Mountmellick Flood Relief Scheme Presentation to Elected Members – 18 August 2025

Supporting document:

The roles and responsibilities of the Office of Public Works and Laois County Council

The Mountmellick FRS is managed by a Technical Advisory Group that it made up of representatives from The Office of Public Works (OPW), Laois County Council (LCC) and the designers, JBA/Egis.

OPW has the responsibility to lead, co-ordinate and fund the implementation of Ireland's National Flood Policy. As part of this, they undertook an assessment of flood risk areas in Ireland and the potential to protect these areas. One of these areas was Mountmellick and their assessment identified a feasible scheme to protect the town from flooding.

OPW prioritised the feasible schemes and Mountmellick was included in the first batch of sites to be progressed through the various stages of design development through to planning, detailed design and construction.

Although the funding for the scheme is provided by OPW, the lead organisation regarding the implementation of the scheme, including its day-to-day management, is LCC. LCC also act as the Employer/Contracting Authority in relation to the appointment and management of the Design Team and, during construction, the Contractor who will build the scheme.

Standard of protection for the design of the FRS

The purpose of the scheme is to protect the homes and business premises of Mountmellick, not only from a repeat of the 2017 flood event but from an even larger flood event that has a 1% chance of occurring in any given year.

Although the proposed flood embankments and walls are designed to protect for the 1 in 100-year flood event, they are built even higher to provide a factor of safety to the design – this means that the top of the earth embankments will be built 500mm above the 100-year flood level and the top of the flood walls will be built 300mm above the 100-year flood level.

The financial investment in building the 100-year flood relief scheme is significant and so it must be readily adaptable to be able respond to the impact of climate change on river flows and flood levels. As such, the impact of climate change has been assessed using the approach outlined in the Government's guidance. This assessment has identified where the present-day 100-year scheme will have to be enhanced so that the scheme will continue to protect the town from flooding when the impacts of climate change have materialised. The design will allow for the changes to be made when required.

To make the enhancements more efficient and cost effective to install, the design for the present-day scheme has been developed so that demolition and re-construction of elements will not be required. Examples of this are that the flood walls have been designed with foundations strong enough to allow the raising of the top of the wall level in the future and the embankments have been designed wider than necessary so that the top level of the embankment can be raised in the future rather than having to reconstruct the whole embankment.

As part of the hydraulic assessment of the proposed 100-year scheme, there is a need to fully understand if there are any residual (i.e. flood risks remaining after the scheme is constructed) or additional risks associated with building the scheme. There is a requirement to check what happens when the scheme is subjected to an exceedance flood event – an event larger than the 1 in 100-year design event. The design process requires that the proposed works needs to be subjected to a 1 in 1000-year High End Future Scenario (HEFS) flood event as the largest extreme event. This is the event that has a 0.1% chance of occurring in any given year including the anticipated maximum increase in flows resulting from climate change. At this stage, the design needs to identify the impact of such an event with the proposed scheme in place.

What does the Mountmellick FRS provide?

It is proposed that the 100-year scheme will include the following:

- It will provide flood protection to 165 homes and businesses that would otherwise flood as a result of a 1 in 100-year flood event occurring in Mountmellick. This includes the 90 properties that were flooded in 2017.
- The Owenass Bridge will be replaced by a similar looking single-span arch bridge with a larger opening. The larger opening will allow more floodwater to pass through the bridge to an area where it can be controlled, rather than allowing it to bypass the bridge and flow north towards the River Pound and the town. It also reduces the risk of a possible bridge collapse in an extreme flood event.
- The area between Mill Bridge and Convent Bridge will be used to store floodwater during major flood events. The surface water drainage system in the Davitt Road area flows into this proposed storage area and so to ensure the drainage system can continue to operate during a flood event, as it does now, a pumping station will be built to pump the flow from the outfall of the drainage system into the flood storage area.
- 3.7km of earth embankments will be constructed using impermeable material which will have gently sloping sides and a grassed surface. Suitable crossing points will be provided for agricultural vehicles where required.
- 3.2km of flood walls will be constructed. These will be faced with stone where clearly visible to the public.
- The embankments and walls will be designed in such a way that they can be readily raised or extended to meet the impact of climate change on flood levels.
- Approximately 7.4Ha (18.3 acres) of land acquisition will be required to construct the various elements of the scheme.
- LCC will continue with the Drainage Maintenance Programme to ensure that flow capacity in the rivers and at the bridges is maximised.

Future Flood Risk

The 100-year scheme has been designed to prevent 165 homes and businesses from flooding and be adaptable so that it can be easily amended to meet the flood risk resulting from the impact of climate change on rainfall and flood events.

The design steps taken include making the embankments wider than they need to be today, so that the top of the embankments can be easily raised in the future, without the need to reconstruct base or foundations.

For the walls, the foundations are designed to allow the top of the walls to be raised where necessary to provide higher levels of flood protection without the foundations being strengthened in any way. In some areas, the difficulty in gaining access for construction has meant that the walls are designed to protect for the impact of climate change from the start so that access for construction is only required once.

Residual risks are associated with more extreme events and in the case of Mountmellick, the residual risks associated with a flood event that is only expected to occur once in every 1000 years have been determined. To ensure the worst-case scenario has been used, a high end climate change scenario has also been applied to the flows modelled.

For most flood relief schemes, the residual risks associated with the extreme 1000-year climate change HEFS event are not significant. In the case of Mountmellick however, the generally flat landscape, and the number of interacting rivers, streams and drainage systems mean that there are residual risks that need to be addressed.

As the 1 in 100-year event is much more likely to happen than the 1 in 1000-year event, it has been agreed that to protect Mountmellick from flooding as soon as possible, the best way forward is to submit the 100-year scheme for planning to An Coimisiún Pleanála in October 2025.

Following this submission, LCC intend before the end of 2025, to procure and appoint a Design Team to fully inform, assess and design the works required to ensure that properties are protected from the residual risk which arise from scheme construction in extreme flood events.

It is anticipated the construction of the 100-year scheme will be completed over a four-year programme. It is anticipated that the works required to remove the residual risks will start within that four-year programme and should be fully completed shortly thereafter.

This approach means that Mountmellick will receive protection from the more likely 1 in 100-year flood event as soon as possible, but would still be fully protected from the residual risks created by the Scheme in the much less likely 1 in 1000-year event.