Final

FLOOD RISK ASSESSMENT STATEMENT FOR THE SOUTHERN, EASTERN AND MIDLAND REGIONAL PROGRAMME 2021-2027

Project no. 4140006

Prepared for:

Southern Regional Assembly

March 2022

Table of contents

Details of document preparation and issue:

Version no.	Prepared	Checked	Reviewed	Approved	Issue date	Issue status
V07	ND/AE	PC	HC	HC	16/02/2022	Draft for information
V08	ND/AE	PC	HC	HC	10/03/22	Draft for information
FINAL	ND/AE	PC	HC	HC	11/03/2022	FINAL

Project no. 4140006

File name: Flood Risk Assessment Statement for the Southern, Eastern and Midlands Regional Programme.docx

Notice:

This report was prepared by Binnies UK Limited (BUKL) solely for use by RSK Ireland Ltd. This report is not addressed to and may not be relied upon by any person or entity other than RSK Ireland Ltd for any purpose without the prior written permission of BUKL. BUKL, its directors, employees and affiliated companies accept no responsibility or liability for reliance upon or use of this report (whether or not permitted) other than by RSK Ireland Ltd for the purposes for which it was originally commissioned and prepared.

In producing this report, BUKL has relied upon information provided by others. The completeness or accuracy of this information is not guaranteed by BUKL.

1. Summary

This report explains the regional flood risk assessment undertaken for the Southern, Eastern and Midlands Regional Programme 2021-2027 ("Regional Programme"). The need for the assessment and the methodology followed are explained in sections 2 and 3. Sections 4 and 5 include the results of the analysis. Section 6 provides the recommendations.

In conclusion, no further flood risk analysis is required at this stage of the programme. However, more detailed flood risk analysis will be required when the priorities and objectives which may lead to development on the ground (priorities: SEM1- objective RSO1.3- and SEM3) are developed further.

2. Need for the assessment

The Southern Regional Assembly (SRA) has procured RSK Ireland Ltd to prepare an environmental report of the likely significant effects on the environment of implementing the Regional Programme. The report will be carried out in accordance with EU Directive 2001/42/EC ('the SEA Directive'). As part of the SEA process, there is a need to do a screening for Regional Flood Risk Appraisal (RFRA) and, where required, additional stages of RFRA in accordance with the requirements of sections 4.2-4.10 of the Department of Housing, Planning, Community and Local Government Guidelines for Planning Authorities No. 20: "The Planning System and Flood Risk Management". This report supports the screening decision for the RFRA. Binnies (an RSK Company) are supporting RSK by producing the RFRA element of the work.

The Southern, Eastern and Midland Regional Programme 2021-2027 includes the following priorities and specific objectives:

- **Priority SEM1**: Smarter and More Competitive Regions.
    - Specific objective: RSO1.1. Developing and enhancing research and innovation capacities and the uptake of advanced technologies.
    - Specific objective: RSO1.3. Enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs, including by productive investments.
- **Priority SEM2**: Low-Carbon Energy Efficient Regions.
    - Specific objective: RSO2.1. Promoting energy efficiency and reducing greenhouse gas emissions.
- **Priority SEM3:** Sustainable and Integrated Urban Development.
    - Specific objective: RSO5.1. Fostering the integrated and inclusive social, economic and environmental development, culture, natural heritage, sustainable tourism, and security in urban areas.

3. Methodology

The methodology of the assessment is outlined below:

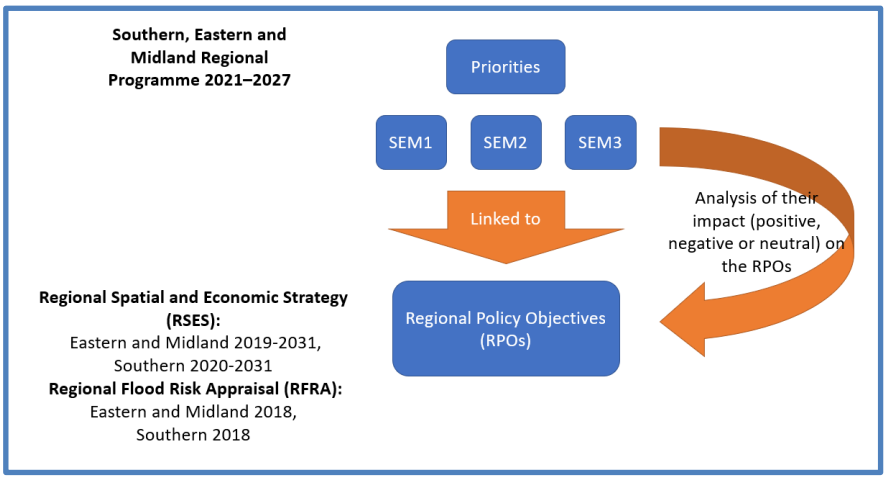

Figure 1: Methodology for the assessment of the SEM Programme's impacts on flood risk. The priorities within the programme (SEM1, SEM2 and SEM3) were aligned with the strategies' policy objectives and their flood risk analysis.

The priorities within the SEM Programme were mapped to the objectives and ambitions in the Regional Spatial and Economic Strategies (RSES) (Southern 2020 –2031 -Table 1-, and Eastern and Midland 2019-2031 -Table 2-) and the findings of the supporting 2018 Regional Flood Risk Appraisals (RFRAs). This allowed us to understand how the priorities within the programme aligned with both RSESs. . The findings from each RFRA and their recommendations were reviewed to understand if they were relevant to the programme priorities (sections 4 and 5). Finally, the impacts of the priorities were assessed in flood risk terms to understand if further analysis was needed at this stage. The outcome of this analysis supports our recommendations in section 6.

4. Flood risk analysis of the Regional Programme in relation to the Southern RSES and RFRA

Table 1 shows the priorities for the Southern, Eastern and Midland Regional Programme and how they relate to the objectives in the Southern RSES and the supporting RFRA's findings. The assessment of the priorities' potential impact on flood risk is shown in the last column.

4.1 Alternatives

The priorities analysed on Table 1 are the chosen priorities (Alternative 1). Two alternatives were also considered when developing the Regional Programme under the SEA process (refer to SEA Scoping Report). Alternative 2 focused on promoting energy efficiency on public sector buildings rather than on residential homes for those at risk of energy poverty, (priority SEM2 - RSO2.1). Alternative 3 proposed a reallocation of resources, reducing the funding allocated to support sustainable and integrated urban development (priority SEM3 - objective RSO5.1) and increasing the allocation to actions under priority SEM1 (smarter and more competitive region). The impact of Alternative 2 on flood risk is likely to be similar to Alternative 1 (neutral-slightly

positive). However, Alternative 3 would lead to less funding for sustainable development, which could have a detrimental effect on flood risk.

4.2 Regional Strategy and flood risk objectives

The Southern RSES includes flood risk as one of the guiding principles to identify locations for strategic employment development (page 119 of the strategy). Flood risk issues are fully integrated in the strategy and references are found in a large number of the Regional Policy Objectives (RPO) and Metropolitan Area Strategic Plan (MASP) Policy Objectives:

- RPO 1(a) (Environmental Assessment)
- RPO 5 (Population Growth and Environmental Criteria)
- RPO 9 (Holistic Approach to Delivering Infrastructure)
- RPO 11(9b) (Key Towns)
- RPO 24(h) (Dungarvan)
- RPO 54 (Tourism and the Environment)
- RPO 59 (National Bio-economy Hub in Lisheen)
- RPO 68 (Regional Investment)
- RPO 77 (Maritime Spatial planning - Consistency and Alignment)
- RPO 78 (First Mover under the National Marine Planning Framework)
- RPO 83 (Island and Coastal Communities)
- RPO 84 (Fishing Local Area Group (FLAG) Development Strategies)
- PRO 85 (Marine Cluster)
- RPO 89 (Building Resilience to Climate Change)
- RPO 112 (Water Quality)
- RPO 113 (Floods Directive)
- RPO 114 (Flood Risk Management Objectives)
- RPO 115 (Flood Risk Management Plans)
- RPO 116 (Planning System and Flood Risk Management)
- RPO 117 (Flood Risk Management and Biodiversity)
- RPO 118 (Flood Risk Management and Capital Works)
- RPO 119 (Flood Relief Schemes)
- RPO 120 (Flooding and Coastal Erosion)
- RPO 121(Effective Collaboration to Implement River Basin Management Plans and Water Framework Directive)
- RPO 122 (Sustainable Drainage Systems - SuDS)
- RPO 123 (River Basin Management Plan and Spatial Planning)
- RPO 124 (Green Infrastructure)
- RPO 143 (Ports and Airports)
- RPO 217 (Storm Water Infrastructure)
- RPO 218 (Sustainable Urban Drainage and Rainwater Harvesting)
- Cork MASP Policy Objective 19 (Flood Risk Management)
- Cork MASP Policy Objective 21 (Healthy Cities, Healthy Environment and Health Infrastructure)

— Waterford MASP Policy Objective 21 (Metropolitan Open Space, Recreation and Greenbelt Strategy)

4.3 Regional Flood Risk Assessment

The 2018 Southern RFRA states (section 3.1): "*The Guidelines require the planning system at all governance levels to:-*

— *Avoid development in areas at risk of flooding, unless there are proven wider sustainability grounds that justify appropriate development and where the flood risk can be reduced or managed to an acceptable level without increasing flood risk elsewhere;*

— *Adopt a sequential approach to flood risk management when assessing the location for new development based on avoidance, reduction and mitigation of flood risk; and*

— *Incorporate flood risk assessment into the process of making decisions on planning applications and planning appeals."*

The 2018 RFRA provides a high-level flood risk assessment for different areas in the region, including those areas where it is important that flood risk is addressed. It suggests flood risk management policies and provides guidance for the preparation of city and county Strategic Flood Risk Assessments (SFRAs) and surface water management.

Table 5.1 of the Southern RFRA analyses the flood risk implications of the Regional Strategic Outcomes (RSO). Chapter 2 of the RSES sets out 11 RSES Strategy Statements for the RSES which represent RSOs and which are aligned with the National Strategic Outcomes of the National Planning Framework (NPF). They include RSOs for Sustainable, Planned and Infrastructure Led Development and a Low Carbon, Climate Resilient and Sustainable Society. Under RSES Chapter 4 A Strong Economy: Innovative and Smart, two RSOs are sought (RSO 5: Strong Economy and RSO 11: Inclusive International Region -section 4.1, page 98) and they align with the guiding principles and RPOs. Therefore, the analysis in the RFRA is relevant to the guiding principles and the RPOs. The RFRA analysis is shown in the third column of Table 1 (below).

Emerging Southern, Eastern and Midland Regional Programme Priority – Southern Region	RFRA Objectives that apply to this priority		Analysis: Impact of Priority on flood risk and recommendations
	Regional Policy Objectives and guiding principles	**Regional Flood Risk Assessment findings (table 5.1)**	
SEM1. Smarter and more competitive regions **RSO1.1. Developing and enhancing research and innovation capacities and the uptake of advances technologies (ERDF)** **RSO1.3. Enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs, including by productive investments (ERDF)**	**People and Places** (RPOs 2, 6, 8, 11b, 14a.i, 15a&e, 16a, 22e, 24a, 25a, 26a &b, 34, 37, 38b) **A Strong Economy-Innovative and Smart** (RPOs 39, 40, 44, 46, 48, 49, 50, 51, 57, 62, 66, 67, 68, 69, 78) **Environment** (RPOs 86, 89, 94, 101 to15) **Connectivity** (RPOs 133 to 138, 160, 161, 172) **Quality of Life** (RPOs 183, 184, 187, 189, 191, 192, 197) **Implementation** (RPO 228) **Cork MASP** (PO 1, 2, 4, 6, 10, 11) **Limerick-Shannon MASP** (POs 3, 5, 11 to 13) **Waterford MASP (**POs 5, 12, 14) **Guiding Principles:** • Re-intensify employment	**Compact growth** Policies which encourage re-development in the settlement centres needs to be managed in a sustainable manner in areas of flood risk. The sequential approach and application of the Justification Test will be required at all levels of the planning process and adequate mitigation measures introduced to manage residual risk. Regeneration should consider the Guidelines and Circular PL02/2014 (August 2014). The circular specifically addresses regeneration areas and flood risk management of their development. **Enhanced Regional Accessibility** Development of regional transportation projects such as roads and railways should include an FRA to ensure development is appropriate if they lie in a flood risk area. Infrastructural projects should include SuDS to ensure runoff is controlled to at least the greenfield runoff rate. **Sustainable Mobility** Development of transportation should include an FRA to ensure development is appropriate if they lie in a flood risk area. Infrastructural projects should include SuDS to ensure runoff is controlled to at least the greenfield runoff rate.	Research and innovation could potentially be beneficial, if used to understand and address flood risk. Examples of this could be smart monitoring of drainage networks, more research on accurate forecasting of surface water flooding events, etc. At this stage, **objective RSO1.1** does not propose any infrastructure on the ground, so it is likely to have a **neutral impact.** **Recommendation:** no further flood risk analysis is required at this stage. **Objective RSO1.3** could include new buildings (or the adaptation of existing ones) to assist and promote innovation. However, the priority does not include any earmarked location for development. The **impact could be both positive or negative** depending on how development and supporting infrastructure are implemented and maintained.

		High-Quality International Connectivity Development to aid economic growth and improve connectivity should still follow the sequential approach of the Guidelines and best practice for storm water runoff is vital to achieve sustainable development and reduce flood risk. **A Strong Economy supported by Enterprise, Innovation and Skills** Development to aid economic growth should still follow the sequential approach of the Guidelines and best practice for storm water runoff is vital to achieve sustainable development and reduce flood risk. **Strengthened Rural Economies and Communities** Reusing vacant properties and reuse of existing buildings reduces the need for further development but regeneration projects should consider the Guidelines and Circular PL02/2014 (August 2014). The circular specifically addresses regeneration areas and flood risk management of their development. Some of these buildings may already be developed in inappropriate areas. Development of rural areas also needs to be developed in accordance with the Guidelines. FRAs should be carried out to an appropriate detail to ensure development is sustainable and avoided in flood risk areas. Smaller rural areas may not be covered by the scope of the CFRAM mapping but this does not mean they are free of flood risk.	**Recommendation:** no further flood risk analysis can be undertaken at this stage. However, any development and supporting infrastructure, should have due consideration to flood risk and drainage guidance and adhere to Regional Policy Objectives relevant to flood risk (refer to section 4.2 above). Adaptive and resilient regeneration schemes in flood risk areas may lead to flood risk reduction. Development funding should be leveraged to implement defences to protect existing communities and businesses in those areas. Flood risk should be assessed at planning application stage following national, regional and local flood risk guidance. It is important that Strategic Flood risk Assessments are updated in a timely fashion to reflect regional and national plans. Due consideration should also be given to local policies as, although they should be in conformity with the RSES and Project Ireland 2040 Our Plan (National Planning Framework), they may contain specific local flood risk and

		Serviced development sites should also include management of storm water runoff, an integrated catchment approach should be followed. **Access to Quality Childcare, Education and Health Services** Healthcare and educational infrastructure should be developed in line with the Guidelines and FRAs to an appropriate level of detail should be carried out to ensure infrastructure is avoided in flood risk areas insofar as possible. **Enhanced Culture, Amenity and Heritage** Protecting important cultural or heritage sites from the effects of flooding is vital to enhancing the region's quality of life for residents and uniqueness on an international level. A review of these sites' vulnerabilities to the effects of flooding or other natural events will provide early opportunities to protect these sites from the effects of future events, especially those associated with climate change. Implementation of the Guidelines to ensure that development follows the sequential approach to avoid non appropriate development in flood prone areas. **Sustainable Management of Water, Waste and Other Environmental Resources** Any public utility infrastructure that is required to maintain these services should be developed in accordance with the Guidelines. Water supply and waste water infrastructure needs to stay operational during extreme flood events to reduce pressure on	drainage requirements, supported by an evidence base.
SEM2. Low-Carbon Energy Efficient Regions **RSO2.1. Promoting energy efficiency and reducing greenhouse gas emissions (ERDF)**	**People and Places** (RPOs 20c, 38d) **A Strong Economy- Innovative and Smart** (RPOs 41, 56, 85) **Environment** (RPOs 87, 88, 90 to 106, 109,130) **Connectivity** (RPOs 139 141, 147, 151, 163, 170, 171) **Quality of Life** (RPOs 219, 221, 225) **Guiding Principles:** • Enabling Infrastructure		Reducing carbon usage has a net positive impact on climate change. Climate change increases flood risk so this could be positive, but the connection is quite distant. At this stage, both the priority and objective RSO2.1 are high level and do not propose any infrastructure on the ground. Therefore, they are likely to have a **neutral-slightly positive impact.** **Recommendation: no further flood risk analysis is required at this stage.**
SEM3. Sustainable and Integrated Urban Development **RSO5.1. Fostering the integrated and inclusive social, economic and environmental development, culture, natural heritage, sustainable tourism, and**	**Introduction** (RPO 1) **People and Places** (RPOs 1, 3 10, 11, 14aiv & aix 18f & g, 21e, 22d, 24a, 26d, e & f, 29, 30, 31, 34 to 37) **A Strong Economy – Innovative and Smart** (RPOs 53, 54 59, 68, 78, 80, 81, 83) **Environment** (RPOs 92, 93, 103, 115, 116, 118, 122 to 124, 129)		**Objective RSO5.1** will include new development and associated infrastructure. However, the priority does not include any earmarked location for development. The **impact is likely to be positive** as sustainable development should address flood risk and drainage in an integrated way. **Recommendation:** no further flood risk analysis can be undertaken at this stage. However, any development and

security in urban areas (ERDF)	**Connectivity** (RPOs 142, 144, 150, 164 to 166, 169, 173) **Quality of Life** (RPOs 175, 176, 179, 181, 182, 185 192, 195, 199, 202, 203, 205, 211 to 215, 217, 218) **Water and Energy Utilities** (RPOs 212, 220) **Cork MASP** (POs 1, 3, 5, 7, 12, 15, 17 to 19, 22) **Limerick-Shannon MASP** (POs 1 to 4, 10, 20-23) **Waterford MASP** (POs 1, 3, 4, 6a, 8, 9, 11, 13, 18, 21, 24, 25) **Guiding Principles:** A Living City and suburbs Metropolitan Engine Compact sustainable growth Integrated transport and land use Future development areas Accelerate housing delivery Better alignment of growth Metropolitan scale amenities Enabling infrastructure Co-ordination and active land management	emergency services and to ensure that the public have access to those vital services in times of emergency. **Transition to a Low Carbon and Climate Resilient Society** Adopting climate change factors for hydrology and hydraulic calculations in FRAs will allow for consideration of climate change effects on flood extents. Therefore, avoiding development in areas which may be prone to flood risk in the future as our climate changes. Implementation of the Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and best practice for storm water runoff is vital to achieve sustainable development and reduce flood risk. Flood Risk Management policies should encourage the use of climate change predictions to ensure that its potential influence is captured in our spatial planning and development. **Build an inclusive outward looking international region on the global stage** Implementation of the Guidelines and best practice for storm water runoff is vital to achieve sustainable development and reduce flood risk for the Region.	supporting infrastructure, should have due consideration to flood risk and drainage guidance and adhere to Regional Policy Objectives relevant to flood risk (refer to section 4.2 above). Flood risk should be assessed at planning application stage following national, regional and local flood risk guidance and supported by updated Strategic Flood Risk Assessments. Due consideration should be given to local policies as, although they should be in conformity with the RSES and Project Ireland 2040 Our Plan (National Planning Framework), they may contain specific local flood risk and drainage requirements, supported by an evidence base.

Table 1: Findings of the assessment of the Programme's impacts on flood risk in the Southern

5. Flood risk analysis of the Regional Programme in relation to the Eastern and Midland RSES and RFRA

Table 2 below shows the priorities for the Southern, Eastern and Midland Regional Programme and how they relate to the objectives in the Eastern and Midland RSES and the supporting RFRA's findings. The assessment of the priorities' potential impact on flood risk is shown in the last column.

5.1 Alternatives

The priorities analysed on Table 2 are the chosen priorities (Alternative 1). Two alternatives were also considered when developing the programme. Alternative 2 focused on promoting energy efficiency on public sector buildings rather than on residential homes (priority SEM2). Alternative 3 proposed a reallocation of resources, reducing the funding allocated to support sustainable and integrated urban development (priority SEM3) and increasing the allocation to actions under priority SEM1 (smarter and more competitive region). The impact of Alternative 2 on flood risk is likely to be similar to Alternative 1 (neutral-slightly positive). However, Alternative 3 would lead to less funding for sustainable development, which could have a detrimental effect on flood risk.

5.2 Regional Strategy and flood risk objectives

The Eastern and Midland RSES includes two Overarching Environmental Regional Strategic Outcomes directly related to flood risk and environmental issues (page 25 of the strategy):

- Objective 8 (Building Climate Resilience): Ensure the long-term management of flood risk and build resilience to increased risks of extreme weather events, changes in sea level and patterns of coastal erosion to protect property, critical infrastructure and flood security in the Region.
- Objective 10 (Enhanced Green Infrastructure): Identify, protect and enhance Green Infrastructure and ecosystem services in the Region and promote the sustainable management of strategic natural assets such as our coastlines, farmlands, peatlands, uplands woodlands and wetlands.

The Eastern and Midland RSES also includes the following Regional Policy Objectives (RPOs) directly related to address flood risk:

- RPO 3.5 (Environmental Assessment and Assessment of Greenhouse Gas - GHG -Emissions)
- RPO 3.7 (Sustainable Growth)
- RPO 4.9 (Athlone Regional Growth Centre)
- RPO 4.17 (Drogheda Regional Growth Centre)
- RPO 4.25 (Dundalk Regional Growth Centre)
- RPO 4.73 (Portlaoise Key Town).
- RPO 4.76 (Graiguecullen – Carlow Key Town)
- RPO 7.3 (Coastal Dynamics)
- RPOs 7.12-7.15 (Flooding)
- RPO 7.26 (Riparian setbacks)

- RPOs 10.15-18 (Surface Water)

5.3 Regional Flood Risk Assessment

The 2018 Eastern and Midland RFRA states (section 3.1): *"The Guidelines require the planning system at all governance levels to:-*

- *Avoid development in areas at risk of flooding, unless there are proven wider sustainability grounds that justify appropriate development and where the flood risk can be reduced or managed to an acceptable level without increasing flood risk elsewhere;*
- *Adopt a sequential approach to flood risk management when assessing the location for new development based on avoidance, reduction and mitigation of flood risk; and*
- *Incorporate flood risk assessment into the process of making decisions on planning applications and planning appeals."*

The 2018 RFRA provides a high-level flood risk assessment for different areas in the region, including those areas where it is important that flood risk is addressed. It suggests flood risk management policies and provides guidance for the preparation of city and county SFRAs and surface water management.

Table 5.1 of the Eastern and Midland RFRA analyses the flood risk implications of the Regional Strategic Outcomes (RSO). The RSOs are shown in section 2.3 (page 25) of the strategy, and they align with the guiding principles and RPOs. Therefore, the analysis in the RFRA is relevant to the RPOs. The RFRA analysis is shown in the third column of Table 2 (below).

Emerging Southern, Eastern and Midland Regional Programme Priority -Eastern and Midland Region	RFRA Objectives that apply to this priority		Analysis: Impact of Priority on flood risk and recommendations
	Regional Strategic Outcomes and Objectives	**Regional Flood Risk Assessment findings (table 5.1)**	
SEM1. Smarter and more competitive regions **RSO1.1. Developing and enhancing research and innovation capacities and the uptake of advances technologies (ERDF)** **RSO1.3. Enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs, including by productive**	**Growth Strategy** (RPO 3.7) **People and Places** (RPOs 4.2, *4.4, 4.5, 4.11, 4.16, 4.19, 4.24, 4.35, 4.38, 4.40, 4.58, 4.61, 4.70, 4.75, 4.77,* 4.81) **Athlone Regional Growth Centre** (RPO 4.5) **Dundalk Regional Growth Centre** (RPO 4.22) **Key Towns** (RPO 4.27) **Wicklow-Rathnew Key Town** (RPO 4.55) **Tullamore Key Town** (RPO 4.70) **Dublin Metropolitan Area Strategic Plan** (RPO 5.1) **Economy and Employment** (RPOs 6.1, 6.5, 6.6, 6.9, 6.21, 6.24, 6.26, 6.29 to 6.33) **Environment and Climate** (RPOs 7.34, 7.43) **Connectivity** (RPOs 8.25, 8.26) **Quality of Life** (RPO 9.22) **Infrastructure** (RPOs 10.4, 10.5, 10.8, 10.12, 10.23) **Implementation and Monitoring** (RPOs 12.3, 12.4)	**Sustainable settlement patterns** Development in the settlement centres and docklands needs to be managed in a sustainable manner as some of these areas are flood risk areas. Flood resilient construction methods should be implemented where appropriate in the urban environment where development space is restricted (as identified in the Dublin City SFRA for construction adjacent to the Liffey and along the quays). Implementation of the Guidelines and best practice for storm water runoff is vital for new greenfield sites to achieve sustainable development and reduce flood risk to these areas. **Compact growth and Urban regeneration** Policies which encourage re-development in the settlement centres needs to be managed in a sustainable manner in areas of flood risk. The sequential approach and application of the Justification Test will be required at all levels of the planning process and adequate mitigation measures introduced to manage residual risk. Regeneration should the Guidelines and Circular PL02/2014 (August 2014). The circular specifically addresses regeneration areas and flood risk management of their development. **Rural communities** Reusing vacant properties and reuse of existing buildings reduces the need for further development but regeneration projects should consider the Guidelines and Circular PL02/2014 (August 2014). The circular specifically addresses regeneration areas and flood risk management of their development. Some of these buildings may already be developed in inappropriate areas.	Research and innovation could potentially be beneficial, if used to understand and address flood risk. Examples of this could be smart monitoring of drainage networks, more research on accurate forecasting of surface water flooding events, etc. At this stage, **objective RSO1.1** does not propose any infrastructure on the ground, so it is likely to have a **neutral impact.** **Recommendation:** no further flood risk analysis is required at this stage. **Objective RSO1.3** could include new buildings (or the adaptation of existing ones) to assist and promote innovation. However, the priority does not include any earmarked location for development. The **impact could be both positive or negative** depending on how development and supporting infrastructure are implemented and maintained. **Recommendation:** no further flood risk analysis can be undertaken at this stage. However, any development and

investments (ERDF)		Development of rural areas also needs to be developed in accordance with the Guidelines. FRAs should be carried out to an appropriate detail to ensure development is sustainable and avoided in flood risk areas. Smaller rural areas may not be covered by the scope of the CFRAM mapping but this does not mean they are free of flood risk. Serviced development sites should also include management of storm water runoff, an integrated catchment approach should be followed. **Healthy Communities** Healthcare infrastructure should be developed in line with the Guidelines and FRAs to an appropriate level of detail should be carried out to ensure infrastructure is avoided in flood risk areas insofar as possible. **Creative places** Implementation of the Guidelines to ensure that development follows the sequential approach to avoid non appropriate development in flood prone areas. **Integrated Transport and Land Use** Development of major infrastructural transportation projects such as airports, roads and ports should include an FRA to ensure development is appropriate if they lie in a flood risk area. Infrastructural projects should include SuDS to ensure runoff is controlled to at least the greenfield runoff rate. The critical transport infrastructure should also be considered to be designed to a higher flood event return period (e.g. 0.1% AEP) so as to ensure that in extreme weather events that emergency services are not hindered and plans can be implemented. **Sustainable Management of Water, Waste and other environmental resources** Any public utility infrastructure that is required to maintain these services should be developed in accordance with the Guidelines. Water supply and wastewater infrastructure needs to stay operational during extreme flood events to reduce pressure on emergency services and also to ensure that the public have access to those vital services in times of emergency. **Build Climate Resilience** Adopting climate change factors for hydrology and hydraulic calculations in FRAs will allow for consideration of climate change effects on flood extents. Therefore, avoiding development in areas which may be prone to flood risk in the future as our climate changes.	supporting infrastructure, should have due consideration to flood risk and drainage guidance and adhere to Regional Policy Objectives relevant to flood risk (see section 5.2 above). Adaptive and resilient regeneration schemes in flood risk areas may lead to flood risk reduction. Development funding should be leveraged to implement defences to protect existing communities and businesses in those areas. Flood risk should be assessed at planning application stage following national, regional and local flood risk guidance. It is important that Strategic Flood risk Assessments are updated in a timely fashion to reflect regional and national plans. Due consideration should also be given to local policies as, although they should be in conformity with the RSES and Project Ireland 2040 Our Plan (National Planning Framework), they may contain specific local flood risk and drainage requirements, supported by an evidence base.
SEM2. Low-Carbon Energy Efficient Regions **RSO2.1. Promoting energy efficiency and reducing**	**Growth Strategy** (RPO 3.6) **Swords Key Towns** (RPO 4.32) **Bray Key Towns** (RPO 4.41) **Portlaoise Key Town** (RPO 4.72) **Rural Areas** (RPO 4.84) **Economy and Employment** (RPOs 6.9, 6.23) **Environment and Climate** (RPOs 7.35 to 7.42) **Connectivity** (RPOs 8.7, 8.23)		Reducing carbon usage has a net positive impact on climate change. Climate change increases flood risk so this could be positive, but the connection is quite distant. At this stage, both the priority and objective RSO2.1 are high level and do not propose any infrastructure on the ground. Therefore, they are likely to

greenhouse gas emissions (ERDF)	**Infrastructure** (RPOs 10.19 to 10.24	Implementation of the Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and best practice for storm water runoff is vital to achieve sustainable development and reduce flood risk. **Support the Transition to Low Carbon and Clean Energy** Flood Risk Management policies should encourage the use of climate change predictions to ensure that its potential influence is captured in our spatial planning and development. **Enhanced Green Infrastructure** Integration and development of green infrastructure will reduce runoff rate therefore reducing flood risk. **Infrastructure** Implementation of the Guidelines will help achieve these policies by maintaining green spaces and reducing urban sprawl thus avoiding new development in potential flood risk areas. This will also maintain natural flood management features which help to reduce downstream flooding in urban areas. **Biodiversity and Natural Heritage** Maintaining habitats such as those peatlands, woodlands and wetland will also maintain natural flood management features which help to reduce downstream flooding in urban areas. **A Strong Economy supported by Enterprise and Innovation** Development to aid economic growth should still follow the sequential approach of the Guidelines and best practice for storm water runoff is vital to achieve sustainable development and reduce flood risk. **Improve Education Skills and Social Inclusion** Educational infrastructure should be developed in line with the Guidelines and FRAs to an appropriate level of detail should be carried out to ensure infrastructure is avoided in flood risk areas insofar as possible. **Global City Region** Implementation of the Guidelines and best practice for storm water runoff is vital to achieve sustainable development and reduce flood risk for the Gateway Region. **Enhanced Regional Connectivity**	have a **neutral-slightly positive impact.** **Recommendation: no further flood risk analysis is required at this stage.**
SEM3. Sustainable and Integrated Urban Development **RSO5.1. Fostering the integrated and inclusive social, economic and environmental development, culture, natural heritage, sustainable tourism, and security in urban areas (ERDF)**	**Growth Strategy** (RPOs 3.2, 3.3, 3.7) **People and Places** (RPOs 4.1, 4.2, 4.3) **Athlone Regional Growth Centre** (RPOs 4.8) **Drogheda Regional Growth Centre** (RPOs 4.15 to 4.17) **Dundalk Regional Growth Centre** (RPOs 4.23 to 4.25) **Key Towns** (RPO 4.26) **Swords Key Towns** (RPO 4.29, 4.30) **Maynooth Key Towns** (RPO 4.36) **Bray Key Towns** (RPO 4.39) **Longford Key Town** (RPO 4.62) **Mullingar Key Town** (RPO 4.65) **Graiguecullen Key Town** (RPO 4.75) **Dublin MASP** (RPOs 5.4, 5.5) **Economy and Employment** (RPOs 6.12, 6.14) **Environment and Climate** (RPOs 7.12 to 7.15) **Quality of Life** (RPOs 9.8, 9.10) **Infrastructure** (RPOs 10.1, 10.15 to 10.18) **Implementation and Monitoring** (RPOs 12.3, 12.4)		**Objective RSO5.1** will include new development and associated infrastructure. However, the priority does not include any earmarked location for development. The **impact is likely to be positive** as sustainable development should address flood risk and drainage in an integrated way. **Recommendation:** no further flood risk analysis can be undertaken at this stage. However, any development and supporting infrastructure, should have due consideration to flood risk and drainage guidance and adhere to Regional Policy Objectives relevant to flood risk (section 5.2 above). Flood risk should be assessed at planning application stage following national, regional and local flood risk guidance and supported by updated Strategic Flood Risk Assessments. Due consideration should be given to local policies as, although they should be in conformity with the RSES and Project Ireland 2040 Our Plan (National Planning Framework), they may contain specific local flood risk and drainage requirements, supported by an evidence base.

		Development of regional transportation projects such as roads and railways should include an FRA to ensure development is appropriate if they lie in a flood risk area. Infrastructural projects should include SuDS to ensure runoff is controlled to at least the greenfield runoff rate. **Collaboration Platform** Collaborative FRAs for settlements which cross administrative boundaries (e.g. Carlow town, Drogheda) should be undertaken. Also, this will ensure that development in border counties on shared catchments is appropriate and follows the principles of the Guidelines and the Northern Ireland Department of Environment Planning Policy Statement, PP5 15 'Planning and Flood Risk'. This cross-border co-operation will ensure that flood risk on shared catchments is reduced and managed.	

Table 2: Findings of the assessment of the Programme's impacts on flood risk in the Eastern and Midlands Region

6. Recommendations

Figure 2 shows the two-stage flood risk analysis of the Regional Programme. We are currently at Stage 1. The analysis in Tables 1 and 2 show that the Regional Programme priorities are generally in line with the objectives in the RSES for the Southern Region and Eastern and Midland Region. These priorities are very high level at this stage and unlikely to have any significant impact on flood risk. We consider that the recommendations of the existing 2018 RFRA are also valid for the priorities assessed.

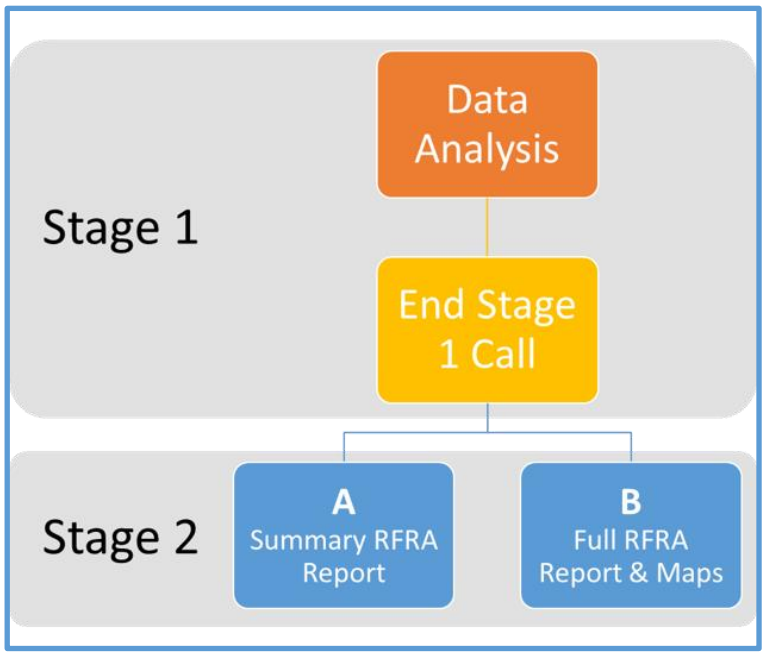

Figure 2: Stages for the analysis of the impact of the programme on flood risk.

It is our recommendation that Stage 2 of the RFRA does not need to be progressed at this time. The Regional Programme will not be setting out location, site specific or project specific details on the ground, including defining and safeguarding areas for development.

Should the final Regional Programme identify strategic areas for development that are located in high or medium flood risk areas, we would recommend that the RFRA proceeds to Stage 2A in the first instance, but this requirement is not likely owing to the nature of the Regional Programme.

This would involve a review of the 2018 RFRA, the existing Strategic Flood Risk Assessments (SFRAs) and local flood risk information to understand if the information is up to date and relevant to the development area and if any further analysis is required.

Stage 2B would be required if there is new flood risk information available for the development area that should be reflected in a RFRA update. The need for a full review of the RFRA would be determined by the extent of updates needed to the 2018 assessment as well as any future revisions to Regional objectives that could have flood risk implications. Localised updates to flood risk information could be managed by a RFRA addendum or updates to SFRAs.

The cumulative impact of development may need to be considered depending on the scale, timing, size, and locations of development. EIA Regulations should be followed, when relevant,

to address any potential impacts. It will be a requirement through legislation that any projects co-funded through the Regional Programme will follow required processes for planning, environmental assessment and flood risk assessment including SEA, SFRA, EIA and AA and alignment to the SFRA under the relevant City and County Development Plans and Local Area Plans where a project is located. These next stages will need to ensure that any proposed development is located in areas of low flood risk (following the sequential approach). If this is not possible, the development should address both, onsite and offsite flood risk to reduce flood risk to the development and not exacerbate flood risk elsewhere. The Justification Test will be required at all levels of the planning process and adequate mitigation measures introduced to manage residual flood risk behind flood defences.

As shown in Tables 1 and 2, national, regional, and local guidance and policies should be followed to ensure sustainable development which addresses and reduces flood risk on and offsite.

SFRAs support the development of City and County Development Plans and provide sound evidence base which should be considered when new development is put forward. The following SFRAs have been updated since the Regional Flood Risk Appraisal was published. They could be a source of more updated local flood risk information.

Southern

- Cork City
- Cork County
- Clare County
- Limerick City and County
- Tipperary County
- Carlow County
- Kilkenny County
- Kerry County
- Waterford City
- Waterford County
- Wexford

Eastern and Midland

- Louth County
- Meath County
- Westmeath
- Kildare
- Offaly County
- Laois County
- Longford
- Wicklow County
- Dun Laoghaire County
- Dublin City
- South Dublin County (draft at time of writing)
- Fingal County

City and County Development Plans, Local Area Plans and supporting SFRAs will need to be followed for developments that receive co-funding support through the Regional Programme. Although City and County Development Plans and Local Area Plans need to align to the RSES of each region, local policies will reflect issues of local importance and seek to address development impacts. Local authorities could set more stringent policies (in terms of mitigation requirements for drainage and flood risk issues) than regional policies in their City and County Development Plans and Local Area Plans to reflect specific local flood risk issues. It will be a requirement under planning and environmental acts and regulations that any development proposals are in line with such plans.