STRATEGIC FLOOD RISK ASSESSMENT

FOR

PROPOSED VARIATION NO. 1
(CORE STRATEGY)

TO THE

LONGFORD TOWN DEVELOPMENT PLAN 2009-2015

for: Longford Local Authorities

Great Water Street,

Longford,

Co. Longford

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Section 1 Introduction and Background

1.1 Introduction

Proposed Variation No. 1 does not provide for any land use zoning changes as such implementation of the Proposed Variation will not affect levels of risk in the town arising from existing zoning.

Notwithstanding this, a desk-based Strategic Flood Risk Assessment was undertaken alongside the SEA Screening of the Proposed Variation in order to contribute towards compliance of the Town Development Plan as varied with the DEHLG Flood Guidelines.

1.2 EU Floods Directive

European Directive 2007/60/EC on the assessment and management of flood risks requires Member States to carry out a preliminary assessment by 2011 in order to identify the river basins and associated coastal areas at risk of flooding. For such zones, flood risk maps are required to be drawn up by 2013. Flood risk management plans focused on prevention, protection and preparedness must be established by 2015. The Office of Public Works has prepared Preliminary Flood Risk Assessment maps which identify areas where the risks associated with flooding might be significant. These areas, Areas for Further Assessment (AFAs), are where more detailed assessment is required to more accurately assess the extent and degree of flood risk. Longford Town is identified as an AFA and as such will be considered further in a flood risk assessment study.

1.3 DEHLG Flood Risk Management Guidelines

In 2009 the DEHLG published *The Planning System and Flood Risk Management* Guidelines for Planning Authorities. These are aimed at ensuring a more consistent, rigorous and systematic approach which will fully incorporate flood risk assessment and management into the planning system. Planning authorities are required to undertake flood risk identification, assessment and management processes as appropriate when preparing or varying Development Plans and other plans and in the consideration of applications for planning permission.

1.4 Information Considered

This information used in this assessment should be used in in line with the provisions contained in the DEHLG Flood Guidelines[1] (certain provisions are identified in Section 3 of this report).

1.4.1 Flood Extents Mapping

Recorded flood extent information for the Town sourced from the OPW is shown overlain on existing Town Development Plan zoning on Figure 1.1.

1.4.2 Preliminary Flood Risk Assessment Mapping

In compliance with the Floods Directive, the OPW has prepared Preliminary Flood Risk Assessment (PFRA) mapping. This dataset has been arrived at by:

- Reviewing records of floods that have happened in the past;

[1] These can be downloaded at:
http://www.flooding.ie/en/media/The%20Planning%20System%20and%20Flood%20Risk%20Management.PDF

- Undertaking analysis to determine which areas might flood in the future, and what the impacts might be; and
- Extensive consultation with each local authorities and other Government departments and agencies.

This assessment has considered all types of flooding, including that which can occur from rivers, the sea and estuaries, heavy rain, groundwater, the failure of infrastructure, and so on. It has also considered the impacts flooding can have on people, property, businesses, the environment and cultural assets.

Areas where on-site inspection is required to investigate the issues more closely have also been identified and these investigations will be carried out as part of OPW Catchment Flood Risk Assessment and Management (CFRAM) Studies. Longford Town is identified as an Area for Further Assessment/

The PFRA is only a preliminary assessment, based on available or readily derivable information. Analysis has been undertaken to identify areas prone to flooding, and the risks associated with such flooding, but this analysis is purely indicative and undertaken for the purpose of completing the PFRA. The mapping has been developed using simple and cost-effective methods.

When it is finalised, the PFRA mapping and subsequently the mapping for areas of potentially significant risk which will arise out of CFRAM Studies which are scheduled to be produced by 2013 will be an important and primary input into future flood risk assessment studies.

The PFRA mapping should be used - in line with the provisions contained in the DEHLG Flood Guidelines - as follows (see Indicative Flood Zones overlain on existing Town Development Plan zoning on Figure 1.2):

Indicative Flood Risk Zone A (Dark Blue):

- PFRA Fluvial 100[2]

Indicative Flood Risk Zone B (Light Blue):

- PFRA Fluvial 1000[3]

With regard to pluvial PFRA mapping, this mapping has been devised differently to the fluvial mapping and is likely to generally over-estimate the risk in comparison.

For pluvial flooding, the process for developing the pluvial flood extent maps was based on 'dropping' various depths and intensities of rainfall over a range of durations, and modelling how that rainfall would flow over the land and, in particular, pond in low-lying areas. The rainfall events (depth, duration and intensity) were derived from the rainfall analysis undertaken by Met Eireann on behalf of the OPW for the Flood Studies Update research programme. The amount of rainfall that was absorbed by the ground or, in urban areas, drained by the urban storm-water drainage system, and hence deducted from the water that would flow overland and pond, was estimated. It must be noted however that process assumed a constant capacity of urban storm-water drainage systems and generally did not taken into account local drainage structures such as culverts through embankments or other local drainage that would not be resolved in the model used for the mapping at a national scale. A Technical Report[4] available from the OPW describes the process for the development of these maps in detail.

[2] Fluvial flooding in these areas is estimated by the model to have a 1% annual exceedance probability (AEP) or a 1 in 100 chance of occurring or being exceed in any year.
[3] Fluvial flooding in these areas is estimated by the model to have a 0.1% annual exceedance probability (AEP) or a 1 in 1000 chance of occurring or being exceed in any year.
[4] Flood Risk Assessment and Management Programme: National Pluvial Screening Project for Ireland – Rep EX6335/2.0, HR Wallingford, November 2010

In addition to the above limitations, there are further intrinsic uncertainties associated with these flooding types e.g. pluvial flooding can be influenced by drains blocked with farm plastic, for example. Taking this into account mapping of the following layers for each of the settlements is presented separately:

- PFRA Pluvial Indicative[5]
- PFRA Pluvial Extreme[6]

Where the probability of flooding from rivers is low (less than 0.1%, flood zone C) the developer should satisfy him or herself that the probability of flooding is appropriate to the development being proposed. Among other things, mapping including the OPW's Pluvial and Groundwater Preliminary Flood Risk Assessment mapping should be considered for this purpose.

1.5 Recommendations

Recommendations with regard to flood related policies already contained in the Town Development Plan and land use zoning are contained in Section 3 of this report.

These Policies should be implemented using, inter alia, the information used in this assessment and in compliance with the DEHLG Flood Guidelines.

[5] Pluvial flooding in these areas is estimated by the model to have a 1% annual exceedance probability (AEP) or a 1 in 100 chance of occurring or being exceed in any year.
[6] Pluvial flooding in these areas is estimated by the model to have a 0.1% annual exceedance probability (AEP) or a 1 in 1000 chance of occurring or being exceed in any year.

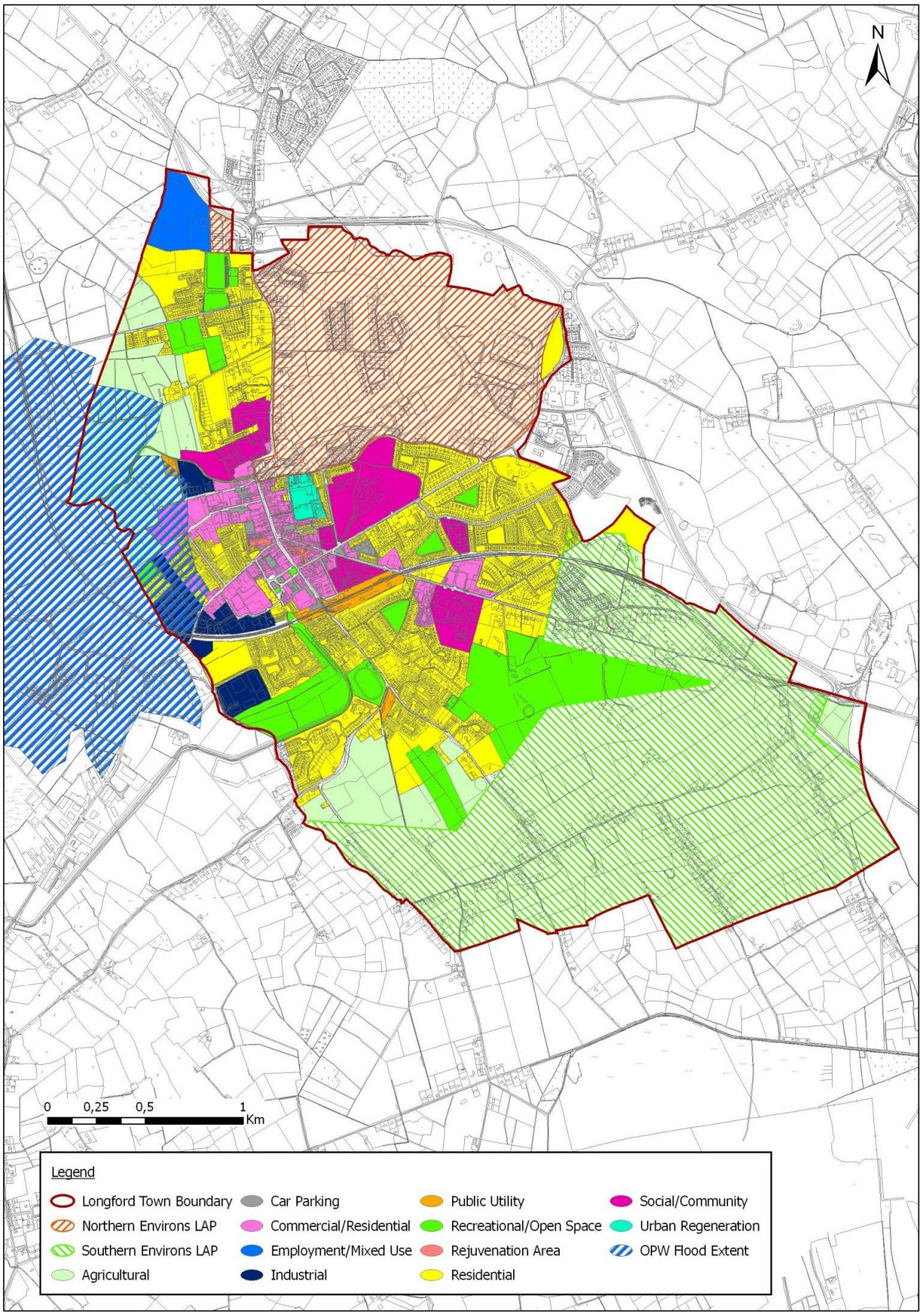


Figure 1.1 Flood Extent Data overlain on existing Town Development Plan zoning
Source: OPW available at www.floodmaps.ie

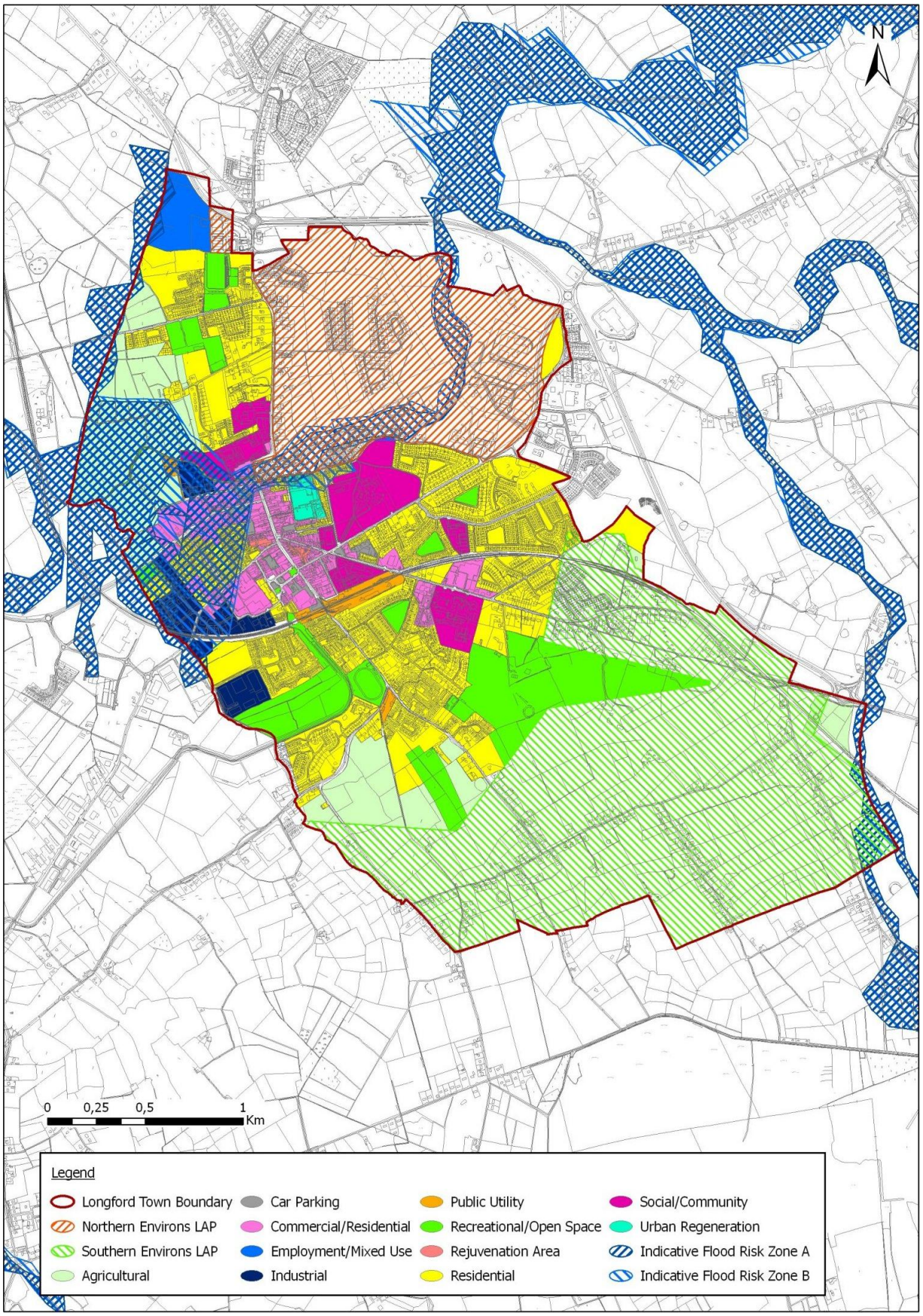


Figure 1.2 Indicative Flood Risk Zones based on PFRA Fluvial Mapping overlain on existing Town Development Plan zoning
Source: OPW PFRA Mapping 2012

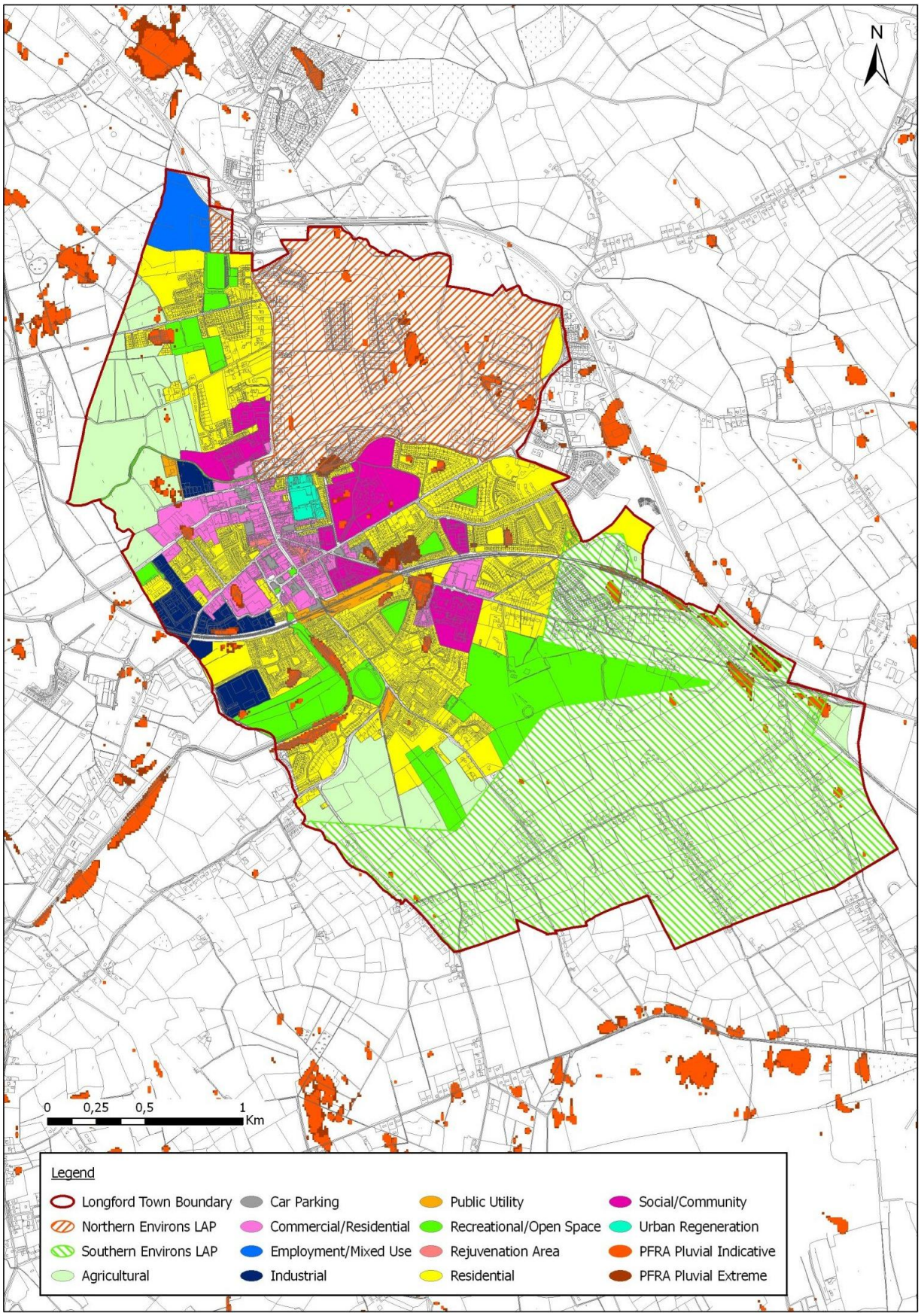


Figure 1.3 Pluvial Flooding PFRA Data overlain on existing Town Development Plan zoning
Source: OPW

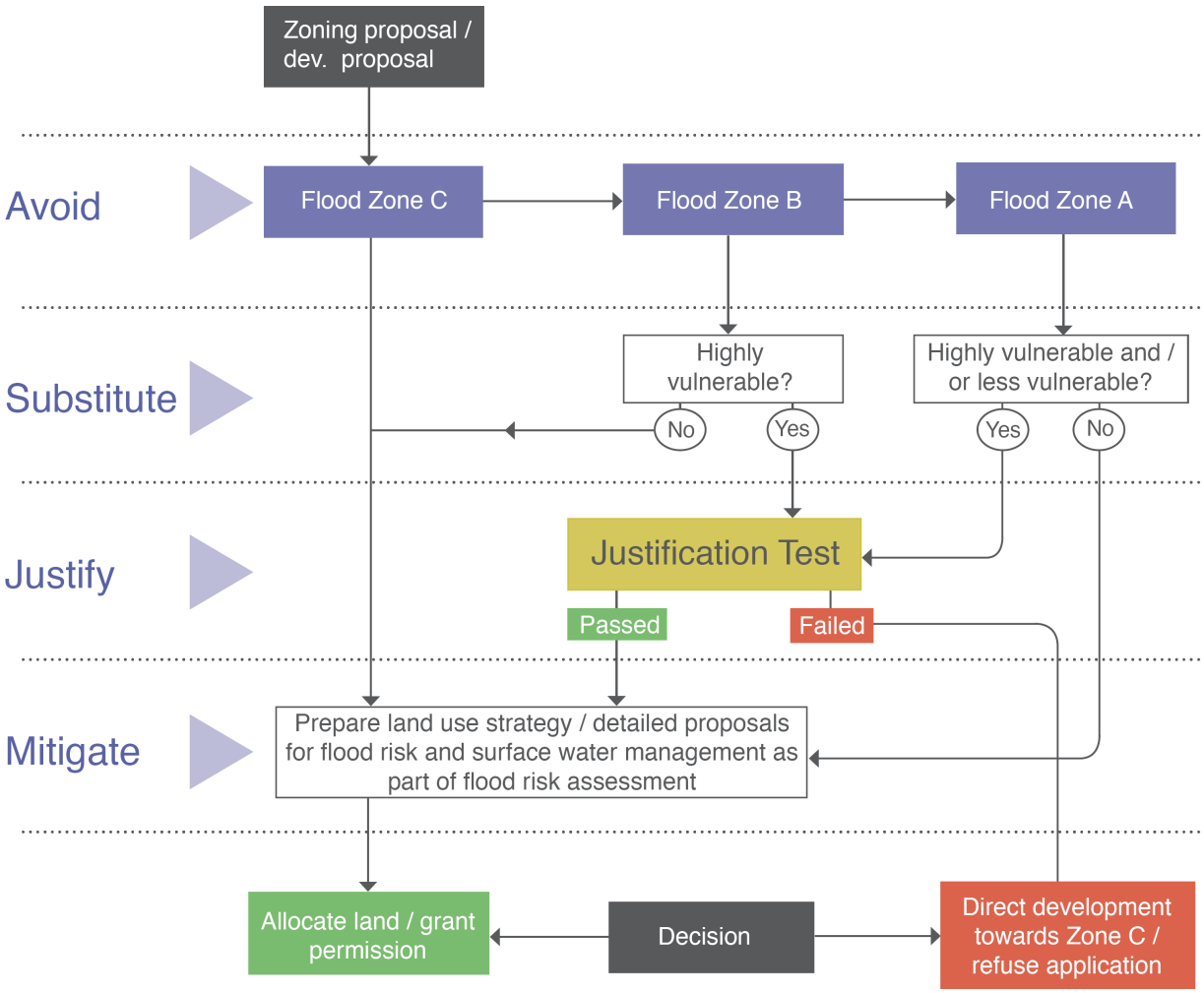
Section 2 Related Provisions from the Guidelines

Related Provisions contained in the DEHLG Flood Guidelines for Indicative Flood Zones A and B

- The Sequential Approach, including the Justification test -

The key principles of the risk-based sequential approach (see below) to managing flood risk in the preparation of plans are set out in Chapter 3 of the DEHLG Flood Guidelines and should be followed for the zoning under the Proposed Variation. These principles are:

- Avoid development in areas at risk of flooding. If this is not possible, consider substituting a land use that is less vulnerable to flooding. Only when both avoidance and substitution cannot take place should consideration be given to mitigation and management of risks.
- Inappropriate types of development that would create unacceptable risks from flooding should not be planned for or permitted.
- Exceptions to the restriction of development due to potential flood risks are provided for through the use of a Justification Test, where the planning need and the sustainable management of flood risk to an acceptable level must be demonstrated.



Sequential Approach Process[7]

[7] Flood Zone C covers all areas outside of Zones A and B

In summary, the planning implications for each of the flood zones are:

Zone A - High probability of flooding. Most types of development would be considered inappropriate in this zone. Development in this zone should be avoided and/or only considered in exceptional circumstances, such as in city and town centres, or in the case of essential infrastructure that cannot be located elsewhere, and where the Justification Test has been applied. Only water-compatible development, such as docks and marinas, dockside activities that require a waterside location, amenity open space, outdoor sports and recreation, would be considered appropriate in this zone.

Zone B - Moderate probability of flooding. Highly vulnerable development, such as hospitals, residential care homes, Garda, fire and ambulance stations, dwelling houses and primary strategic transport and utilities infrastructure, would generally be considered inappropriate in this zone, unless the requirements of the Justification Test can be met. Less vulnerable development, such as retail, commercial and industrial uses, sites used for short-let for caravans and camping and secondary strategic transport and utilities infrastructure, and water-compatible development might be considered appropriate in this zone. In general however, less vulnerable development should only be considered in this zone if adequate lands or sites are not available in Zone C and subject to a flood risk assessment to the appropriate level of detail to demonstrate that flood risk to and from the development can or will adequately be managed.

Zone C - Low probability of flooding. Development in this zone is appropriate from a flood risk perspective (subject to assessment of flood hazard from sources other than rivers and the coast) but would need to meet the normal range of other proper planning and sustainable development considerations.

Table 1 overleaf classifies the vulnerability of different types of development while Table 2 identifies the appropriateness of development belonging to each vulnerability class within each of the flood zones as well as identifying what instances in which the Justification Test should be undertaken. Inappropriate development that does not meet the criteria of the Justification Test should not be considered at the plan-making stage or approved within the development management process.

Vulnerability class	Land uses and types of development which include*:
Highly vulnerable development (including essential infrastructure)	Garda, ambulance and fire stations and command centres required to be operational during flooding; Hospitals; Emergency access and egress points; Schools; Dwelling houses, student halls of residence and hostels; Residential institutions such as residential care homes, children's homes and social services homes; Caravans and mobile home parks; Dwelling houses designed, constructed or adapted for the elderly or, other people with impaired mobility; and Essential infrastructure, such as primary transport and utilities distribution, including electricity generating power stations and sub-stations, water and sewage treatment, and potential significant sources of pollution (SEVESO sites, IPPC sites, etc.) in the event of flooding.
Less vulnerable development	Buildings used for: retail, leisure, warehousing, commercial, industrial and non-residential institutions; Land and buildings used for holiday or short-let caravans and camping, subject to specific warning and evacuation plans; Land and buildings used for agriculture and forestry; Waste treatment (except landfill and hazardous waste); Mineral working and processing; and Local transport infrastructure.
Water-compatible development	Flood control infrastructure; Docks, marinas and wharves; Navigation facilities; Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location; Water-based recreation and tourism (excluding sleeping accommodation); Lifeguard and coastguard stations; Amenity open space, outdoor sports and recreation and essential facilities such as changing rooms; and Essential ancillary sleeping or residential accommodation for staff required by uses in this category (subject to a specific warning and evacuation plan).
*Uses not listed here should be considered on their own merits	

Table 1 Classification of vulnerability of different types of development

	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development (including essential infrastructure)	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water-compatible development	Appropriate	Appropriate	Appropriate

Table 2 Vulnerability Classes and Flood Zones

The Justification Test which is referred to as part of the Sequential Approach is an assessment of whether a development proposal within an area at risk of flooding meets specific criteria for proper planning and sustainable development and demonstrates that it will not be subject to unacceptable risk nor increase flood risk elsewhere.

The justification test should be applied only where development is within flood risk areas that would be defined as inappropriate under the screening test of the sequential risk based approach outlined above. This Justification Test is shown on the table below

Where, as part of the preparation and adoption or variation and amendment of a development/local area plan[1], a planning authority is considering the future development of areas in an urban settlement that are at moderate or high risk of flooding, for uses or development vulnerable to flooding that would generally be inappropriate as set out in Table 3.2, all of the following criteria must be satisfied:

1 The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.

2 The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and, in particular:

- (i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement[2];
- (ii) Comprises significant previously developed and/or under-utilised lands;
- (iii) Is within or adjoining the core[3] of an established or designated urban settlement;
- (iv) Will be essential in achieving compact and sustainable urban growth; and
- (v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.

3 A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.

N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment.

Table 3 Justification Test

Section 3 Recommendations

3.1 Existing Policy

It is recommended that the existing provisions of the Town Development Plan including those relating to flood risk (see below) are implemented in compliance with the DEHLG Flood Guidelines and using, inter alia, the information used in this assessment.

Policy Reference	Policy
FLO 1	Mitigation works in accordance with that outlined in the Nicholas O'Dwyer Preliminary Report Review, June 2008 shall be carried out to alleviate flooding implications of existing development and recommendations contained within applied to future development to prevent exacerbation of flood problems in susceptible areas of the Town.
FLO 2	Flood protection measures required to protect the railway line and other areas in the vicinity shall be carried out in conjunction and consultation with Iarnród Eireann. These works shall not result in an increase in flood levels upstream or down stream of the Railway line and in Longford Town.
FLO 3	The area upstream of the Railway Bridge and north of the Strokestown road, defined as the central floodplain area of the River Camlin shall not be considered for any future development. A minimum channel width of 12m shall be maintained in the section of the river channel between Main Street Bridge and the Western Floodplain.
FLO 4	The drainage line from Townspark/Farranyogan/Ballyminion area shall be realigned to discharge downstream of the railway bridge and a flood eye provided through the railway embankment at or near the railway bridge.
FLO 5	Development will not be permitted in the flood plain or any future area identified as a flood plain. Development will be restricted in areas susceptible to flooding. Developers will be required to submit a Flood Risk/Impact Assessment and proposals for a Sustainable Drainage System (SUDS) where a development is in close proximity to the flood plain or an area susceptible to flooding. This shall also apply in areas where it is considered that the proposed development will impact on flooding elsewhere.
FLO 6	The Council in tandem with the OPW, will support the preparation, establishment and implementation of any future Flood Risk Assessment and Management Studies prepared for catchments within the Town Area. In this regard, it is intended to prepare a Flood Risk Assessment within the lifetime of this plan, using existing and published data and adding a predictive element to take account of issues such as the effects of climate change and altering rainfall and climatic patterns.
FLO 7	The Council shall have regard to the provisions of The Planning System and Flood Risk Management – Consultation Draft Guidelines for Planning Authorities (Environment, Heritage and Local Government – OPW, September 2008) (and any subsequent update).
FLO 8	Developments/structures will not be permitted that restrict or obstruct flow in or across floodplains or river channels. In this regard, developers may be required to demonstrate that a proposal will not adversely impact on the flow regime of the watercourse.
FLO 9	New developments should be located, designed and constructed so as not to impact on a flood event with 100 year return in built areas and 25 year return in rural areas.
FLO 10	A flood impact assessment and proposals for the storage or attenuation of runoff/discharge should accompany all applications for development on sites exceeding 0.4ha in extent.
FLO 11	A certificate from a competent person, bonded with professional indemnity insurance should accompany applications for development of areas of 0.4hectares or less, stating that the proposed development will not contribute to flooding within the relevant catchment.
FLO 12	All new developments should incorporate Sustainable Urban Drainage Systems. Note attenuation is NOT SuDS.
FLO 13	Riparian strips of 10 – 15m shall be left by rivers and streams. These shall not be culverted and shall be to encourage the growth of native flora and fauna to preserve and enhance biodiversity and preserve the natural flood regime of the area.

Table 4 Existing Flood-related Policies from the TDP

3.2 Recommendations related to Zoning

Proposed Variation No. 1 does not provide for any land use zoning changes as such implementation of the Proposed Variation will not affect levels of risk in the town arising from existing zoning.

Recommendations relating to zoning of undeveloped lands that may be addressed as part of the review of TDP which is set to begin in the 1st half of 2013 are provided here for information purposes.

Current zoning overlaps with PFRA Zones A and B and events/extents recorded by OPW at certain locations in the town.

Scenario No.	Scenario	Abridged Recommendations from the Departmental Guidelines
1	PFRA Mapping Zone A present	If zoning provides for development that is not water compatible then [in the absence of ground-truthing] the zoning should be removed or a justification test should be undertaken in order to assess whether the zoning meets specific criteria for proper planning and sustainable development and demonstrates that it will not be subject to unacceptable risk nor increase flood risk elsewhere. For development that is not water compatible in this zone, the justification test requires that <u>all of the following criteria (extracted from the Flood Management Guidelines) must be satisfied</u>: 1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended. 2. The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and, in particular: i. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement[8]; ii. Comprises significant previously developed and/or under-utilised lands; iii. Is within or adjoining the core[9] of an established or designated urban settlement; iv. Will be essential in achieving compact and sustainable urban growth; and v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement. 3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment.

[8] In the case of Gateway planning authorities, where a number of strategic growth centres have been identified within the overall area of the authority, the Justification Test may be applied for vulnerable development within each centre.

[9] The core area of a city, town or village which acts as a centre for a broad range of employment, retail, community, residential and transport functions.

Scenario No.	Scenario	Abridged Recommendations from the Departmental Guidelines
2	PFRA Mapping Zone B present	If zoning provides for development that is highly vulnerable[10] then [in the absence of ground-truthing] the zoning should be removed or a justification test should be undertaken in order to assess whether the zoning meets specific criteria for proper planning and sustainable development and demonstrates that it will not be subject to unacceptable risk nor increase flood risk elsewhere. For development that is not water compatible in this zone, the justification test requires that <u>all of the following criteria (extracted from the Flood Management Guidelines) must be satisfied</u>: 1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended. 2. The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and, in particular: i. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement; ii. Comprises significant previously developed and/or under-utilised lands; iii. Is within or adjoining the core of an established or designated urban settlement; iv. Will be essential in achieving compact and sustainable urban growth; and v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement. 3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment.

[10] Highly vulnerable development: Garda, ambulance and fire stations and command centres required to be operational during flooding; Hospitals; Emergency access and egress points; Schools; Dwelling houses, student halls of residence and hostels; Residential institutions such as residential care homes, children's homes and social services homes; Caravans and mobile home parks; Dwelling houses designed, constructed or adapted for the elderly or, other people with impaired mobility; and Essential infrastructure, such as primary transport and utilities distribution, including electricity generating power stations and sub-stations, water and sewage treatment, and potential significant sources of pollution (SEVESO sites, IPPC sites, etc.) in the event of flooding.

There are certain locations within the town that are part of the PFRA Zone A/B but no flood risk has been identified by OPW flood extent mapping or the Council at these locations.

Scenario No.	Scenario	SFRA Recommendation
3	PFRA Mapping Zone A/B but no flood risk identified by LCC/OPW flood extent/event map	It would be premature to exclude zoning based on the PFRA mapping. However, given that these maps are in the public domain, it would be prudent to include a note for every town plan affected that: Preliminary Flood Risk Assessment mapping from the Office of Public Works is available indicating flood risk in parts of this town - see associated Strategic Environmental Assessment Environmental Report which accompanies the Variation. It should be noted however, that there is no flood events recorded by the OPW at these (or some of these) locations or local knowledge of same. This mapping is currently being assessed, updated and improved. In the interim, as a precaution, landowners in areas so indicated should satisfy themselves prior to the making of any planning application of the potential of flooding on these sites.