Location: Mohill, Co. Leitrim		Unique ID: 260466 (from PFRA database)	
Initial OPW Designation	**APSR** ☒	**AFRR** ☐	**IRR** ☐
Co-ordinates	**Easting: 208838**	**Northing: 296957**	
River / Catchment / Sub-catchment	**River Rinn / Shannon**		
Type of Flooding / Flood Risk (identify all that apply)	**Fluvial non-tidal** ☒ **Fluvial tidal** ☐ **Coastal** ☐		

Stage 1: Desktop Review

1.1 Flood History (include review of Floodmaps.ie)

River Flow Path

To the south of Mohill are the Creenagh, Errew and Rinn Loughs and their associated rivers the Lurge, Errew and Rinn. Tributaries to these Loughs are located within the Mohill town boundary.

Watercourse flowing alongside Castle Street includes pedestrian and vehicular access crossings.

Flood Event Records

One flood record is listed on floodmaps.ie for Mohill. This event is undated.

1.2 Relevant information on flooding issues from OPW and LA staff

PFRA database comments *(in italics)*:

OPW comments
Designated APSR on the basis of predictive analysis. LA recommend downgrade to RR Heavily driven by school, but res + com still > 250 - No wedges Maintain as APSR and Risk Review (as required for all APSRs) can confirm status

LA comments
NOT KNOWN. No knowledge of flooding here, even in November 2009. Not APSR. Which school? Tributary Reslin? Mohill Stream goes into Lough Rynn. Risk Review

Meeting / discussion summary comments:

OPW comments

- No knowledge of flooding. Paul Costello (OPW) grew up in Mohill and is not aware of any issues.

LA comments

- Did not flood during November 2009. Brian Kenny (Leitrim CoCo) considered to be a lower risk than Dromod. Brian Kenny was not aware of any impacts in Mohill.
- Sewage treatment works equipped to pump to stream if water level rises above the outfall level.

<table>
<tr><th colspan="4">1.4 PFRA Data</th></tr>
<tr><td>1.4.1 PFRA hazard mapping</td><td colspan="3">PFRA mapping available in GIS layer: Yes ☒ No ☐
PFRA mapping included on FRR map: Yes ☒ No ☐</td></tr>
<tr><td rowspan="7">1.4.2 Summary of Principal Receptors</td><td colspan="2">Type</td><td>FRI score (if available)</td></tr>
<tr><td colspan="2">Primary School</td><td>250</td></tr>
<tr><td colspan="2">WWTW</td><td>25</td></tr>
<tr><td colspan="2">Arch_Local</td><td>10</td></tr>
<tr><td colspan="2">Arch_Regional</td><td>121</td></tr>
<tr><td colspan="2">Monument_LV</td><td>40</td></tr>
<tr><td colspan="2">Total</td><td>720</td></tr>
<tr><td rowspan="5">1.7 Stage 1 Evaluation</td><td>Aspect</td><td>Clearly APSR</td><td>Uncertain</td></tr>
<tr><td>Flood History (1.1)</td><td></td><td>X</td></tr>
<tr><td>OPW / LA Information (1.2)</td><td></td><td>X</td></tr>
<tr><td>PFRA Evaluation (1.4)</td><td>X</td><td></td></tr>
<tr><td>Overall Desktop Evaluation
(if any above aspect is uncertain then overall designation is uncertain)</td><td></td><td>X</td></tr>
<tr><td rowspan="2">1.8 Proposed level of assessment for Stage 2 site visits</td><td colspan="2">Level A Site Visit</td><td>X</td></tr>
<tr><td colspan="2">Level B Site Visit</td><td></td></tr>
</table>

Stage 2: Site Inspection	Level A Assessment
Date and Time of Inspection	**Date: 20/05/11** **Time: 09:00**
Names of inspection team (including OPW/LA staff if present)	**Alan Dew** **James Murray**

2.1 Ground-truthing of Hazard Mapping	**Fluvial non-tidal ☒ Fluvial tidal ☐ Coastal ☐ Not available ☐** Flood plain constrained along majority of main river through Mohill as per PFRA prediction. PFRA hazard mapping is reasonably accurate			
2.2 Spot check ground-truthing of selected receptor vulnerability **(also note any key receptors noted during visit that are not identified by PFRA)**	**Receptor Type**	**Location description (if not obvious)**	**Exists?**	**Overall Vulnerability / Risk (L / M / H)**
	Castle		Yes	Medium
	School – National (right bank)		Yes	Medium
	School – Primary (left bank)		Yes	Medium
	Library (left bank)		Yes	Medium
	STW		Yes	Medium
2.3 Local knowledge - on-site comments **(OPW, LA and any info volunteered by local residents during visit)**	Discussions with garden centre owner which is situated on left bank of main river downstream of Mohill. It has not flooded in 20 years, despite being located immediately adjacent to the river. Noted that maximum observed level was ~100mm below bank crest, takes. Discussions with homeowner on the left bank, adjacent to upstream culvert headwall Mohill town centre; has not seen flooding in past 40 years. When flooded only affected former green area in town centre on immediate right bank of river (now has statue and paving). Flow through culvert was improved 20+years ago and there have been no problems since. South West of town centre – homeowner has been in property on upstream left bank of eastern R201 culvert for 20+years. Historically some flooding issues but the culvert causing the problem was upsized to a 1.2m dia. Pipe and there has been no flood events since			
2.4 Comments on hydraulic constrictions (bridges, etc.) and conveyance routes	The watercourse through the town is heavily modified and generally of good capacity. There are a number of crossings to this watercourse of varying capacity. All are of good capacity although several headwalls have bricks removed which could act as a flow path.			

2.5 SVRS Assessment Matrix

Weightings:
A - x1 - reasonable expectation of flooding
B - x2 - high expectation of flooding
C - x5 - risk to life

Approx. Number	1 to 4				5 to 20				>20			
Weighting		**A**	**B**	**C**		**A**	**B**	**C**		**A**	**B**	**C**
Property (domestic)	10				100	X			200			
Property (small retail or business)	20				200	X			400			
Property (large retail or business)	50				500				1000			
Road or Rail Infrastructure	30	X			300				600			
Critical Infrastructure (local) [hospital, school, police/fire/ambulance station, substation, WTW/WWTW, gov bldg, other (specify)]	50	X			500				1000			
Critical Infrastructure (national importance)	250				1000				2000			
Cultural Heritage Site	20				200				400			
Environmental Designated Site	20				200				400			
Hazardous Substances Site	50				500				1000			
Total SVRS								**380**				

2.6 Defence Assets

Formal and Informal Flood Defence Assets *(include effective and ineffective assets to inform asset survey and potential mitigation measures)*

Open Channel Watercourses
Man-made river channel ☐ Flood relief channel ☐ Canal ☐
Mill leat ☐ Drainage channels / back drains ☐

Bridges and Culvert crossings
Single Arch bridge ☒ Multi-Arch bridge ☒
Single Span bridge ☐ Multi-Span bridge ☐
Box culvert(s) ☒ Pipe culvert(s) ☒ Arch Culvert(s) ☒

Culverted Watercourses (culvert length is greater than just a crossing)
Box culvert(s) ☐ Pipe culvert(s) ☒ Arch Culvert(s) ☐ Irregular Culvert(s) ☐

Walls and Embankments
Embankment(s) ☐ Raised wall(s) ☐ Retaining wall(s) ☐

Control Structures – weirs, gates, dams
Fixed crest weir ☐ Adjustable weir ☐ Dam / Barrage ☐
Sluice gates ☐ Lock gates ☐ Radial gates ☐

Storage
On-line storage (natural) ☐ On-line storage (artificial) ☒ Off-line storage ☐

Outfalls
Flapped outfall(s) into watercourse ☐ Unflapped outfall(s) into watercourse ☐
i.e. from smaller watercourses, drains etc. into river / estuary / sea
Tidal flap(s) ☐ Tidal sluice(s) ☐
i.e. from main watercourse into estuary / sea

	Other Pumping Station ☒ Erosion Protection ☐ Sand Dunes ☐ **Additional notes (if required):**
2.8 Initial Potential Mitigation Measures	
Non-structural measures	Planning and Development control ☐ Sustainable Urban Drainage Systems ☐ Flood forecasting / warning ☐ Change in Operating Procedures for water level control: ☐ Public awareness campaign ☐ Individual property protection ☒ Land use management ☐
Structural measures	**Strategic development management for floodplain development:** ☐ *(integration of measures into strategic development proposals)* **Storage:** On-line ☒ Off-line ☐ **Flow diversion:** Flood relief channel ☐ Flood relief culvert ☐ **Increase conveyance:** Bridge works ☒ Channel works ☐ Floodplain ☐ **Flood defences:** Walls ☒ Embankments ☐ **Localised works:** Defence raising ☐ In-fill gaps ☒ Trash screen ☐ **Maintenance works:** Culvert / channel clearance ☒ Asset maintenance ☒ **Relocation of properties:** ☐ **Improve existing defences:** ☐ **(describe)** **Other (describe):** Repair gaps in walls alongside river in centre of Mohill

<table>
<tr><th colspan="5">Outcomes</th></tr>
<tr><td>PFRA Designation</td><td colspan="2">APSR ☒ not an APSR ☐ IRR ☐</td><td colspan="2">FRI Score: 720</td></tr>
<tr><td rowspan="2">Site Ground-truthing of PFRA Assessment (hazard mapping and receptors)</td><td>High Confidence (good)</td><td>Uncertain</td><td>Low Confidence (poor)</td><td>Not available</td></tr>
<tr><td>x</td><td></td><td></td><td></td></tr>
<tr><td>Site Visit Review Score</td><td colspan="4">380</td></tr>
<tr><td>Recommended Designation</td><td colspan="4">APSR ☒ not an APSR ☐ IRR ☐</td></tr>
<tr><td>Summary Comments (if required)</td><td colspan="4">Mohill is recommended as an APSR on the basis that the heavily modified nature of the watercourse through the centre of town, although of good capacity, is believed to be insufficient to convey a modest flood flow. This is exacerbated by a number of culverts of lesser capacity than the main river channel. A number of bricks are missing from culvert headwalls and the rivers retaining walls which would reduce the standard of protection further.
Although there is little history of flooding at Mohill it is noted that storms on the Shannon (particularly the November 2009 event) have typically been along the southern and western catchments. Therefore, because Mohill does not have a record of historic flood events, is not an accurate indication that Mohill does not have a significant flood risk.
The main part of the town is lower than the river bank top level. If the river comes out of bank, it will flow away from the river and flood a significant area in the centre of town.</td></tr>
</table>

Photo1: Twin arch culvert at watercourse in Mohill town centre

Photo 2: Constrained watercourse in Mohill town centre

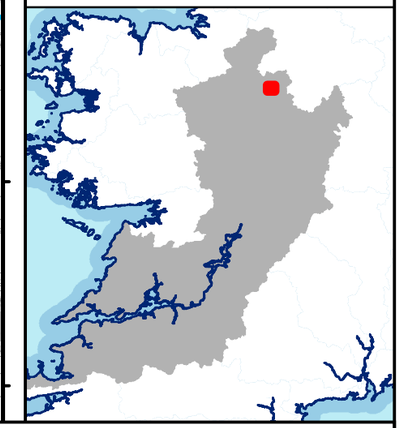
Photo 3: Constrained watercourse in Mohill town centre

Photo 4: Mohill town centre with watercourse in foreground

206500 207000 207500 208000 208500 209000 209500 210000 210500 211000

298500 298000 297500 297000 296500 296000 295500 295000

N



Legend

- APSR Boundary for CARs only
- Historic Flooding Incidents
- Water bodies mapped from RADARSAT-2 *
- Hydrometric Gauging Stations
- EPA River Network
- Rail Stations
- Nursing Homes
- Residential Care for the Elderly
- Schools
- Ports and Harbours
- OPW Buildings
- Health Centres
- Garda Stations
- Hospitals
- Fire Stations
- Civil Defence Head Quarters
- Airports
- Rail Network
- Roads (National Roads Authority)
- Airport Land
- OPW Embankments
- Historic Flood Data
- Architectural Heritage
- UNESCO Sites
- Special Protection Area
- Special Area for Conservation
- Proposed National Heritage Area
- National Heritage Area
- Benefiting Lands

Flood Extents (PFRA, 2010)

- 10% AEP Flood Extent (1 in 10 chance in any given year)
- 1% AEP Flood Extent (1 in 100 chance in any given year)
- 0.1% AEP Flood Extent (1 in 1000 chance in any given year)

* Data Source - Service Régional de Traitement d'Image et de Télédétection (SERTIT) (acquired on the 5th of December 2009).

The PFRA Flood Extents shown are *indicative*. They have been developed using simple and cost-effective methods that are suitable for the PFRA. They should not be used for local decision-making or any other purpose without verification.

0 0.3 0.6 1.2 Km

JACOBS

Client	OPW The Office of Public Works Oifig na nOibreacha Poiblí
Project	**Shannon CFRAM Study** Flood Risk Review Map
Title	**Mohill**
Drawing Status	FINAL
Job No.	32102500
Figure No.	**CAR 41**
Revision	
Scale	**1:15,000 @ A3**
Date	**Jun 28, 2011**
Drawn / Checked / Review / Approved	AD/SF / JC / KK/JM / IB/PS