respond effectively to flood risks.

The Government agreed to publish the Group's interim report in November 2016, which set out the details of the flood risk measures in place and under development at that time. The Group will continue to monitor the implementation of the 29 Flood Risk Management Plans and flood risk management policies across all of Government.

2.4 Co-ordination with the Water Framework Directive

The Water Framework Directive is concerned with the protection of the quality of our waters. The EU Floods Directive is concerned with the protection of people and society from our waters.

Both Directives are concerned with water and management of rivers. Hence, strong co-ordination was established to co-ordinate the two processes, where appropriate, to achieve joint benefits and share experiences.

The process adopted by the CFRAM Programme to appraise possible flood risk management measures includes an assessment against the objectives and requirements of the Water Framework Directive. In this way, the potential contribution of flood risk management measures towards, or potential impacts on, the objectives of the Water Framework Directive are embedded into the process for the identification of proposed flood risk management measures.

The Flood Risk Management Plans include a measure to commit to ongoing co-ordination to enhance the links between the Directives, and to pursue the potential of measures to provide multiple benefits.

2.5 Cross-Border Co-ordination

There are a number of watercourses that flow between the Republic of Ireland and Northern Ireland. The OPW has a long-standing working relationship with the Department for Infrastructure, Rivers (DfI Rivers) which is the competent authority for the implementation of the 'EU Floods Directive' in Northern Ireland.

In 2009, the OPW and DfI Rivers agreed to establish a Cross-Border Co-ordination Group to co-ordinate the implementation of the 'EU Floods Directive' across the border. This work was supported by a Cross-Border Technical Co-ordination Group. These groups have met on a number of occasions since late 2009 to co-ordinate their respective work to screen and assess the flood risk and to prepare plans to manage flood risk in border areas.

Part 3

Flood Risk Measures in Place

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33 FLOOD RELIEF SCHEMES UNDERWAY **TO PROTECT 12,000 PROPERTIES**

42 FLOOD RELIEF SCHEMES COMPLETED **PROTECTING 9,500 PROPERTIES**

€465M INVESTMENT TO DATE

500 MINOR WORK SCHEMES COMPLETED BY LOCAL AUTHORITIES **PROTECTING 6,500 PROPERTIES**

OTHER MEASURES IN PLACE:

- **Planning Guidelines**
- **Emergency Response**
- **Ongoing Arterial Drainage Maintenance benefitting 650,000 acres of agricultural land**

...for plans and maps

www.floodinfo.ie

3.1 Introduction

The OPW is co-ordinating the delivery of measures towards meeting the Government's National Flood Risk Policy across three strategic and policy areas:

- **Prevention**
  avoiding construction in flood-prone areas.
- **Protection**
  taking feasible measures to protect areas against flooding.
- **Preparedness**
  planning and responding to reduce the impacts of flood events.

The Interdepartmental Flood Policy Co-ordination Group published a detailed Report to Government that included those flood risk policies in place across Government at the end of 2016. The full Report, *Interim Report to Government by the Interdepartmental Flood Policy Co-ordination Group*, updated and summarised the policies in place to address Ireland's flood risk management at that time. It specifically set out measures that had been introduced since the floods in Winter 2015/2016 and an updated summary of these measures is provided in Appendix A.

3.2 Prevention

Flood risk prevention measures are aimed at avoiding or removing a flood risk. This can be achieved, for example, by avoiding building new assets that are vulnerable to flood damage in areas prone to flooding.

Summary of Flood Prevention Measures in Place

Planning

The Department of Housing, Planning and Local Government routinely reviews its 2009 statutory guidelines, *The Planning System and Flood Risk Management*. These guidelines were issued under Section 28 of the Planning and Development Act, 2000 and Local Authorities are required to have regard to them in the performance of their functions such as preparing development plans and determining planning applications. These guidelines introduced a rigorous approach to flood risk assessment as an essential step in drawing up development plans and making decisions on individual planning applications. This should include use of sustainable drainage techniques to reduce the potential impact of development on flood risk downstream.

Land Use Management and Natural Flood Risk Management

The Forestry Service of the Department of Agriculture, Food and the Marine published a *Forestry Standards Manual in 2015, the Code of Best Forest Practice – Ireland and Forests and Water Quality Guidelines* that provides guidance on measures to be taken by those planting forests to manage flood risk and benefit water quality. Coillte and other forestry companies adhere to these guidelines.

The *Afforestation Scheme, Native Woodland Conservation Scheme and Woodland Improvement: - Environmental Enhancement* each promote flood risk management through good forestry practice.

The Green Low-Carbon Agri-Environment Scheme (GLAS) is focusing in particular on the preservation of various habitats and species, mitigating climate change and improving water quality. It contains a number of actions which aid the protection of watercourses.

Generally, Bord na Móna cutaway bogs that flood naturally will be permitted to flood during a flood event unless there is a clear environmental and/or economic case to maintain pumped drainage.

The suitability and effectiveness of natural flood management and natural water retention measures is very much dependent on the local geography and land use and on the nature and degree of flood risk. The OPW will work with the Environment Protection Agency, Local Authorities and other agencies during the project-level assessments of physical works, and more broadly at a catchment-level, to identify any measures, such as natural water retention measures, that have benefits for both the Water Framework Directive and flood risk management objectives and also for biodiversity.

Climate Change

Adapting to climate change is a key challenge facing Governments and societies across the world. Recognising this challenge, the Irish Government published the National Climate Change Adaptation Framework in December 2012, which mandated certain Government Departments, other public sector bodies and Local Authorities to prepare sectoral and local climate change adaptation plans.

The Flood Risk Management Climate Change Sectoral Adaptation Plan 2015-2019 was prepared under the remit of the National Climate Change Adaptation Framework 2012. It sets out the policy on climate change adaptation of the OPW.

A revised Climate Change Sectoral Adaptation Plan for flood risk management will be prepared in line with the requirements of the National Adaptation Framework published in January 2018. The design of OPW flood relief schemes takes account of the potential impacts of climate change.

3.3 Protection

Flood protection measures are aimed at reducing the likelihood and/or the severity of flood events. These measures, typically requiring physical works, can reduce risk in a range of ways, such as defending areas at risk against flooding by reducing or diverting the peak flood flows, or by reducing flood levels.

The development and appraisal of potential flood mitigation works takes into account a broad range of environmental legislation and policy such as requirements for Strategic Environmental Assessments, Environmental Impact Assessments, (Habitats Directive) Appropriate Assessments, Wildlife Act Licences, through to National Biodiversity policy and National Peatlands policy. This approach to flood protection works strives for a sustainable balance between the social, economic and environmental requirements of the individual property owners, broader communities and the wider environment.

Summary of Flood Protection Measures in Place

Drainage Districts

Drainage Districts are areas where drainage schemes to improve land for agricultural purposes were constructed under the Arterial Drainage Acts from 1842 up to 1943. Of the 293 schemes carried out, 170 remain covering 4,600km (2,860 miles) of channel. The statutory duty of maintenance for 4,600 km of river channel benefitting from these schemes rests with the Local Authorities concerned. See Figure 1.

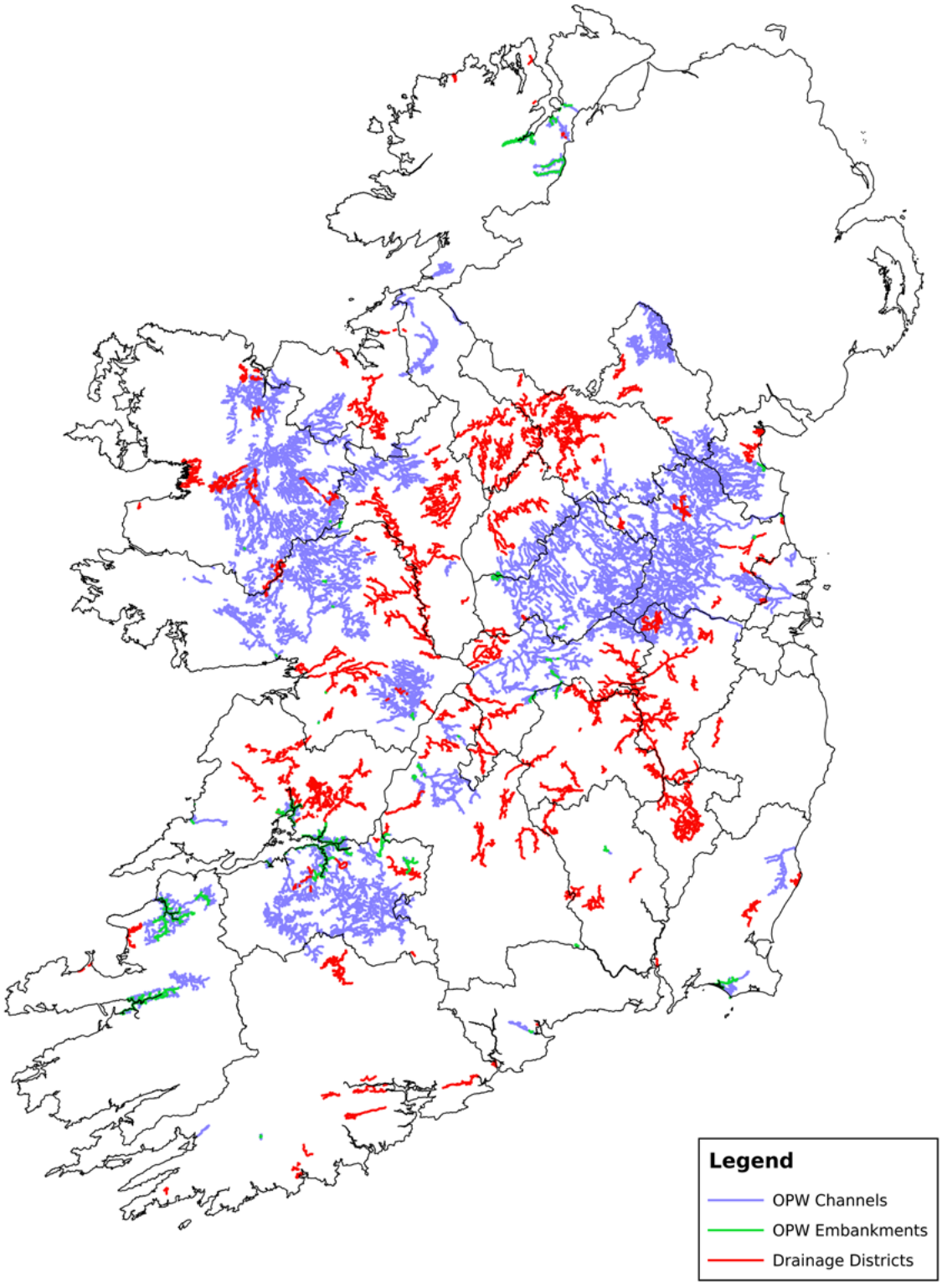
Arterial Drainage

Following the passing of the Arterial Drainage Act, 1945, the OPW began investigations to determine where Arterial Drainage Schemes would be expedient and economically viable. The implementation of the Schemes began in the late-1940s. The OPW's annual arterial drainage maintenance works programme protects 260,000 hectares (650,000 acres) of agricultural lands and comprises 11,500km (7,150 miles) of river channel and approximately 800km (500 miles) of embankments. The OPW's national arterial drainage maintenance operations use best practice for drainage and environmental protection. See Figure 1 and Appendix B for OPW's completed Arterial Drainage Schemes.

Major Flood Relief Schemes

OPW major flood relief schemes are typically designed and built to a standard that protects areas against the 1 in 100 year flood event, and coastal areas against the 1 in 200 year flood event, where it is feasible to do so. The schemes are designed to be cost beneficial and have regard for environmental factors. The design of OPW flood relief schemes takes account of the potential impacts of climate change, and ensures they do not worsen flood risk upstream or downstream of the protected area. Since 1995, to the end of 2017, the OPW under its capital works programme, in co-operation with the relevant Local Authorities, has constructed 42 major flood relief schemes throughout the country at a cost of €350m, see Appendix C. These works, in addition to works undertaken by Local Authorities under their own works programmes, are protecting approximately 9,500 properties.

Figure 1 OPW Channels / Embankment and Local Authority Drainage Districts



At the end of 2017, the OPW has eight major capital flood relief schemes under construction, and a further twenty five schemes at design/development, see Appendix D. These works, in addition to works undertaken by Local Authorities under their own works programmes, are protecting approximately 12,000 properties.

Minor Works

While Local Authorities can and do undertake local flood relief projects within their own capital works programmes and using their own resources, the OPW continues to work with Local Authorities to support local flood relief projects. Funding of almost €41m has been approved by the OPW to Local Authorities since 2009 under the Minor Flood Mitigation Works and Coastal Protection Scheme. To the end of 2017, almost 500 local flood relief projects were completed across every county protecting almost 6,500 properties. Two thirds of these projects delivered flood relief schemes to areas outside of the CFRAM Programme.

The purpose of the scheme is to provide funding to Local Authorities to undertake minor flood mitigation works or studies to address localised flooding and coastal protection problems within their areas. The scheme generally applies where a solution can be readily identified and achieved in a short time frame. Under the scheme, applications are considered for projects that are estimated to cost not more than €750,000 in each instance. Funding of up to 90% of the cost is available for approved projects. Applications are assessed by the OPW having regard to the specific economic, social and environmental criteria of the Scheme, including a cost benefit ratio. Details of the Scheme and works for which funding under the Scheme have been approved are available from the OPW website www.opw.ie.

Flood Risk on the Shannon Catchment

The Shannon Flood Risk State Agency Co-ordination Working Group was established by the Government in January 2016. It has published and consulted on its Work Programme and it is a solutions focussed group that added value to the Shannon CFRAM Study by ensuring the best possible level of co-ordination between all statutory bodies involved in flood risk management of the Shannon River Basin. The Group is trialling the lowering of the lake levels on Lough Allen since 2016. It is examining a plan for strategic maintenance, to help reduce further deterioration of the River Shannon, and is also examining the development of viable flood risk reduction measures in the Shannon Callows.

Guidance to Landowners

The OPW will shortly be publishing on www.flooding.ie guidance to landowners in relation to the maintenance of watercourses on or near their lands in the context of managing flood risk.

3.4 Preparedness

In some instances, it may not be possible to reduce the likelihood or severity of flooding to a community at risk. However, actions and measures can be taken to reduce the consequences of flooding, i.e., reduce the risk to people and damage to properties and other assets. Action can also be taken to make sure that people and communities are prepared for flood events. This can be achieved by being aware of and preparing for the risk of flooding, knowing when floods are likely to occur, and by taking actions immediately before, during and after a flood.

Summary of Flood Preparedness Measures in Place

Many preparedness measures are in place to manage and reduce flood risks when and where flood events may occur, including:

- real-time data on water levels on www.waterlevel.ie and historical flood data on www.floodinfo.ie,
- weather forecasting through Met Éireann (e.g. Weather Warnings),
- the OPW's Tidal and Storm Surge Forecasting Service (provides Local Authorities and other relevant stakeholders with up to three days advance notification of impending coastal storm surge events),
- the European Flood Awareness System (EFAS) that is a medium range (typically from 3 to 10 days out) operational flood forecasting system based

on meteorological forecasts from a number of European centres, and

- public awareness through Plan, Prepare and Protect and www.flooding.ie and the Office of Emergency Planning *Be Winter Ready* campaign that focused on flooding in Winter 2016/2017.

The Department of Housing, Planning and Local Government is designated as the Lead Government Department for, inter alia, co-ordinating the response to flooding and other Severe Weather Emergencies at national level. Under the Major Emergency Management Framework, the Local Authority is the lead agency for flood emergency response and disseminates flood warnings to the other Principal Response Agencies and to the public, as necessary.

The Homeowners Renovation Incentive (HRI) scheme extended to the end of 2018 enables homeowners or landlords to claim tax relief on repairs, renovations or improvement works carried out on a main home or rental property. Works include those that are aimed at reducing the risk of flooding within the dwelling.

The Government Task Force on Emergency Planning initiated a review of existing national level emergency planning in 2015, which culminated in the production of a Strategic Emergency Management (SEM) National Structures and Framework, which was approved by Government in July 2017. The SEM aims to ensure that all State bodies can react more quickly and effectively to any large-scale emergency. It provides guidance and direction for the lead Government Departments, particularly for those responsible for the emergency incident types, including severe weather events such as flooding.

3.5 Supporting Communities

Summary of Support and Assistance Measures in Place

Humanitarian Assistance

The Department of Employment Affairs and Social Protection's Humanitarian Assistance Scheme, which is means tested, is available to assist people whose homes are damaged by severe flooding and who are not in a position to meet costs for essential needs, household items and in some instances structural repair.

The Department of Agriculture, Food and the Marine, while not having a pre-arranged scheme, provides targeted response and support to major flooding events to support those areas of agricultural production that are most affected from each event.

The Government has agreed to the establishment of a Standing Scheme to provide emergency humanitarian support to businesses and community/voluntary/sporting bodies adversely affected by flooding of this nature. The modalities for this scheme have recently been considered by a Working Group under the Aegis of the Government Task Force on Emergency Planning.

Insurance

The provision of insurance cover and the price at which it is offered is a commercial matter for insurance companies. The Government works closely with the insurance industry in relation to flood insurance for areas protected by OPW flood relief schemes. A Memorandum of Understanding between Insurance Ireland, the representative body for the insurance industry in Ireland, and the OPW ensures that appropriate and relevant information on completed OPW flood relief schemes is provided to insurers to facilitate the availability of flood insurance. Insurance Ireland members have committed to take into account all information provided by the OPW when assessing exposure to flood risk within these areas.

To date the OPW has provided details to Insurance Ireland on 18 completed schemes nationally. Details are available on www.opw.ie. The most recent survey from Insurance Ireland has advised that flood insurance cover is included in 83% of policies in defended areas up from 77% recorded in the initial survey in January 2015.

Part 4

Output from the CFRAM Programme

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The Office of Public Works

300 **COMMUNITIES ASSESSED** FOR THEIR FLOOD RISK

95% OF AT RISK PROPERTIES **CAN BE PROTECTED BY FLOOD RELIEF SCHEMES**

LARGEST EVER STUDY OF FLOOD RISK

40,000 **MAPS PRODUCED** BY THE STUDY

29 **PLANS PREPARED** WITH MEASURES TO MANAGE FLOOD RISK NATIONWIDE

...for plans and maps

www.floodinfo.ie

4.1 Introduction

The OPW undertook the National Catchment-based Flood Risk Assessment and Management (CFRAM) Programme in consultation with the Local Authorities and supported by external engineering consultants.

The objectives of the CFRAM Programme were to:

- identify and map the existing and potential future flood hazard and flood risk in the areas at potentially significant risk from flooding, called Areas for Further Assessment (AFAs),
- identify feasible structural and non-structural measures to effectively manage the assessed risk in each of the AFAs, and
- prepare a set of plans, and associated Strategic Environmental and Habitats Directive (Appropriate) Assessments, that set out the proposed feasible measures and actions to manage the flood risk in these areas and their river catchments.

To support the CFRAM Programme, governance structures were put in place at both national and project level. These included both steering and stakeholder groups. Further details of each group is set out in Appendix E.

4.2 Designating the 300 Areas Assessed under the CFRAM Programme

The CFRAM Programme covered those areas, in each county, where, based on initial analysis, the flood risk was determined to be potentially significant.

These areas and associated sources of flood risk were identified through the Preliminary Flood Risk Assessment (PFRA), which was a nationwide screening of flood risk. The final report of the PFRA and designation of the AFAs was published in March 2012 and is available on www.floodinfo.ie.

The OPW designated 300 areas (AFAs) at potentially significant risk from flooding, which include in the order of 80% of properties at risk in Ireland from rivers and seas, the primary source of flooding in Ireland. Ninety of these areas are coastal areas.

It is important to note that the PFRA was not a detailed assessment of flood risk. It was rather a broad assessment, based on available and readily derivable information to identify areas where there was a genuine cause for concern about a risk and impact of flooding that may require further assessment.

The OPW used three sources of information to designate these 300 areas:

- historic information on floods that happened in the past,
- public consultation to gain local and expert knowledge from Local Authorities and other Government departments and agencies to identify areas prone to flooding and the potential consequences, and
- engineering techniques to analyse potential damage that could be caused by flooding.

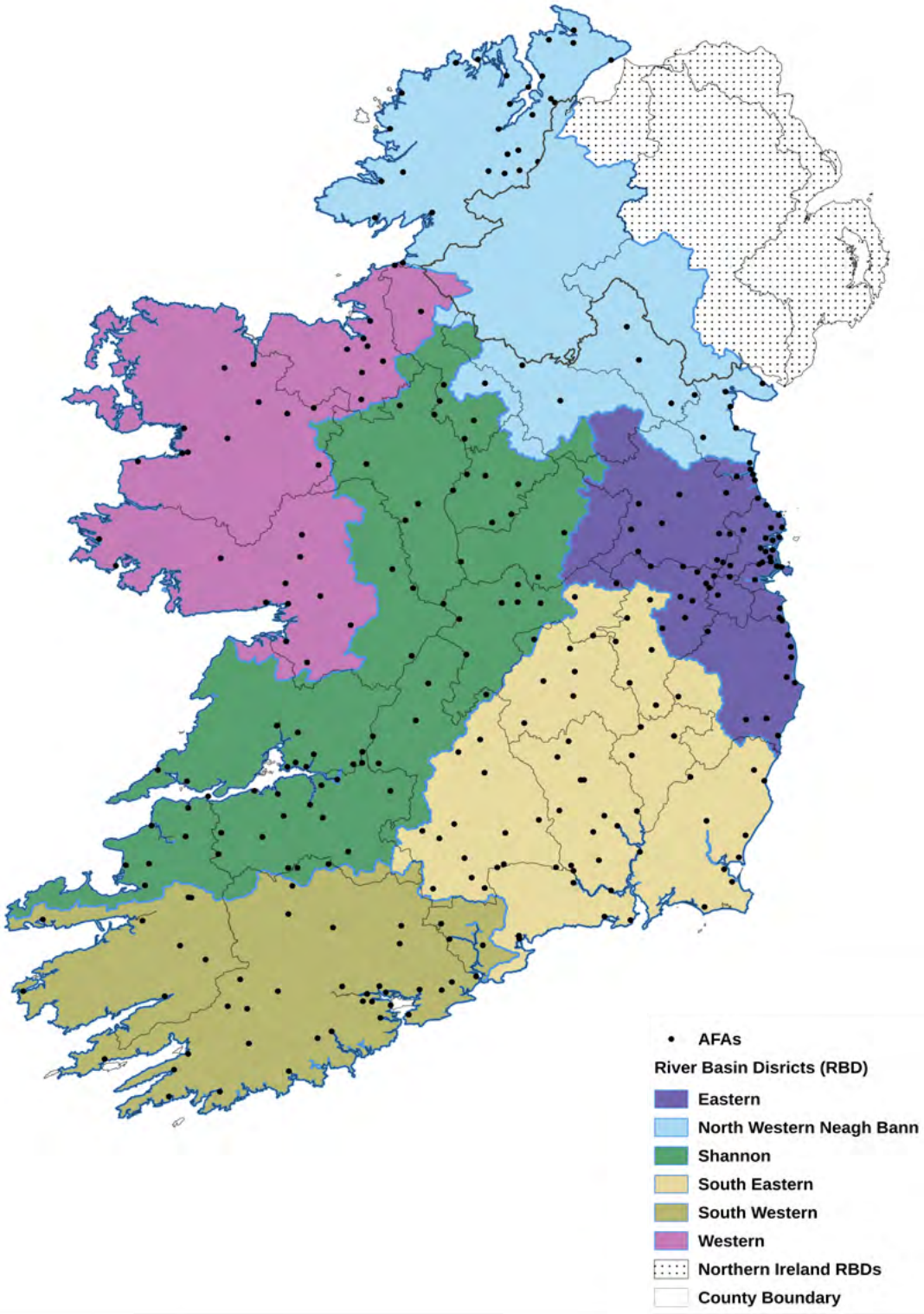
It would not have been possible to address all flood problems in the country in one programme, and so the OPW prioritised areas of greatest potential risk and impact. In designating areas that require further assessment the OPW considered all types of flooding, including from rivers, the sea, intense rainfall events and groundwater. The OPW also considered the impacts flooding can have on people, property, businesses, critical infrastructure, the environment and cultural heritage.

4.3 Assessing and Mapping the Flood Risk

In consultation with Local Authorities the OPW embarked on extensive and detailed analysis to fully assess the risk of flooding in each of these areas. This was completed through six CFRAM Projects covering 29 River Basins (see Figure 2), and other location-specific projects.

To ensure best practice and a national consistency of approach, the OPW established a National Technical Co-ordination Group that brought together all of the Consultants with the OPW, and other organisations as necessary, to establish common standards, methods and approaches.

Figure 2 Six CFRAM Study Areas and 300 AFAs



The detailed work involved engineering analysis of the river systems, estuaries and coastal areas, including their hydrology and involving detailed hydraulic modelling. The work and analysis was significantly informed by consultation with elected representatives, State Agencies, representative organisations and stakeholders, and members of the public.

The CFRAM Programme has assessed and mapped the flood extents, hazard and risk for a range of flood events from frequent, minor flood events up to, very rare, extreme events.

Flood maps have been developed through the OPWs CFRAM Programme and other location-specific projects for each of the 300 areas. These include:

- Flood Hazard Maps that describe the characteristics of each predicted flood scenario, such as the land areas prone to flooding, its projected depth and level, and the calculated flow and velocity (speed) of the floodwater, and
- Flood Risk Maps that describe the potential impacts of floods on people, the economy and the environment.

The flood mapping process is important to inform the identification and development of feasible flood risk solutions. The maps also inform Local Authorities in relation to Planning and Development and planning by State agencies and communities for emergency response to a flood event.

4.4 Identifying Options to Manage the Assessed Risk

In assessing what measures might be effective and appropriate to address and manage the impacts of severe floods, such as those of the Winter 2015/16, in the communities at significant risk, the OPW considered a range of potential measures, including non-structural measures. This assessment included consideration of achieving best value for money and took into account multiple factors, including benefits and environmental factors. Some of the flood risk measures considered involved:

- **Prevention measures**
  Planning and Development by Local Authorities and Land Use Management and Natural Flood Risk Management Measures.
- **Protection measures**
  Enhance Existing Protection Works, Flood Defences, Diverting Flood Flows, Storing Flood Waters, Implementing Channel Maintenance Programmes and Embankments.
- **Preparedness measures**
  Flood Forecasting and Warning, Emergency Response Planning, Promotion of Individual and Community Resilience and Individual Property Protection.

Where measures are considered to protect the communities against flooding, these measures would typically be designed to provide protection against extreme floods, such as the 1 in 100 flood in rivers.

4.5 Deciding on Proposed Measures

Deciding which option best addresses the flood risk for each area assessed at significant flood risk was based on an assessment of the various options against agreed flood risk management Objectives. These were developed through public consultation and are aimed at considering potential benefits and impacts across a broad range of factors including:

- **Economic**
  benefits for properties, utilities, infrastructure and agriculture
- **Environmental**
  benefits and impacts for the environment
- **Social**
  benefits and impacts for people, the community and society
- **Cultural**
  benefits and impacts for assets and collections of cultural importance
- **Technical**
  ensuring measures are operationally robust, safe to build, operate and maintain and take account of climate change.

Each of the potentially feasible options for each AFA, for which measures were assessed, was tested and scored against these Objectives to determine how well each option contributed towards meeting the defined Objective. Scoring each option against the Objectives took account of local issues (e.g. if the area was in an environmentally important region).

In many cases more than one option was considered feasible for a particular community and, together with the estimated costs for each measure, the overall scores against the Objectives and the views of the local community helped identify a proposed measure for each community.

4.6 Preparation of Flood Risk Management Plans

Flood Risk Management Plans were drafted for each of the 29 River Basins that included the 300 communities assessed. The Plans were the subject of statutory consultation and observations received were then analysed to inform the final Plans. The final Plans were approved by the Minister for Public Expenditure and Reform.

The Plans describe the flood risk assessed and set out the feasible proposed measures for each AFA. They also set out the measures that can benefit the management of flood risk nationally.

The Plans conclude that it appears possible to provide protection through flood relief schemes to approximately 95% of properties at risk within the assessed areas. The following table summarises the outputs that became evident during the CFRAM Programme process and indicates the number of properties affected by each measure:

Measure	No. of Properties	Summary Description
Existing programme of Flood Relief Schemes	21,500	The existing programme of flood relief schemes completed, at construction or under design, in an area assessed is considered sufficient to effectively manage the existing flood risk.
Proposed Flood Relief Scheme	11,500	Structural flood relief schemes have been deemed feasible at this stage of assessment. Their approval does not confer consent but they will be prioritised and taken forward for a more detailed project-level assessment and design.
Potential Flood Relief Scheme for Further Assessment	500	Further assessment of costs, benefits and, in some areas, further monitoring of flows or flood levels is required to provide sufficient confidence to take a proposed measure forward to detailed development and design.
No Scheme Proposed- Community at Low Risk / No Viable Structural Options	500	The level of community risk is relatively low and/or the cost of implementing any substantial additional measures may be significant. In terms of risk reduction, it is not possible to justify investment on structural works for these communities. The flood risk measures set out in Part 3 of this Report, that already benefit all at risk properties, and those in Part 5 of this Report that are under development will benefit the management of the flood risk in these communities.

A summary of the outputs for each AFA is attached at Appendix F. Details of the flood risk (where assessed) and flood relief schemes and other measures, in place, underway and now proposed for each area and nationwide are available on the OPW website, www.floodinfo.ie.

In some AFAs, more than one category of measure applies. For example, in Dublin City and Limerick, there are existing schemes, schemes already in design or construction and now some new measures proposed in the Plans.

4.7 Environmental Assessments

The CFRAM outputs in the 29 Flood Risk Management Plans were informed by Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA).

These Environmental Assessments identified, evaluated and described the likely significant effects on the environment of implementing the potential measures set out in the 29 Plans, with a view to avoiding adverse effects, and also, where appropriate, to set out recommendations as to how any identified adverse effects can be mitigated, communicated and monitored.

Two environmental documents accompany each Plan:

- Strategic Environmental Assessment Statement, which is the main technical output from the SEA process and evaluates the environmental aspects across a broad spectrum of aspects from material assets to landscape, and
- Natura Impact Statement, which is the main technical output from the AA process and evaluates the potential impacts on the European designated Natura 2000 sites.

These assessments are plan level environmental assessments. Where flood relief schemes are proposed during the more detail design phase, a series of project level environmental assessments will be carried out, depending on the scale and location of the scheme. These can include a further project level Appropriate Assessment on the Natura 2000 sites, an Environmental Impact Assessment on the overall project and in some cases other Ecological Impact Assessments on particular protected habitats or species.

In addition to the statutory and non-statutory environmental assessments, the CFRAM Programme is consistent with the Government's policy on biodiversity.

4.8 Climate Change

It is expected that climate change will impact on flood risk in Ireland, including through:

- sea level rise, which is already being observed and which is projected to continue to rise into the future, increasing risk to our coastal communities and assets,
- the number of heavy rainfall days per year is projected to increase, which could lead to an increase in both fluvial (river) and pluvial (urban storm water) flood risk, and
- wetter winters are projected, particularly in the West of the country, which could give rise to increased groundwater flood risk associated with Turloughs.

These potential impacts could have serious consequences for flood risk in Ireland, where most of the main cities are on estuaries or the coast and many of the main towns are on large rivers.

While there is considerable uncertainty associated with most aspects of the potential impacts of climate change on flood risk (e.g. how fast sea levels will continue to rise into the future), the OPW considered that it was prudent to take the potential for change into account in the development of proposed measures in the Flood Risk Management Plans.

Therefore the OPW's appraisal of flood risk and the choice of the measures proposed in the Flood Risk Management Plans took into account the assessment of risk for two potential future scenarios, the:

- Mid-Range Future Scenario - increase in rainfall of 20% and sea level rise of 500mm (20 inches), and
- High-End Future Scenario - increase in rainfall of 30% and sea level rise of 1,000mm (40 inches).

In this way, the assessment of potentially viable measures took into account how adaptable a proposed measure might be to cope with the potential impacts of climate change.

4.9 Public Consultation

Public and stakeholder engagement was a critical component to the process of developing a sustainable, long-term strategy for flood risk management. Such engagement was prioritised by the OPW to ensure that flood risk management measures are suitable and appropriate, as well as technically effective; and that they address key areas of local concern and will fit into the community environment in a way that local people will support.

Three rounds of local consultation at key stages were part of the CFRAM Programme. The OPW have met with local representatives, stakeholders and the public at nearly 500 public consultation days that were held in or near the communities as follows:

- during 2014 and 2015 on the draft flood mapping, where people were asked to view the draft flood maps and provide observations based on their local knowledge and experience with flooding in that area. It was also an opportunity to get some initial local views to identify what they saw as the potential solutions for the flood problems in their area and what was locally important to guide the identification of local factors to inform the proposed measure,

- during 2015 and 2016 on possible flood risk management options to protect the area from, or to mitigate, its risk from flooding. The input from each of the local communities helped to guide the process of identifying a proposed measure from the range of options available, and

- during 2016 on the draft Flood Risk Management Plan for their area, setting out both the flood risk measures for the entire area and the draft proposed measure to address the flood risk locally, with associated environmental assessments. Observations received were then analysed to inform the final Plans.

Throughout the process there were also two statutory public consultations as follows:

- on the flood maps, held from 20th November to 23rd December 2015 inclusive. This statutory consultation also gave those land and property owners, whose land was within one of three possible flood extents, the right to lodge a technical objection. Thirty-seven objections were lodged against the flood maps. Considering the objections on the flood maps, received through the formal map consultation process, involved a review of the maps and, in some instances, additional survey/re-modelling where appropriate.

- on the draft Flood Risk Management Plans, held for a period of 10 weeks for each Plan, between July and December 2016.

During the statutory consultations, the public and each Local Authority could provide their observations on the draft flood maps and the draft Plans. The OPW received over 1,000 observations on the draft flood maps, and over 500 submissions on the draft Plans, many of which addressed a large number of separate or specific issues. The observations and submission have been very constructive and informative and have helped to finalise the final flood maps and Plans.

The OPW has also held nearly 300 meetings with key State and non-Governmental bodies as part of the consultative process.

Part 5

Implementing the Measures set out in the Plans

OPW
Oifig na nOibreacha Poiblí
The Office of Public Works

118

FLOOD RELIEF SCHEMES
PROPOSED TO PROTECT 11,500 PROPERTIES

€1BN

FUNDING AVAILABLE
TO 2027

10 YEAR PROGRAMME OF FUTURE INVESTMENT

OTHER MEASURES UNDER DEVELOPMENT

- **Flood Forecasting**
- **Individual Property Protection**
- **Community Resilience**
- **Schemes are adaptable for climate change**

...for plans and maps

www.floodinfo.ie

5.1 Introduction

The publication and completion of the Flood Risk Management Plans is another significant milestone in the implementation of the 2004 National Flood Risk Policy. Implementing the Flood Risk Management Plans is a Government priority and is reflected in the capital investment proposed for the coming years. The implementation will require significant resources, both personnel and financial. Responsibility for implementing the full suite of measures rests with a range of State bodies.

A prioritised approach to the delivery of flood relief schemes, proposed in the Plans, is being adopted to achieve greatest benefit in return to the Government's investment.

In addition, the information from the CFRAM Programme provides important information to be further analysed for consideration by the Government of administrative arrangements for other non-structural measures that can potentially benefit all at risk properties.

5.2 Funding

The Government's National Development Plan (NDP) 2018 – 2027 includes a total funding allocation of €940m over the lifetime of the Plan to underpin the delivery of the existing flood relief capital works programme and the additional prioritised flood relief schemes recommended in the Flood Risk Management Plans. The NDP allocation taken with the funding allocations already made in 2016 and 2017 under the capital investment plan *Building on Recovery: Infrastructure and Capital Investment 2016 - 2021* represents total investment of over €1 billion in flood defence schemes. The annual allocation for flood defence measures will increase to €100m by 2021 demonstrating the priority placed by the Government on addressing Ireland's flood risk and reflecting also the flooding policy priorities set out by Government in *A Programme for a Partnership Government*.

To achieve greatest benefit Government investment to implement the structural measures proposed in the Plans is being prioritised.

5.3 Preparing Detail Design for Proposed Flood Relief Schemes

The Plans identify proposed flood relief schemes for a range of communities. Each one will now be brought through project-level development that includes further public and stakeholder engagement, detailed design and a local Public Exhibition or submission for planning approval or confirmation. The outputs from the detailed design may give rise at that stage to some amendment of the proposed works to ensure that it is fully adapted, developed and appropriate within the local context and that it is compliant with environmental legislation and is economically feasible.

The approach taken to identifying, assessing and proposing feasible structural defence measures for areas assessed at significant risk from flooding provides a consistent, robust and fair basis to inform how Government investment can prioritise delivery of major flood relief schemes.

The Government's investment to date is delivering protection to 6 out of 10 of the properties assessed to be at risk through the CFRAM Programme. The OPW will continue to manage its delivery of flood relief schemes in a prioritised manner. The completed flood relief schemes under OPW's capital works programme are set out in Appendix C and the 33 flood relief schemes currently in design and construction, are set out in Appendix D. These OPW schemes, in addition to other schemes currently being undertaken directly by the Local Authorities, will provide protection to approximately 21,500 properties.

In addition, the OPW has approved 660 Minor Works Projects since 2009 to end 2017 and almost 500 of these are completed providing protection locally to almost 6,500 properties. Two thirds of these completed projects are providing protection in communities outside of the CFRAM study areas.

Delivery of the structural measures in the Plans will be the responsibility of the OPW with delivery progressed in partnership with the Local Authorities. In total 122 communities are to benefit from delivery of 118 proposed schemes. Delivering new major flood relief schemes is being divided into the following three categories to firstly inform allocation of annual budgets against expenditure

targets, secondly to manage delivery of these schemes through a prioritised approach and thirdly deliver schemes in a regional and timely manner:

- **5** Large Schemes: each costing in excess of €15m and will protect one third of properties assessed by CFRAM to be at risk.
- **82** Small to Medium Schemes: each costing between €1m and €15m with delivery prioritised and managed in each CFRAM study area.
- **31** Minor Schemes: each costing less than €1m approximately, where it is more expedient for the Local Authorities to lead with OPW funding.

It is emphasised that the Plans set out the proposed structural measures that are considered to be the most appropriate at this stage of assessment. While the degree of detail of the assessment undertaken to date would give confidence that any amendments should generally not be significant, the potential works set out in the Plan may be subject to some amendment prior to implementation, and in some cases may be subject to significant amendment.

5.4 Developing Further Non-Structural Measures

Part 3 of this Report sets out those measures that benefit all at risk communities and properties. The outcome of the CFRAM Programme outlined in Part 4 of this Report has provided the evidence to further analyse and where appropriate develop additional flood policies to protect those at risk properties where it is not feasible through structural measures to protect them against their assessed flood risk. This includes approximately 5% of at risk properties within the 300 AFAs that it is not feasible to protect with structural flood relief schemes and properties that were not assessed through the CFRAM Programme and not protected by Minor Works.

The Interdepartmental Group will continue its work now greatly informed by the wealth of knowledge and output from the CFRAM Programme. The Group will bring forward further feasible proposals for Government's consideration to support and assist households and communities through non-structural flood risk management and mitigation measures.

Flood Prevention Measures Under Development

Planning

The Flood Maps generated as part of the CFRAM Programme will be incorporated into the www.myplan.ie website. This will provide an improved evidential basis for sustainable planning decisions by the planning authorities.

Land Use Management and Natural Flood Risk Management

It is recognised that Natural Flood Risk Management measures, such as the restoration of wetlands and the use of other more natural methods of managing a catchment, can have multiple and broader benefits in terms of biodiversity, water quality and amenity etc.

SUDS

Sustainable Urban Drainage Systems (SuDS) can play a role in reducing and managing run-off from new developments to surface water drainage systems, reducing the impact of such developments on flood risk downstream, as well as improving water quality and contributing to local amenity. A measure is included in the Plans for the planning authorities to seek to reduce the extent of hard surfacing and paving and require, subject to the outcomes of environmental assessment, the use of sustainable drainage techniques, in accordance with the *Guidelines on the Planning System and Flood Risk Management.*

Flood Protection Measures Under Development

Turloughs

The OPW and the Geological Survey of Ireland, at the end of 2016, commenced a three-year project on Turlough monitoring and modelling in order to advance further study into the mechanisms of groundwater flooding and to address the deficit of data available in this area.

Wetlands

Through the Irish Ramsar Wetlands Committee, the OPW in partnership with the Department of Culture, Heritage and the Gaeltacht and the Department Agriculture, Food and the Marine, is participating in a project to expand the baseline information for a whole series of Ramsar wetland sites in Ireland. This is a key first step in the long term conservation of these wetlands sites and will give direction as to how Ireland can manage the drainage and flood risk with the conservation of these internationally designated wetlands sites.

Flood Preparedness Measures Under Development

Flood Forecasting

The Government Decision of 5th January 2016 agreed to the establishment of a National Flood Forecasting and Warning Service. The first stage of the services comprises a Flood Forecasting Service that will be a new operational unit within Met Éireann with guidance for standards and performance overseen by the OPW. The service will deal with flood forecasting from river and coastal sources and when fully operational will involve the issuing of flood forecasts and general alerts at both national and catchment scales.

A Steering Group, including representatives from the OPW, the Department of Housing, Planning, and Local Government, Met Éireann, and the Local Authorities, has been established to steer, support and oversee the establishment of the new service over the next five years.

Individual Property Protection

Individual Property Protection (IPP) can be effective in reducing the damage to the contents, furniture and fittings in a house or business, but are not applicable in all situations. For example, they may not be suitable in areas of deep or prolonged flooding, or for some types of property with pervious foundations and flooring. Property owners considering the use of such methods should seek the advice of an appropriately qualified expert on the suitability of the measures for their property and consider the possible requirements for an environmental assessment. The outcomes of the two IPP pilots announced by Government on 26th January 2016 is informing Government on any feasible support it could provide to at risk properties where IPP may be feasible.

Community Resilience

The Department of Housing, Planning, and Local Government is researching how community resilience may be advanced within the overall field of emergency management and is further developing this aspect as part of the overall review of the Framework of Major Emergency Management.

5.5 Future Cycles of EU Floods Directive

The requirement under the EU Floods Directive is to review and, if necessary, update the Preliminary Flood Risk Assessment (PFRA), the Flood Maps and the Flood Risk Management Plans, on a six yearly cycle. This will include monitoring and reporting on the progress in implementation of the current Plans.

The Government has been proactively planning and delivering measures to manage Ireland's flood risk. The completion of the CFRAM Programme and its 29 Flood Risk Management Plans is another major milestone setting out measures that can prioritise and inform Government investment and consideration of policy initiatives.

The Government is however not complacent that these Plans address all of the flooding issues, and, notwithstanding the emphasis in the second cycle on review, intends to continue to refine and improve the understanding and management of flood risk nationally. Where possible, revised and improved approaches will be used to re-assess flood risk and how it should be managed as an integral part of the second cycle of implementation of the Directive. It is foreseen that this may include further assessment of rural flooding and of impacts on critical infrastructure.

5.6 Governance and Oversight

The Interdepartmental Flood Policy Co-ordination Group is responsible for monitoring progress across Government of the implementation of the National Flood Risk Policy.

It will monitor and routinely report to Government on the progress with the implementation of all measures set out by the 29 Plans, both structural and non-structural.

It will also consider the evidence and information available from the CFRAM Programme to inform its proposals for consideration by Government for further assistance and support for additional non-structural measures.

The OPW is establishing an EU Floods Directive Steering Group that will provide a technical forum to ensure a co-ordinated approach to the implementation of the Floods Directive across Government.

Appendices

Appendix A

Investment in Flood Risk since Winter 2015/2016

Since Winter 2015/2016, the Government has introduced a range of measures to further support flood risk in Ireland including:

- Improved planning for future events informed by its review of the response to the Winter 2015/2016 flood event. This review was prepared by the National Directorate for Fire and Emergency Management, a section of the Department of Housing, Planning and Local Government. Implementation of the recommendations of this report is being undertaken by the relevant bodies and overseen by the Government Task Force on Emergency Planning.
- Invested €83m in major flood relief schemes, 5 have been completed with a further 8 under construction and 25 schemes at design and planning stages.
- Launched 29 Flood Risk Management Plans (FRMPs) that contain detailed assessment and the proposed measures to be taken forward to protect 95% of the properties at risk within the areas designated in the FRMPs.
- Approved the proposed outline for 118 feasible flood relief schemes for an additional 122 at risk communities as set out in the FRMPs, that will protect approximately 11,500 properties. These are to be taken forward to detailed design through a prioritised approach that delivers greatest benefit.
- Invested in 109 Minor Works schemes across all Local Authority areas, at a cost of €5.4m and provide protection to 1,262 properties.
- Reviewed the criteria for the Minor Works Scheme, with significant improvements to the Scheme, with project threshold increased to €750,000, inclusion of farms as commercial premises, updated calculation of benefit for agricultural land and other associated revisions.
- Introduced structures and prepared an implementation plan to support the establishment of the National Flood Forecasting Service over a number of phases. Given the complexities involved in establishing, designing, developing and testing this new service, it is anticipated that it will take at least 5 years before it is fully operational.
- Promoted greater awareness for the public to plan for a flood event in their homes and businesses, including through the focus of the national *Be Winter Ready* campaign in Winter 2016/2017 as well as the OPW updating of its Plan, Prepare, Protect booklet.
- Supported communities' preparedness by working with the Irish National Flood Forum.
- Reviewed the Government's policy on flood insurance and has actively engaged with the insurance industry to support greater flood insurance coverage in all protected areas, including those protected with demountable defences.
- Funded two Individual Property Protection pilots in Thomastown and Graiguenamanagh in County Kilkenny (feasibility study) and Crossmolina (installation of flood gates) in County Mayo. These pilots are now informing the potential costs, benefits and administrative arrangements for consideration by Government of targeting any feasible assistance to homeowners to install individual property protection measures.

- Agreed the administrative arrangements for and commenced a Homeowners Voluntary Relocation Scheme for those primary residential properties that flooded during December 4th 2015 to January 13th 2016. This is a once-off national scheme of humanitarian assistance, targeting aid at those worst affected residential homes by that flood event for which there are no alternative feasible measures.

- Established the Shannon Flood Risk State Agency Co-ordination Working Group to enhance ongoing co-operation of all State agencies involved with the River Shannon and to add value to the implementation of the Shannon Flood Risk Management Plans, developed by the CFRAM Programme.

- The Government Task Force on Emergency Planning has published *Strategic Emergency Management (SEM) National Structures and Framework*, which was approved by Government in July 2017. It provides guidance and direction for the lead Government Departments, particularly for those responsible for the emergency incident types, including severe weather events such as flooding.

Appendix B

OPW Completed Arterial Drainage Schemes

Scheme	Counties	Duration of Works	Benefitting Area (Acres)
Brosna	Offaly, Westmeath, Laois	1948 - 55	86,200
Glyde & Dee	Louth, Meath, Monaghan, Cavan	1950 - 57	26,300
Feale	Kerry	1951 - 59	26,500
Corrib-Clare	Galway, Mayo, Roscommon	1954 - 64	74,900
Owenogarney	Clare	1955 - 59	2,100
Nenagh	Tipperary, Offaly	1955 - 60	6,500
Deel & Swillyburn	Donegal	1957 - 61	3,500
Shannon	Clare	1958 - 60	1,800
Ballyteigue / Kilmore	Wexford	1959 - 61	2,300
Maine	Kerry	1959 - 63	11,600
Fergus	Clare	1959 - 63	5,400
Inny	Westmeath, Longford, Meath, Cavan	1960 - 68	50,000
Moy	Mayo, Sligo, Roscommon	1960 - 71	61,000
Broadmeadow & Ward	Meath, Dublin	1961 - 64	7,400
Swilly, etc.	Donegal	1961 - 68	3,200
Killimor / Cappagh	Galway	1962 - 68	12,600
Deel	Limerick, Cork	1962 - 68	11,900
Shannon	Limerick	1962 - 71	12,100
Duff	Leitrim, Sligo	1963 - 65	3,600
Corrib-Headford	Galway, Mayo	1967 - 73	19,400
Owenavarragh	Wexford	1968 - 70	2,600
Carrigahorrig	Tipperary, Offaly	1968 - 71	3,800
Boyne	Meath, Westmeath, Louth, Cavan, Kildare, Offaly	1969 - 86	119,000
Groody	Limerick	1970 - 73	3,000
Maigue	Limerick, Tipperary, Cork	1973 - 86	30,500
Corrib-Mask-Robe	Mayo, Galway	1979 - 86	24,000
Boyle	Roscommon, Sligo, Mayo	1982 - 92	26,800
Bonet	Leitrim, Sligo	1982 - 92	3,200
Monaghan Blackwater	Monaghan	1984 - 92	5,850
TOTAL			**647,050**

Appendix C

OPW Flood Relief Schemes Completed 1995 to the End of 2017

This table sets out the main schemes completed under the Office of Public Works' flood relief capital works programme up to the end of 2017. It does not include projects completed by Local Authorities under the Minor Works Scheme or certain other works undertaken directly by Local Authorities within their own works programmes.

Bray, Co. Wicklow*	Mornington, Co. Meath
Carlow Co. Carlow	Morrell River, Maynooth, Co. Kildare
(i) Phase A	Mulkear River, Cappamore, Co. Limerick
(ii) Phase B	Mulkear River, Newport, Co. Tipperary
Carrick-on-Suir, Co. Tipperary	New Ross, Co. Wexford
Clancy Strand, Limerick City, Co. Limerick	Newcastle West, Co. Limerick
Clonmel, Co. Tipperary	Northlands, Co. Meath*
(i) Clonmel West	River Dodder (Tidal), Co. Dublin
(ii) Clonmel North & East	River Nore, Kilkenny City, Co. Kilkenny
Dromcollogher, Co. Limerick	River Tolka (Mulhuddart), Co. Fingal
Duleek, Co. Meath	River Tolka (Clonee and Dunboyne), Co. Meath
Dunmanway, Co. Cork	River Tolka, Dublin City
Ennis Upper, Co. Clare	River Wad (Clanmoyle), Co. Dublin
Fermoy, Co. Cork	Rye Water, Leixlip, Co. Kildare
(i) Fermoy North	Sixmilebridge, Co. Clare
(ii) Fermoy South	Skinkeen Stream, Hazelhatch, Co. Kildare
Foynes, Co. Limerick*	South Campshires, Dublin*
Gort Town, Co. Galway	Spencer Dock, Dublin City, Co. Dublin
Harry's Mall, Co. Limerick	Tullamore, Co. Offaly
Johnstown, Co. Kildare	Waterford City
Lackan/Ardrahan, Co. Galway	(i) Phase 1
Maam Valley, Co. Galway	(ii) Phases 2,3,4*
Mallow, Co. Cork	
(i) Mallow North	
(ii) Mallow South & West	

*Schemes completed since Winter 2015/16.

Appendix D

OPW Flood Relief Schemes at Construction/Design/Development at the End of 2017

This table sets out the main schemes underway under the Office of Public Works' flood relief capital works programme up to the end of 2017. It does not include projects by Local Authorities under the Minor Works Scheme or certain other works undertaken directly by Local Authorities within their own works programmes.

Schemes at Construction
Athlone, Co. Westmeath
Bandon, Co. Cork
Claregalway, Co. Galway
River Dodder (Fluvial), Dublin
Dunkellin River, Co. Galway
Ennis Lower, Co. Clare
Skibbereen, Co. Cork
Templemore, Co. Tipperary

Schemes at design/development
Arklow, Co. Wicklow
Ballymakeera, Co. Cork
Bellurgan, Co. Louth
Blackpool, Co. Cork
Camac River, Dublin
Carrigaline, Co. Cork
Clonakilty, Co. Cork
Clontarf, Dublin
Crossmolina, Co. Mayo
Douglas /Togher, Co. Cork
Ennis South, Co. Clare
Enniscorthy, Co. Wexford
Glanmire/Glashaboy, Co. Cork
Gort Lowlands, Co. Galway
King's Island, Limerick
Lower Lee (Cork City)
Lower Morrell, Co. Kildare
Macroom, Co. Cork
Midleton, Co. Cork
Poddle River, Dublin
Portmarnock, (Strand Rd.)
Raphoe, Co. Donegal
Sandymount, Dublin
Skerries, Co. Dublin
Whitechurch Stream, Dublin

Appendix E

Governance Structures for the CFRAM Programme

National Committees

Interdepartmental Flood Policy Co-ordination Group

The Group considers that the whole of Government approach is necessary to support flood risk management nationally. Relevant Government Departments and State Agencies are each taking the lead to provide effective supports and policy measures in their areas of responsibility outside of the OPW's scope and also to promote and address community and individual response.

The Group is chaired by the Minister of State with special responsibility for the Office of Public Works and Flood Relief and membership includes:

- Office of Public Works
- County and City Managers Association
- Department of Agriculture, Food and the Marine
- Department of Business, Enterprise and Innovation
- Department of Communications, Climate Action and Environment
- Department of Culture, Heritage and the Gaeltacht
- Department of Defence
- Department of Employment Affairs and Social Protection
- Department of Finance
- Department of Housing, Planning and Local Government
- Department of Public Expenditure and Reform
- Department of Transport, Tourism and Sport

CFRAM Steering Group

The National CFRAM Steering Group was established in 2009. It was established to provide for the engagement of key Government Departments and other State stakeholders in guiding the direction and the process of the implementation of the 'EU Floods Directive', including the National CFRAM Programme.

The National CFRAM Steering Group reported, through the OPW, to the Interdepartmental Flood Policy Co-ordination Group.

Membership of the National CFRAM Steering Group

- Office of Public Works
- County and City Managers Association
- Department of Agriculture, Food and the Marine
- Department of Culture, Heritage and the Gaeltacht
- Department of Housing, Planning and Local Government
- Department for Infrastructure (Dfl), Rivers (formerly Rivers Agency Northern Ireland)
- Environmental Protection Agency
- Electricity Supply Board
- Geological Survey of Ireland (Department of Communications, Climate Action and Environment)
- Irish Water
- Met Éireann
- Office of Emergency Planning
- Waterways Ireland

CFRAM Stakeholder Group

The National CFRAM Stakeholder Group was established in 2014. It was established to provide for the engagement of key national non-governmental stakeholder organisations at key stages in the process of implementing the National CFRAM Programme.

Organisations Invited to Meetings of the National Stakeholder Group

An Bord Pleanala	Industrial Development Agency	Irish Wildlife Trust
An Taisce	Inland Fisheries Ireland	Landscape Alliance Ireland
Association of Consulting Engineers of Ireland	Inland Waterways Association of Ireland	Local Authority Waters and Communities Office
Badgerwatch	Institute of Professional Auctioneers and Valuers	Macra na Feirme
Ballinasloe Flood Alleviation Group	Insurance Ireland	Marine Institute
Bat Conservation Ireland	Irish Academy of Engineering	National Anglers Representative Association
BirdWatch Ireland	Irish Angling Development Alliance	National Monuments Service
Bord na Mona	Irish Business and Employers Confederation	Native Woodland Trust
Canoeing Ireland	Irish Co-operative Organisation Society	Recreational Angling Ireland
Chambers Ireland	Irish Countrywomen's Association	Rowing Ireland
Chartered Institution of Water and Environmental Management	Irish Creamery Milk Suppliers Association	Royal Town Planning Institute
Coarse Angling Federation of Ireland	Irish Environmental Network	Shannon System Flood Alliance
Coastal and Marine Resources Centre	Irish Farmers Association	Society of Chartered Surveyors of Ireland
Coastwatch Ireland	Irish Federation of Pike Angling Clubs	South Laois River Drainage Committee
Coillte	Irish Federation of Sea Anglers	St. Vincent de Paul
Construction Industry Federation	Irish Floods Federation (Laois)	Sustainable Water Network (SWAN)
Council of Cultural Institutes	Irish Marine Federation / Irish Boat Rental Association	SWAP – Little Bray Co. Wicklow
Department for Infrastructure Northern Ireland	Irish National Committee of Blue Shield	Teagasc
Dublin City Council / Dublin Flood Forum	Irish National Flood Forum	The Heritage Council
Dublin Institute of Technology	Irish Natura and Hill Farmers Association	The Irish Organisation for Geographic Information
Eir	Irish Natural Forestry Foundation	Transition Network/Transition Kerry
EirGrid	Irish Peatland Conservation Council	Transport Infrastructure Ireland
Engineers Ireland	Irish Planning Institute	Trout Anglers Federation of Ireland
ESB	Irish Red Cross	TTT – EU Project on Community Resilience
Gas Networks Ireland	Irish Small and Medium Enterprises Association	
Health Services Executive	Irish Water	
Iarnród Eireann	Irish Water and Fish Preservation Society	

Project level committees that Guided each of the Six CFRAM Programme

Project Advisory / Steering Group

A Project Advisory / Steering Group was established for each of the six CFRAM Projects. These Groups, which included senior representatives from Local Authorities and other State Agencies, provided input to guide the CFRAM Programme. It acted as a very important forum for communication between the CFRAM Programme and senior management of key stakeholders.

Project Progress Group

A Project Progress Group was established for each of the six CFRAM Projects. These Groups were working groups that supported the Project Advisory / Steering Groups. The Groups were established to oversee the implementation of each CFRAM project, to ensure regular communication between key stakeholders and the CFRAM Project and to support the successful implementation of the Project.

In total, over 250 meetings of these Advisory/Steering and Progress Groups were held throughout the implementation process for the National CFRAM Programme.

Stakeholder Group

CFRAM Stakeholder Groups were established for each of the six CFRAM projects to provide a forum to engage with local non-governmental stakeholder organisations. These groups met at key stages in the CFRAM process.

Appendix F

Summary of the Outputs for Areas identified in the Flood Risk Management Plans.

The CFRAM Programme studied the flood risk for 300 areas or communities and concluded that it is possible to provide protection through flood relief schemes to approximately 95% of properties at risk within the assessed areas. The following table summarises the main outputs in respect of each of the 300 areas, with some areas identified under more than one category to address the risk identified.

AFA / AREA NAME	County	Existing Scheme in Place	Scheme in Construction, Design or Pending	New Scheme Proposed in the Plans	Potential Scheme subject to further assessment.	No Scheme Proposed as Community at Low Risk or Scheme Not Viable*
Properties at Risk identified in the Plans		9,500	12,000	11,500	500	500
Carlow	Carlow	√		√		
Leighlinbridge	Carlow	√		√		
Tullow	Carlow	√				
Ballyconnell	Cavan					√
Cavan	Cavan			√		
Bunratty	Clare			√		
Ennis	Clare	√	√			
Kilkee	Clare			√		
Killaloe	Clare			√		
Kilrush	Clare			√		
O'Brien's Bridge & Montpelier	Clare				√	
Quinn	Clare					√
Shannon	Clare			√		
Shannon Airport	Clare					√
Sixmilebridge	Clare	√				
Springfield	Clare			√		
Ballingeary	Cork			√		
Ballymakeery / Ballyvourney	Cork		√			
Bandon	Cork		√			
Bantry	Cork			√		
Carrigaline	Cork		√			
Castlemartyr	Cork			√		
Castletown Bearhaven	Cork			√		
Charleville*	Cork					√
Clonakilty	Cork		√			

AFA / AREA NAME	County	Existing Scheme in Place	Scheme in Construction, Design or Pending	New Scheme Proposed in the Plans	Potential Scheme subject to further assessment.	No Scheme Proposed as Community at Low Risk or Scheme Not Viable*
Cork City	Cork		√			
Douglas	Cork		√			
Dunmanway	Cork	√			√	
Durrus	Cork					√
Fermoy	Cork	√				
Freemount	Cork	√				
Glanmire	Cork		√			
Inchigeelagh	Cork			√		
Inishannon	Cork			√		
Kanturk	Cork			√		
Killeagh	Cork					√
Little Island	Cork		√			
Macroom	Cork		√			
Mallow	Cork	√				
Midleton & Ballynacorra	Cork		√			
Milford*	Cork					√
Passage West	Cork					√
Rathcormack	Cork			√		
Schull	Cork			√		
Skibbereen	Cork		√			
Togher	Cork		√			
Tower	Cork	√				
Whitegate	Cork					√
Youghal	Cork			√		
Ardara	Donegal					√
Ballybofey / Stranorlar	Donegal			√		
Bridge End	Donegal					√
Bunbeg Derrybeg	Donegal				√	
Buncrana & Luddan	Donegal			√		
Bundoran & Environs	Donegal					√
Burnfoot	Donegal				√	
Carndonagh	Donegal			√		
Carrowkeel	Donegal			√		

AFA / AREA NAME	County	Existing Scheme in Place	Scheme in Construction, Design or Pending	New Scheme Proposed in the Plans	Potential Scheme subject to further assessment.	No Scheme Proposed as Community at Low Risk or Scheme Not Viable*
Castlefinn	Donegal			√		
Clonmany	Donegal					√
Convoy	Donegal				√	
Donegal	Donegal			√		
Downies	Donegal			√		
Dunfanaghy	Donegal			√		
Dungloe	Donegal					√
Glenties	Donegal			√		
Killybegs	Donegal			√		
Killygordon	Donegal					√
Letterkenny	Donegal			√		
Lifford	Donegal			√		
Malin	Donegal					√
Moville	Donegal				√	
Newtown Cunningham	Donegal					√
Raphoe	Donegal		√			
Rathmelton	Donegal			√		
Rathmullan	Donegal			√		
Tullaghan	Donegal					√
Balbriggan*	Dublin					√
Baldonnel	Dublin					√
Balgriffin	Dublin		√			
Belcamp Park	Dublin					√
Donabate	Dublin					√
Dublin City	Dublin	√	√	√		
Kinsaley	Dublin					√
Loughlinstown	Dublin			√		
Lucan to Chapelizod	Dublin	√		√		
Lusk	Dublin					√
Malahide	Dublin		√			
Mulhuddart	Dublin	√				
Old Connaught / Wilford	Dublin			√		
Oldtown	Dublin					√

AFA / AREA NAME	County	Existing Scheme in Place	Scheme in Construction, Design or Pending	New Scheme Proposed in the Plans	Potential Scheme subject to further assessment.	No Scheme Proposed as Community at Low Risk or Scheme Not Viable*
Portrane	Dublin					√
Rush	Dublin				√	
Santry	Dublin	√	√	√		
Skerries	Dublin		√			
Staffordstown Turvey	Dublin					√
Sutton & Baldoyle	Dublin					√
Sutton & Howth North	Dublin			√		
Swords	Dublin					√
Swords (south)	Dublin	√				
Bray	Dublin & Wicklow	√				
Ahascragh	Galway				√	
Athenry	Galway					√
Ballinasloe	Galway	√		√		
Claregalway	Galway		√			
Clifden	Galway			√		
Corrofin	Galway				√	
Galway City	Galway			√		
Gort	Galway	√				√
Kinvarra	Galway					√
Loughrea	Galway					√
Oranmore	Galway					√
Oughterard*	Galway					√
Portumna	Galway			√		
Roundstone	Galway					√
Tuam	Galway					√
Abbeydorney	Kerry			√		
Ballylongford	Kerry			√		
Banna	Kerry			√		
Castleisland	Kerry			√		
Dingle	Kerry			√		
Glenflesk	Kerry				√	
Kenmare	Kerry			√		
Killarney	Kerry			√		

AFA / AREA NAME	County	Existing Scheme in Place	Scheme in Construction, Design or Pending	New Scheme Proposed in the Plans	Potential Scheme subject to further assessment.	No Scheme Proposed as Community at Low Risk or Scheme Not Viable*
Listowel	Kerry			√		
Milltown*	Kerry					√
Moneycashen	Kerry					√
Portmagee	Kerry					√
Tarbert Power Station*	Kerry					√
Tralee	Kerry			√		
Tullig	Kerry			√		
Allenwood	Kildare					√
Athy	Kildare			√		
Castledermot	Kildare				√	
Celbridge	Kildare				√	
Clane	Kildare			√		
Hazelhatch	Kildare	√			√	
Johnstown Bridge	Kildare					√
Kilcock	Kildare					√
Leixlip	Kildare	√		√		
Maynooth	Kildare	√		√		
Monasterevin	Kildare					√
Naas	Kildare	√		√		
Newbridge	Kildare			√		
Rathangan	Kildare					√
Suncroft	Kildare				√	
Turnings	Kildare	√	√			
Ballyhale	Kilkenny			√		
Ballyragget	Kilkenny					√
Callan	Kilkenny	√			√	
Fiddown	Kilkenny					√
Freshford	Kilkenny			√		
Graiguenamanagh	Kilkenny			√		
Inistioge	Kilkenny			√		
Kilkenny Breagagh	Kilkenny				√	
Kilkenny Nore	Kilkenny	√				
Mullinavat	Kilkenny					√
Piltown	Kilkenny			√		

AFA / AREA NAME	County	Existing Scheme in Place	Scheme in Construction, Design or Pending	New Scheme Proposed in the Plans	Potential Scheme subject to further assessment.	No Scheme Proposed as Community at Low Risk or Scheme Not Viable*
Thomastown	Kilkenny			√		
Ballyroan	Laois					√
Clonaslee	Laois			√		
Mountmellick	Laois			√		
Mountrath	Laois				√	
Portarlington	Laois			√		
Portlaoise	Laois				√	
Rathdowney	Laois			√		
Ballinamore	Leitrim					√
Carrick on Shannon	Leitrim			√		
Dromod	Leitrim			√		√
Drumshanbo	Leitrim					√
Leitrim	Leitrim			√		
Manorhamilton	Leitrim					√
Mohill	Leitrim			√		
Abbeyfeale*	Limerick					√
Adare	Limerick			√		
Askeaton	Limerick			√		
Athea	Limerick			√		
Cappamore	Limerick	√				
Castleconnell	Limerick			√		
Clarina	Limerick					√
Croom*	Limerick					√
Dromcolliher	Limerick	√				
Foynes	Limerick	√		√		
Kilmallock*	Limerick					√
Limerick City & Environs	Limerick	√	√	√		
Newcastle West	Limerick	√		√		
Rathkeale	Limerick			√		
Abbeyshrule	Longford					√
Ballymahon	Longford					√
Cloondara	Longford					√
Edgeworthstown	Longford					√

AFA / AREA NAME	County	Existing Scheme in Place	Scheme in Construction, Design or Pending	New Scheme Proposed in the Plans	Potential Scheme subject to further assessment.	No Scheme Proposed as Community at Low Risk or Scheme Not Viable*
Lanesborough Power Station	Longford					√
Longford	Longford			√		
Annagassan	Louth				√	
Ardee	Louth			√		
Baltray	Louth			√		
Blackrock South	Louth			√		
Carlingford & Greenore	Louth			√		
Dundalk	Louth			√		
Termonfeckin	Louth				√	
Drogheda	Louth & Meath			√		
Ballina & Environs	Mayo			√		
Ballyhaunis	Mayo					√
Castlebar*	Mayo					√
Crossmolina	Mayo		√			
Foxford	Mayo				√	
Louisburgh	Mayo				√	
Newport	Mayo					√
Swinford	Mayo				√	
Westport	Mayo			√	√	
Westport Quay	Mayo					√
Charlestown & Environs (Incl Bellaghy)	Mayo & Sligo					√
Ashbourne	Meath		√			
Athboy	Meath					√
Ballivor	Meath					√
Bettystown	Meath	√	√			
Clonee	Meath	√				
Duleek	Meath	√				
Dunboyne	Meath	√				
Gormanston	Meath					√
Longwood	Meath					√
Mornington	Meath	√		√		
Navan	Meath				√	
Ratoath	Meath				√	

AFA / AREA NAME	County	Existing Scheme in Place	Scheme in Construction, Design or Pending	New Scheme Proposed in the Plans	Potential Scheme subject to further assessment.	No Scheme Proposed as Community at Low Risk or Scheme Not Viable*
Trim	Meath					√
Ballybay	Monaghan			√		
Carrickmacross	Monaghan					√
Inishkeen	Monaghan			√		
Monaghan	Monaghan			√		
Birr	Offaly			√		
Clara	Offaly					√
Daingean	Offaly					√
Edenderry & Environs	Offaly					√
Pollagh	Offaly					√
Rahan	Offaly			√		
Shannon Harbour	Offaly					√
Shannonbridge Power Station	Offaly					√
Tullamore	Offaly	√				
Athleague	Roscommon			√		
Boyle	Roscommon			√		
Castlerea	Roscommon					√
Roscommon	Roscommon			√		
Ballymote	Sligo					√
Ballysadare & Environs	Sligo					√
Collooney	Sligo					√
Coolaney	Sligo				√	
Gorteen	Sligo					√
Riverstown	Sligo					√
Sligo Town & Environs	Sligo			√		
Ardfinnan	Tipperary			√		
Ballyporeen	Tipperary					√
Bansha	Tipperary					√
Borrisokane	Tipperary					√
Borrisoleigh	Tipperary			√		
Cahir	Tipperary			√		
Carrick on Suir	Tipperary	√				
Clonmel	Tipperary	√				

AFA / AREA NAME	County	Existing Scheme in Place	Scheme in Construction, Design or Pending	New Scheme Proposed in the Plans	Potential Scheme subject to further assessment.	No Scheme Proposed as Community at Low Risk or Scheme Not Viable*
Fethard	Tipperary			√		
Golden	Tipperary			√		
Marlfield*	Tipperary					√
Mullinahone	Tipperary		√			
Nenagh	Tipperary			√		
Newcastle	Tipperary			√		
Newport	Tipperary	√				
Roscrea	Tipperary			√		
Templemore	Tipperary		√			
Thurles	Tipperary			√		
Tipperary Town	Tipperary					√
Aglish	Waterford			√		
Ballyduff	Waterford			√		
Dungarvan & Environs	Waterford			√		
Dunmore East	Waterford					√
Portlaw	Waterford					√
Ringphuca	Waterford			√		
Tallow	Waterford					√
Tramore & Environs	Waterford					√
Waterford	Waterford	√				
Athlone	Westmeath	√	√			
Kilbeggan	Westmeath					√
Mullingar	Westmeath	√				
Blackwater	Wexford					√
Bunclody	Wexford					√
Courtown	Wexford					√
Enniscorthy	Wexford		√			
Gorey	Wexford					√
Kilmore	Wexford					√
New Ross & Environs	Wexford	√				
North Slobs	Wexford					√
South Slobs	Wexford					√
Wexford	Wexford			√		
Arklow	Wicklow		√			

AFA / AREA NAME	County	Existing Scheme in Place	Scheme in Construction, Design or Pending	New Scheme Proposed in the Plans	Potential Scheme subject to further assessment.	No Scheme Proposed as Community at Low Risk or Scheme Not Viable*
Ashford & Rathnew	Wicklow			√		
Aughrim	Wicklow				√	
Avoca	Wicklow			√		
Baltinglass	Wicklow			√		
Blessington	Wicklow			√		
Greystones & Environs	Wicklow			√		
Kilcoole	Wicklow				√	
Newcastle	Wicklow				√	
Wicklow	Wicklow			√		

* *A proposed structural flood relief scheme for these areas is not deemed to be viable at this time. This will be kept under review into the future. The Plans set out other non-structural measures and initiatives either already in place or proposed to benefit these areas and all at risk communities such as planning guidelines, flood forecasting and emergency response.*

Note: Outputs exclude works carried out under the Minor Flood Mitigation Works and Coastal Protection Scheme. A full list of these works is available at www.opw.ie. This scheme continues to be available to Local Authorities to address localised flooding.

In addition to the 300 areas that were the focus of the CFRAM Programme, a small number of other areas were also assessed through four pilot CFRAM programmes, or have rural or small flood relief schemes already in place or in progress. These other areas have been referenced in the Flood Risk Management Plans and the main outputs for these are summarised below.

AREA NAME	County	Existing Scheme in Place	Scheme in Construction, Design or Pending	New Scheme Proposed in the Plans	Potential Scheme subject to further assessment.	No Scheme Proposed as Community at Low Risk or Scheme Not Viable
Cobh	Cork				√	
Crookstown	Cork		√			
Ardrahan	Galway	√				
Dunkellin	Galway		√			
Gort Lowlands	Galway		√			
Maam Valley	Galway	√				
Bellurgan	Louth		√			
Holycross	Tipperary			√		
Knocklofty	Tipperary			√		

Notes:

Notes:

Notes:

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