

Local Development Plan (LDP) - Position
Paper

Flooding and Drainage



**Ards and
North Down**
Borough Council

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Executive Summary

This Position Paper provides the Council with an overview of baseline evidence in relation to drainage and flood risk in Ards and North Down. It examines the various types of flooding and the policy and operational measures that are in place that aim to deal with the risks. The paper should assist in identifying the key future direction for the Local Development Plan (LDP) up to 2030, by allowing members to consider the key issues in relation to the managing the flood risk to our people and property.

It is important to stress that in compiling the Position Paper the best information available has been used however it may need revised in light of the release of any new data.

The paper will provide a foundation of evidence to bring forward proposals in the Preferred Options Paper (POP) and also form a starting point with the views of members generated as part of the engagement event. The POP is the earliest stage of plan preparation and will form the basis for consulting with the public and stakeholders on a range of options for dealing with key issues in the Borough. It will also allow members to commence consideration of how policy for the effective management of development affecting floodplains and watercourses can be formulated within the context of the Regional Development Strategy (RDS 2035) and the Strategic Planning Policy Statement (SPPS).

Any future decision making will need to be made within the context of a Sustainability Appraisal under the provisions of Planning (Northern Ireland) Act 2011. This paper is therefore intended to generate members' ideas on how planning can best manage development to minimise the risk of flooding.

Introduction

- 1.1 The aim of this paper is to provide baseline evidence with respect to flooding in order to inform members and enable meaningful participation in the LDP topic-based workshops.
- 1.2 Flooding is a natural phenomenon which cannot be entirely prevented. It can happen at any time and there is consequent risk to people, property, infrastructure and the natural environment. Flooding originates from four main sources:
 - Fluvial Flooding (from rivers) occurs when the river channel capacity is exceeded and water is conveyed and stored within the natural flood plain of the river;
 - Pluvial Flooding (surface flooding) occurs as a result of rainfall which overwhelms natural or man-made drainage systems and results in water flowing overland or ponding in depressions;
 - Flooding from reservoirs can occur if the reservoir fails structurally or by an unusually high release of water via spillways. Although the likelihood of this type of flooding is low, the impact upon communities is high due to the sudden release and rapid inundation of flood water; and
 - Coastal Flooding occurs when inundation from the sea takes place along coastal areas as a result of a combination of high tides, storm surge and wave action.
- 1.3 This paper will focus on the first three types of flooding and members should refer to 'The Coast' paper for further information on coastal flooding.
- 1.4 It is generally accepted that we are more likely to experience more regular flooding in the future. In urban areas, surface water flooding may increase due to the development of green spaces and paving of gardens and driveways. Deforestation, agricultural drainage and changing land management practices increase flows in watercourses and climate change

predictions also suggest a rise in sea level, increase in winter precipitation and an increase in the intensity of extreme rainfall events.

- 1.5 A fundamental reason why people and property are at risk from flooding is that many towns and cities are located within flood plains. Historically, people chose settlement locations close to rivers based upon the need for drinking water, foul drainage, transport, commerce and fishing.
- 1.6 The planning system has a role to play in balancing the pressure for development within towns and cities against flood risk and to prevent future development that may be at risk from flooding or that may increase the risk of flooding elsewhere.

Regional Planning Policy Context

- 2.1 The regional policy context is provided by the Regional Development Strategy (RDS) 2035 and the Strategic Planning Policy Statement (SPPS). A summary of these documents as they relate to plan making and flood risk and drainage is provided in the following paragraphs.

[Regional Development Strategy 2035 \(RDS\)](#)

- 2.2 The RDS 2035 sets out the strategic framework for the promotion of sustainable development in the Region. It recognises the need to avoid, where possible, the selection of flood prone land for employment and housing growth. It urges the planning system to adopt a precautionary approach to development in areas of flood risk and the use of the latest flood risk information that is available in order to properly manage development.
- 2.3 Policy RG12: 'Promote a more sustainable approach to the provision of water and sewerage services and flood risk management'
Changes in population distribution, household formation, urban development and our changing lifestyles continue to put increased pressure on our water

resources and drainage systems. Climate change will also have an impact upon our water environment, with potentially increased flood events from drainage systems, rivers, the sea and surface water runoff. The following measures should be implemented:

- Integrate water and land use planning: This will involve close cooperation between planning authorities and the water industry in the preparation of local development plans and long term water strategies
- Manage future water demand: The reduction of water consumption by reducing waste can lead to a lower carbon footprint as less water will need to be abstracted, treated and pumped.
- Encourage sustainable surface water management: Greater use of Sustainable Drainage Systems (SuDS) should be encouraged, particularly as part of significant development proposals. SuDS provide a water quality benefit and if designed appropriately can help control flows into rivers and drains, thereby reducing the risk of flooding. All new urban storm water drainage systems should incorporate measures to manage the flow of waters which exceed design standards in order to help protect vulnerable areas.

[Strategic Planning Policy Statement \(SPPS\)](#)

2.4 The Strategic Planning Policy Statement (SPPS), was published in September 2015. It states the following in relation to flood risk:

Flood Risk

2.5 The SPPS confirms that development can exacerbate flooding and identifies the important role that the planning system has in managing development in a way that reduces the risks and impacts of flooding. From a planning perspective, the relevant regional strategic objectives for the management of flood risk are to:

- Prevent inappropriate new development in areas known to be at risk of flooding or that may increase the risk of flooding elsewhere;
- Adopt a precautionary approach to the identification of land for development through the LDP process, in those areas susceptible to flooding where there is a lack of precise information on present day flood risk or future uncertainties;
- Manage development in ways that are appropriate to the four main sources of flood risk in Northern Ireland;
- Seek to protect development that is permitted in flood risk areas by ensuring that adequate and appropriate measures are employed to mitigate and manage flood risks;
- Promote sustainable development through the retention and restoration of natural flood plains and watercourses as a form of flood alleviation;
- Encouraging the use of sustainable drainage for new development and redevelopment; and
- Promote public awareness of flood risk information that is available.

The Role of the Development Plan

- 2.6 LDPs must take account of the potential risks from flooding over the plan period and beyond as this is likely to influence decisions on such matters as the zoning of land for development or the designation of land for open space use. Flood risk may also be a consideration in the designation of new settlements. LDPs should also promote sustainable drainage within the plan area, for example by requiring such solutions, where appropriate to individual zonings, as a key site requirement.
- 2.7 LDPs must take account of the most up to date information on flood risk, in particular what is available on the Strategic Flood Map. There should also be consultation with Rivers Agency from an early stage on strategic issues relating to flood risk management.
- 2.8 LDPs should adopt a precautionary approach to development in areas that are susceptible to flood risk presently or in the future as a result of climate

change predictions. Consequently, LDPs should not bring forward sites or zone land that may be susceptible to flooding now or in the future, unless in exceptional circumstances.

Local Planning Policy Context

[Planning Policy Statement 15: Planning and Flood Risk \(PPS15\)](#)

- 3.1 The aim of PPS15 (updated September 2014) is to prevent future development that may be at risk from flooding or that may increase the risk of flooding elsewhere.
- 3.2 The policy approach of PPS15 is to prevent development within fluvial and coastal floodplains, protect existing flood defences, protect developments from overland (surface) flooding and prevent unnecessary culverting or closing of existing open river channels.
- 3.3 Development is not permitted in flood plains unless it satisfies one of a number of exception criteria such as being classed as strategic infrastructure. The policy also requires the submission of a drainage assessment for all new residential schemes of 10 units or more or on sites in excess of 1 hectare in order to address the issue of pluvial flooding.

[Addendum to Planning Policy Statement 7: Safeguarding the Character of Established Residential Areas \(PPS7\)](#)

- 3.4 Policy LC3 of the addendum to PPS7 states that 'favourable consideration will be given to the use of permeable paving within new residential developments as a means of reducing the risk of flooding associated with surface water run-off. Where appropriate, private driveways, patios, paths and shared hard landscaped areas should be built using permeable paving materials.'

- 3.5 Permeable pavements are one example of a sustainable drainage system that can be easily implemented to help control the flow and speed of surface water runoff whilst blending into the urban fabric of a new residential development.

Extant Area Plans

[North Down and Ards Area Plan 1984-1995 \(NDAAP\), Belfast Urban Area Plan, draft Belfast Metropolitan Area Plan 2015 \(dBMAP\) and Belfast Metropolitan Area Plan 2015 \(BMAP\)](#)

- 4.1 It should be noted that BMAP was adopted in September 2014 but was subsequently quashed as a result of a judgment in the Court of Appeal delivered on 18 May 2017. As a consequence of this, the North Down and Ards Area Plan 1984-1995, the Belfast Urban Area Plan, and Bangor Town Centre Plan 1995 are now the statutory Development Plans for the North Down area with draft BMAP remaining a material consideration. These plans remain extant until replaced by the new Local Development Plan (LDP) for the Borough. The existing plans are an important consideration in the LDP process, as they provide a starting point for the review of our spatial planning options.
- 4.2 The Enler River is one of a number of major recorded flooded areas that could significantly affect particular settlements within the plan area. Prospective developers are therefore advised to liaise early in the formation of their proposals with NI Water and Rivers Agency to clarify flooding or flood plain issues that may affect particular sites.

[Ards and Down Area Plan 2015 \(ADAP\)](#)

- 4.3 ADAP is a development plan prepared under the provisions of Part 3 of the Planning (NI) Order 1991 by the Department of the Environment (DOE). The Plan covers the Borough Council areas of Down and Ards.

- 4.4 The ADAP again highlights the areas alongside the Enler River in Comber as major areas of flooding. The Enler acts as a significant environmental constraint to the continued urban growth and expansion of the town. On a positive note, the river corridor also provides an important wetland wildlife habitat and landscape feature.

Council Plans and Strategies

[Ards and North Down Corporate Plan 2015-2019](#)

- 5.1 The Council's Corporate Plan does not specifically refer to flood risk, however the principles of flood management are in keeping with 'promoting a clean, healthy, safe and sustainable environment,' under the **PLACE** strategic priority heading, as having an effective and informed policy approach to flood risk management will contribute positively to the environment that we live and work in.

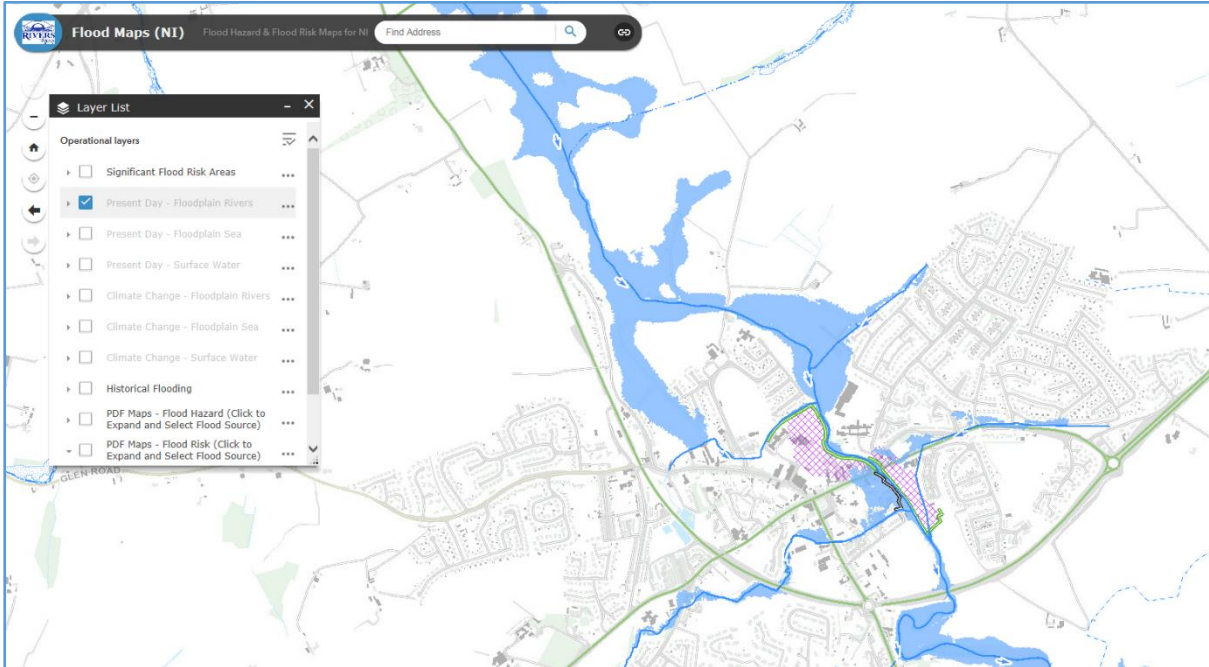
[The Big Plan for Ards and North Down 2017-2032](#)

- 5.2 Building resilience against flooding and developing appropriate drainage solutions also support the Community Plan (The Big Plan for Ards and North Down 2017-2032) aspirations of 'All people in Ards and North Down feel pride from having access to a well-managed sustainable environment.' (Outcome 5)

Flood Maps NI

- 6.1 Flood Maps NI is a multi-layered predictive flood mapping tool that covers the whole of Northern Ireland. The map comprises of two main elements: the Indicative Flood Map and the detailed Flood Hazard Map. The map was produced using a composite of strategic and detailed data on rivers, sea and surface water flooding and predictive computer modelling techniques. It aims

to raise public, government and local authority awareness of the likelihood of various types of flooding, thus supporting a pro-active and co-operative approach to flood risk management.



Map 1: Excerpt from Flood Maps NI, showing part of the flood plain of the Enler River to the north of Comber

Source: Rivers Agency

- 6.2 The Indicative Flood Maps illustrate the general areas that have flooded in the past and those that are considered to be at risk from a medium probability event. They are not intended to predict flood risk to a particular property or specific point location.
- 6.3 In addition to the strategic map detailed Flood Hazard maps are available for 69 settlements in Northern Ireland. These use the best available flood modelling techniques and data and are considered suitable for predicting the level of flood risk to individual properties and specific point locations.
- 6.4 The map can be viewed online at the Rivers Agency NI interactive map viewer:

<http://riversagency.maps.arcgis.com/apps/webappviewer/index.html?id=fd6c0a01b07840269a50a2f596b3daf6>

Reservoirs

- 7.1 A 'controlled reservoir' is a structure or area that is capable of holding at least 10,000 cubic metres of water above the natural level of the surrounding land. There are 19 controlled reservoirs in Ards and North Down and they are listed in Appendix A on page 22.
- 7.2 The regulation of reservoir safety in Northern Ireland is provided for by the Reservoirs Act (Northern Ireland) 2015 which will introduce regular inspection, supervision, maintenance and repair of reservoirs.
- 7.3 The provisions of the Act will ensure that Controlled Reservoirs are managed and operated to minimise the risk of flooding due to an uncontrolled release of water resulting from dam failure in order to protect people, the environment, cultural heritage and economic activity.
- 7.4 The provisions of the Act are based on industry best practice for the management and maintenance of Controlled Reservoirs. The key provisions of the Act are:
- Registration - reservoir managers will be required to register Controlled Reservoirs with the Department;
 - Designation - the Department will give Controlled Reservoirs a designation of High, Medium or Low Consequence. The reservoir designation will be informed, in large part, by the impact that an uncontrolled release of water from the reservoir will have on people, property, economic activity, the environment and cultural heritage in the area flooded;
 - Commission of reservoir engineers - reservoir managers will be required to commission reservoir engineers, that have been approved by the Department, to supervise, inspect, and construct/alter Controlled Reservoirs;
 - Compliance - reservoir managers will be required to comply with recommendations and/or directions made by reservoir engineers.

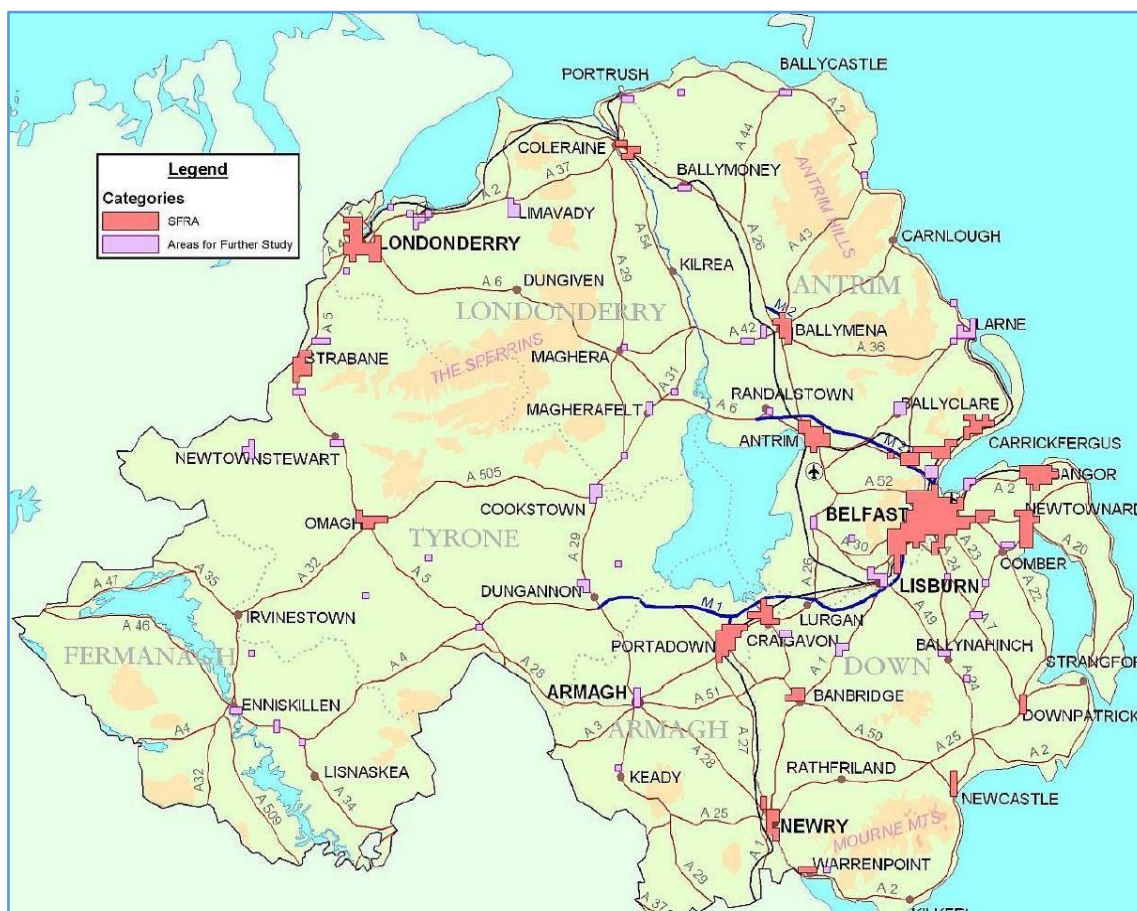
Legislation Relating to drainage and flooding

The EU Floods Directive

- 8.1 The purpose of the 2007 EU Floods Directive was to help Member States establish a framework for managing flood risk, with the aim of reducing the adverse consequences of flooding on human health, the environment, cultural heritage and economic activity. The Floods Directive was transposed into Northern Ireland legislation via the Water Environment (Floods Directive) Regulations (NI) 2009. The main requirements of the legislation are as follows:
- Carry out a preliminary flood risk assessment for each river basin district and on the basis of this assessment identify areas for which potential flood risks exist (called Significant Flood Risk Areas -SFRA);
 - Prepare flood hazard maps and flood risk maps for each Significant Flood Risk Area (SFRA) identified; and
 - Publish Flood Risk Management Plans that focus on prevention, protection and preparedness.
- 8.2 In fulfilling its obligations with respect to the Floods Directive, the Department of Infrastructure identified 20 Significant Flood Risk Areas in Northern Ireland and a further 49 areas for future investigation.
- 8.3 In Ards and North Down, Bangor and Newtownards have been identified as SFRA's, whilst Comber, Ballygowan and Holywood are highlighted as areas for future investigation.

Map 2: Significant Flood Risk Areas in Northern Ireland

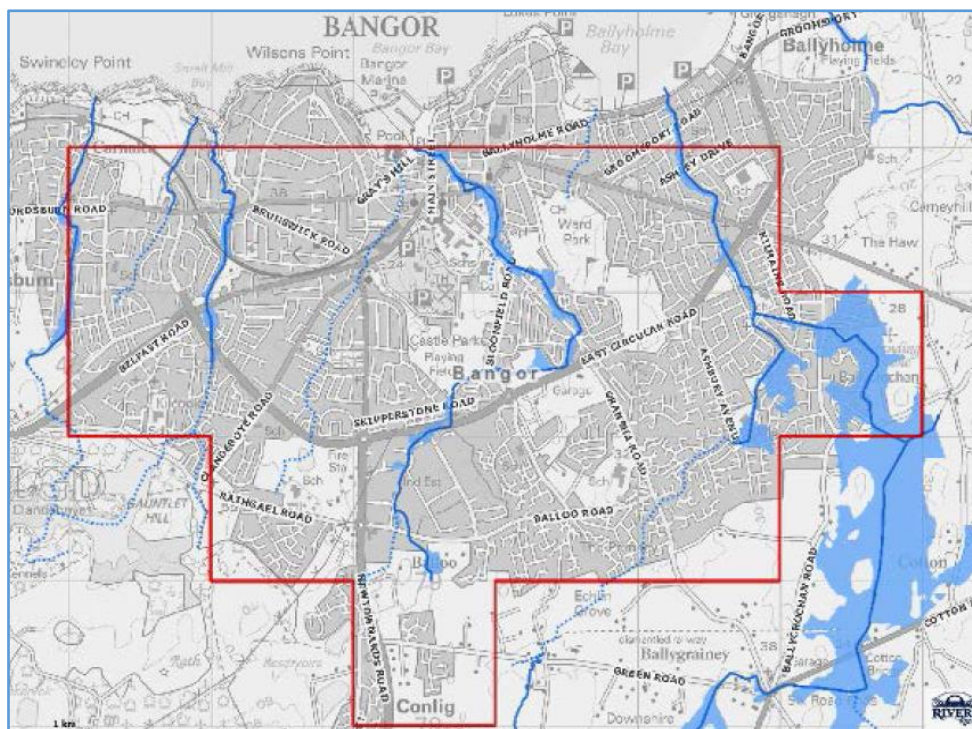
Source: Rivers Agency



Bangor Significant Flood Risk Area

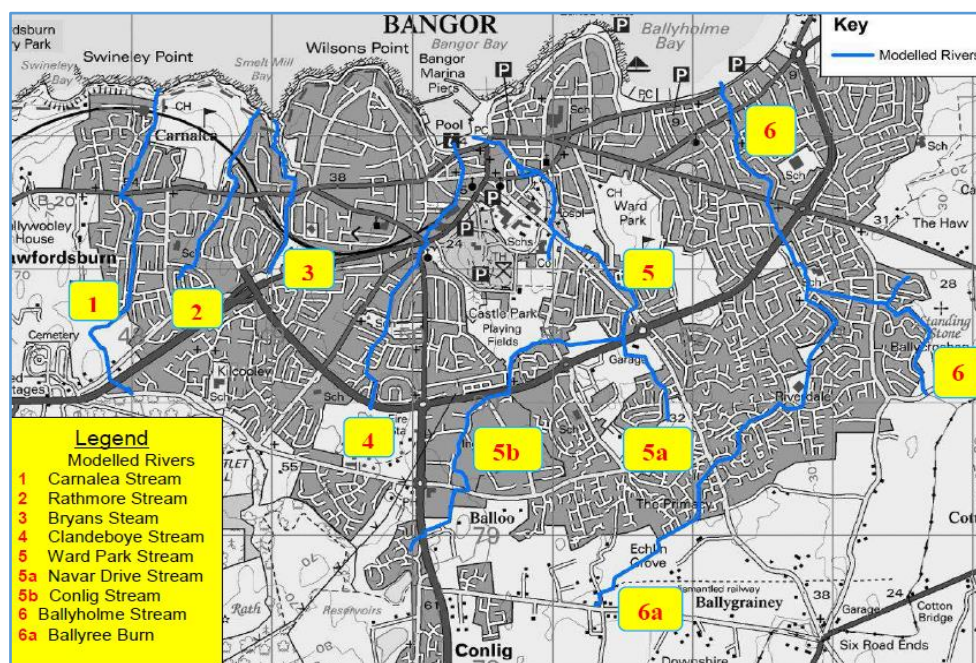
- 8.4 Historical records indicate that very few properties in Bangor have been inundated with flood water in the Bangor area in recent years. This may be attributed to the fact that major improvements to the urban watercourses were carried out by Rivers Agency in the 1990s.

Map 3: Bangor SFRA



(Source: Rivers Agency)

Map 4: Watercourses in Bangor



(Source: Rivers Agency)

8.5 Although a coastal town, Bangor is considered to be at risk from fluvial flooding only. The coastal fringe is generally well elevated above sea level and as a consequence, significant tidal inundation of the town is unlikely. There are six watercourses within the urban footprint which have the potential to adversely impact upon the urbanised area of Bangor and these are detailed in the map above.

[Newtownards Significant Flood Risk Area](#)

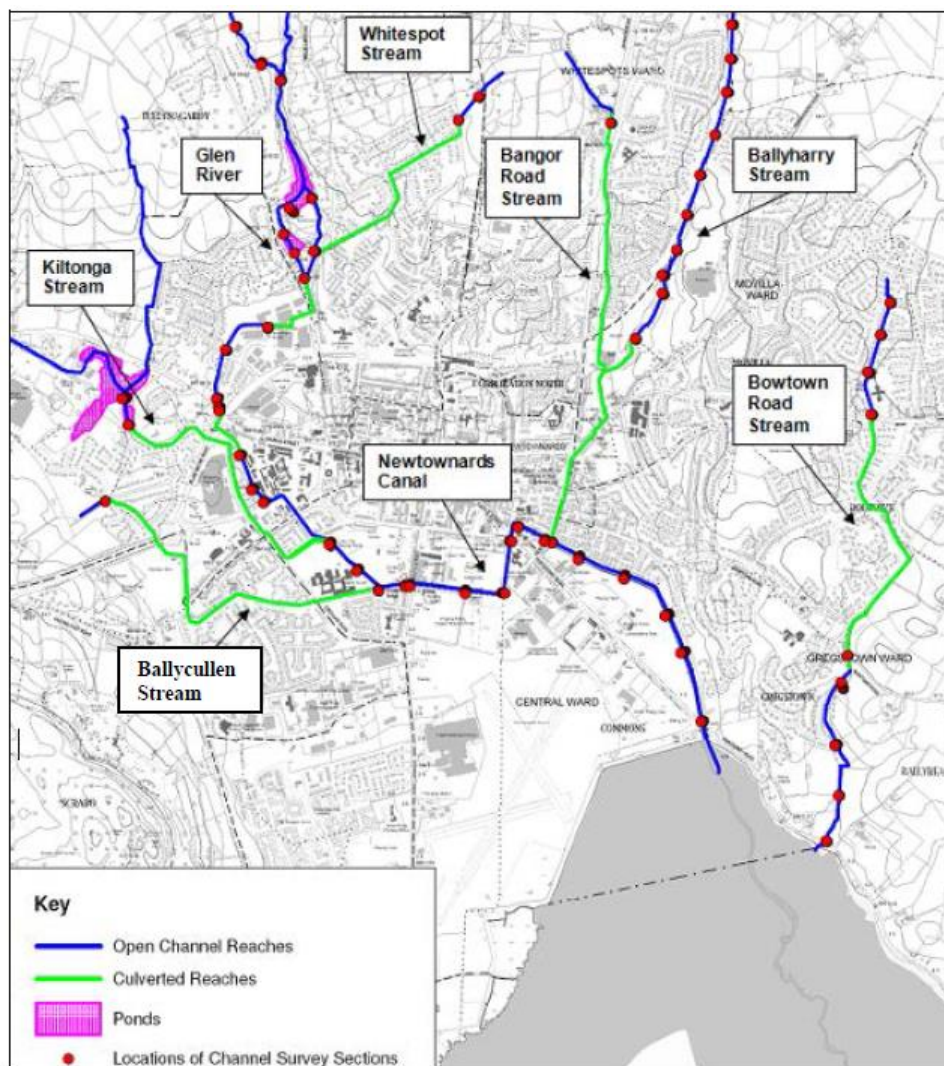
8.6 Newtownards has a history of sea defences and flood barriers dating back to the 1800s. Breaching and structural deterioration of the defences at Portaferry Road, near the Airfield prompted an extensive defence project consisting of replacement of the existing earth embankments with rock armour protected steel core embankments in 2001. At the same time, the defences were improved on Ards Canal. Since the enhancement works were carried out, there have been at least two extreme tidal events, however on both occasions there was no significant flooding.



Photo 1: Newtownards Sea Defences

Source: Rivers Agency

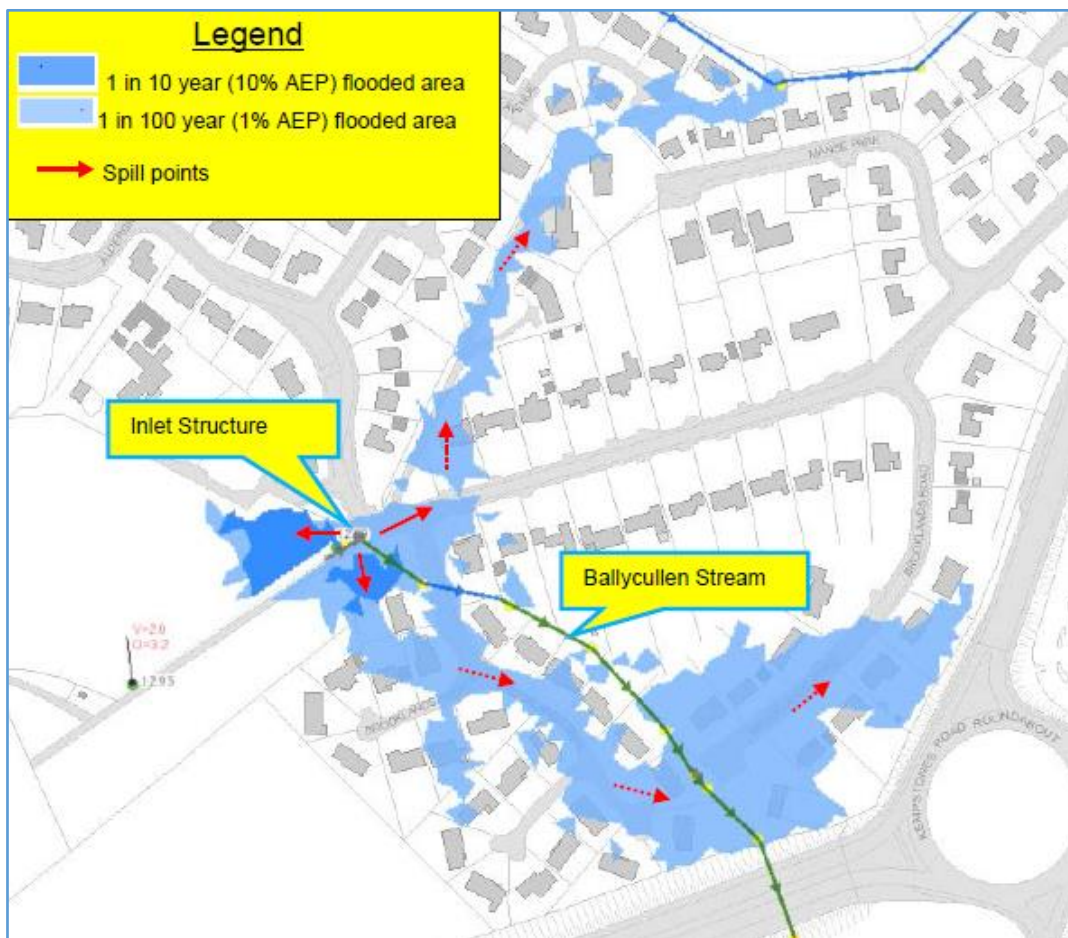
- 8.7 Newtownards is considered to be at significant risk from both tidal and fluvial flooding. However the refurbished sea defence system is operating effectively and in good structural condition to mitigate for a 1 in 200 year tidal storm surge event.
- 8.8 The fluvial risk assessment for Newtownards is complex as the rivers and Ards Canal are influenced by the tides of Strangford Lough and large sections of the watercourses are culverted under the town.



Map 5: Watercourses in Newtownards

(Source: Rivers Agency)

8.9 Of the above watercourses, Ballycullen Stream is the only one considered by Rivers Agency to present a potential risk to property. A 1 in 25 year flood event could incur flooding of 15 properties in the area and a 1 in 100 year event would increase the extent of the damage to 33 properties.



Map 6: Ballycullen stream flood inundation area

(Source: Rivers Agency)

Flood Resilience

[Northern Ireland Flood Risk Management Plan](#)

- 9.1 The preparation of Flood Risk Management Plans (FRMPs) are a requirement of The Floods Directive and are the responsibility of Rivers Agency. The FRMPs for Northern Ireland identify the measures that will be undertaken in the next 6 years to address flooding in the 20 Significant Flood Risk Areas and set out how the relevant authorities will work together with communities to reduce the flood risks.
- 9.2 The FRMP for Bangor advises against the zoning of land (particularly for built development) that has been identified from the flood maps as being in the 1 in 100 year fluvial floodplain. It also lists a number of undeveloped areas in close proximity to the 6 urban watercourses (shown on Map 4) where the risk of flooding is greatest and development should not occur. Ballyholme Stream presents the greatest risk to existing property with 139 homes under threat from a flooding event. It may be economically viable to implement a flood alleviation scheme in this location and Rivers Agency will carry out a flood study programme for this.
- 9.3 The FRMP for Newtownards also advises against bringing forward development sites in areas falling within the 1 in 100 fluvial floodplain. Ballycullen stream is identified as another possible fluvial flood risk area and may benefit from the implementation of a flood alleviation scheme. There are also areas at risk from surface flooding and reservoir inundation from Strangford Lough Wildfowlers Pond and Kiltonga Dams and the FRMP recommends the submission of Flood Risk Assessments in these cases.

[Sustainable Water: A Long Term Strategy for Northern Ireland \(2015-2040\)](#)

- 9.4 Published in March 2016, by Department for Infrastructure, this strategy presents a clear framework for action to deliver a long term vision for a sustainable water sector in Northern Ireland.

- 9.5 Part 3 of the Strategy¹ makes a range of recommendations which may be considered when preparing the LDP. It calls for the construction of resilient development that can withstand extreme rainfall events. The document also stresses that the council should prevent development in areas of high flood risk and ensure that future development does not increase flood risk.
- 9.6 It also promotes engagement with local councils on how development proposals (including land use zonings in LDPs) can incorporate large scale drainage schemes.

[Managing Water – A Strategy for Promoting the use of Sustainable Drainage Systems](#)

- 9.7 This strategy was produced by Department of Agriculture, Environment and Rural Affairs (DAERA) in 2011. It promotes the concept of Sustainable Drainage Systems (SuDS) through future regional planning policy and via LDPs. The use of SuDS can be encouraged through the following measures:
- When zoning land for development, large surface water schemes such as lakes, wetlands and woodlands could be created to meet the future drainage needs of the proposed development in the area;
 - Planning policy should require that drainage proposals are considered at design stage so that the final scheme minimises surface water run-off. Typical examples include green roofs, permeable paving, soakaways, ponds and wetlands;
 - Planning policy should incorporate the requirement for ‘design for exceedence’ in all new development. In other words, developers must indicate how the proposed drainage system will cope in the event of surface water run-off flows exceeding normal or expected levels; and
 - Planning policy should require that SuDS are the preferred option for all new development.

¹ Part 3 ‘Flood Risk Management and Drainage,’ Sustainable Water: A Long Term Water Strategy for NI (2015-2040)

Fig. 1: An example of a sustainable drainage system



Source: Wildlondon.org.uk

[Case Study: Clandeboye Primary School Rainwater Garden](#)

- 9.8 NI Water, the Department for Infrastructure and the Department of Education worked together with Clandeboye Primary School to complete this innovative flagship project to reduce the risk of flooding whilst also enhancing the environment and providing a valuable educational resource.
- 9.9 The rainwater garden is a simple concept which collects water runoff from the school roof and playground area which is collected in an underground storage tank. When the water within the storage tank builds up to a certain level, a valve opens and allows the water to run down a channel into two split level ponds. This process reduces the rate at which storm water reaches

Clandeboye Stream, thereby lowering the risk of flooding in the Clandeboye area.

[Homeowner Flood Protection Grant Scheme](#)

- 9.10 The Scheme is a government initiative designed to encourage the owners of residential properties that have flooded before and/or are located within known flood prone areas, to modify their properties to make them more resistant to flooding. Part funding is provided for protective measures such as air brick covers, door flood barriers, non-return drainage outlets and waterproofing of walls.

Conclusion

- 9.1 The purpose of this paper has been to provide an overview of aspects relating to flood risk in Ards and North Down. The information can be used to help determine land use zonings within the local development plan.
- 9.2 It is clear that the Borough faces complex challenges and opportunities in addressing flood risk. A strategic approach to flood risk should be adopted by the Council, ensuring that new development is not unnecessarily exposed to flooding, whilst having regard to the cumulative effects of existing development within the settlement limits.
- 9.3 Floods impact upon both individuals and communities and have social, economic and environmental consequences. Flooding of urban areas can result in significant damage to private property including homes and businesses.
- 9.4 This paper has helped to identify that certain parts of the Borough are vulnerable to flooding. It is therefore critical that appropriate development is steered to areas of lowest flood risk, without increasing risk elsewhere.

9.5 The LDP should seek to complement the Flood Risk Management Plans that have been drawn up for Newtownards and Bangor. The LDP should seek to promote drainage as a key element of design and support the use of sustainable and innovative approaches such as SuDS for future development.

Appendix A: List of Reservoirs in Ards and North Down

Ballysallagh Lower	Ballysallagh Upper
Bridgewater Fishery	Kiltonga Nature Reserve
Church Road Lower	Church Road Upper
Clandeboyne Lake	Clandeboyne Reservoir
Conlig Lower	Conlig Upper
Creighton's Green	Portavoe
The Warren Pond	Leadmines
Lough Cowey	Mount Stewart
Movilla Trout Fishery	Tullyhubbert Pond
Strangford Lough Wildfowlers Pond	

References/Useful Links

The Regional Development Strategy (RDS 2035)

<https://www.planningni.gov.uk/index/policy/rds2035.pdf>

The Strategic Planning Policy Statement (SPPS)

<https://www.planningni.gov.uk/spps>

The draft Belfast Metropolitan Area Plan (BMAP 2015)

https://www.planningni.gov.uk/index/policy/dev_plans/devplans_az/bmap_2015.htm

The Ards and Down Area Plan 2015

https://www.planningni.gov.uk/index/policy/development_plans/devplans_az/ardsdown_2015.htm

Department for Agriculture, Environment and Rural Affairs

www.daera-ni.gov.uk

Flood Maps NI

<http://riversagency.maps.arcgis.com/apps/webappviewer/index.html?id=fd6c0a01b07840269a50a2f596b3daf6>

EU Floods Directive

<https://www.infrastructure-ni.gov.uk/articles/what-european-floods-directive>

Significant Flood Risk Areas

<https://www.infrastructure-ni.gov.uk/articles/managing-risk-flooding>

Clandeboyne Rainwater Garden

<https://www.niwater.com/news-detail/11416/70000-rainwater-garden-complete-at-clandeboyne-primary-school/>

Homeowner Flood Resilience Scheme

<https://www.infrastructure-ni.gov.uk/publications/homeowner-flood-protection-grant-scheme-application-pack>

Sustainable Water - A Long-Term Water Strategy for Northern Ireland (2015-2040)

<https://www.infrastructure-ni.gov.uk/articles/long-term-water-strategy-northern-ireland>

Managing Stormwater – A Strategy for promoting the use of Sustainable Drainage Systems within Northern Ireland

https://www.nienvironmentlink.org/cmsfiles/policy-hub/files/documentation/Sust/managing_stormwater_a_strategy_for_promoting_the_use_of_sustainable_drainage_systems_within_ni_september_2011.pdf