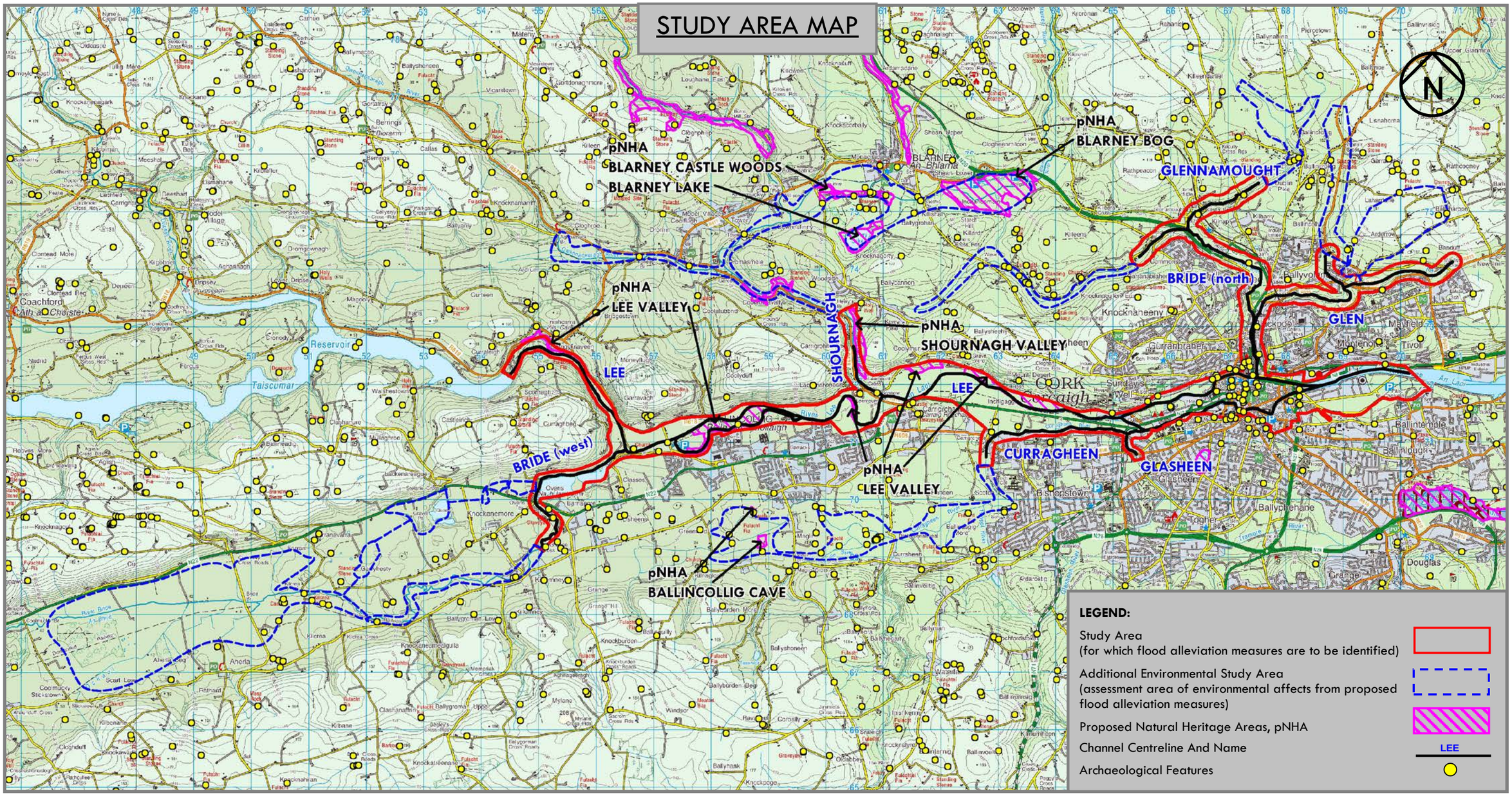
Appendix 2E
Public Information Day No.1 & 2 – Exhibition Posters

Lower Lee (Cork City) Flood Relief Scheme
(Including Blackpool and Ballyvolane)



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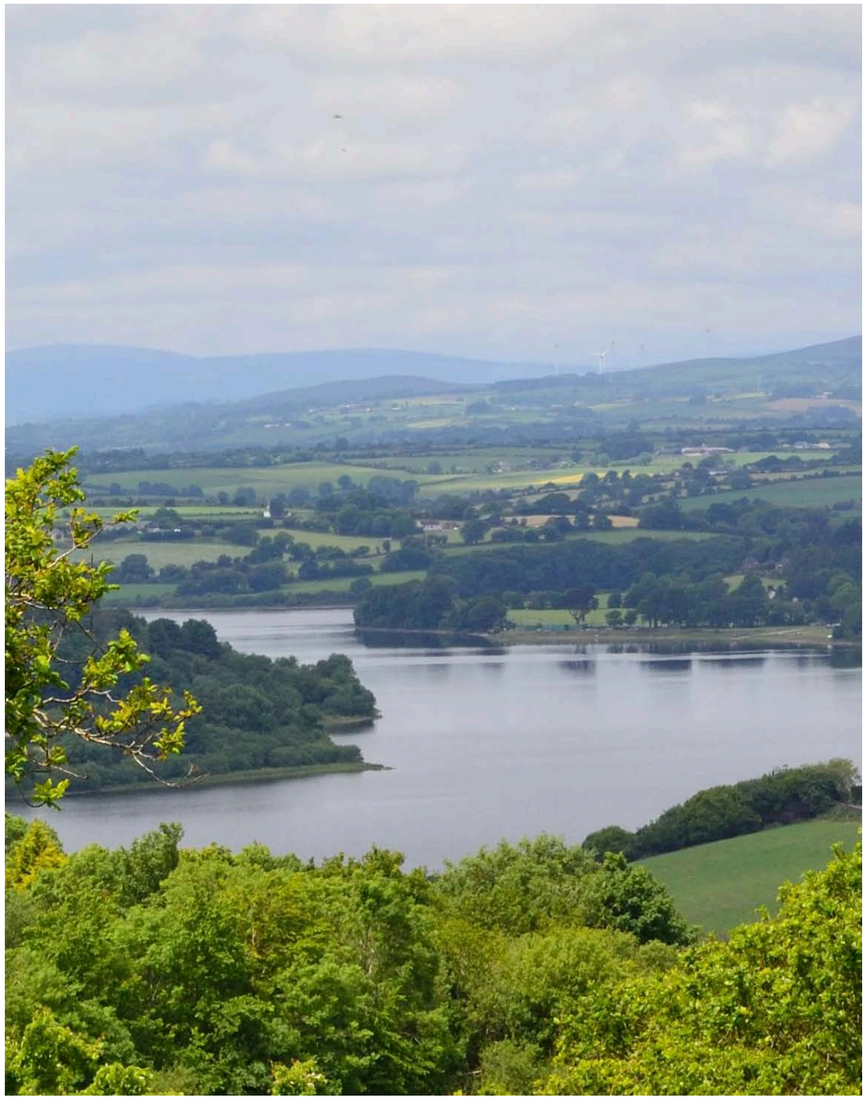
McCarthy Keville O'Sullivan
Planning & Environmental Consultants

RYAN HANLEY
Consulting Engineers

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)



Constraints Study

A Constraints Study is currently being undertaken by the project Environmental Consultants. The purpose of the Constraints Study is to determine and document the constraints that may inform the selection and design of the proposed Flood Alleviation Measures.

Primary Constraints

A range of constraints are being considered under the following categories:

- **Flora and Fauna**
- **Fisheries**
- **Habitats**
- **Water Quality**
- **Archaeological, Architectural and Cultural Heritage**
- **Landscape and Visual Amenity**
- **Angling, Tourism and Recreational Use**
- **Flood Related Socio-Economic and Social Issues**

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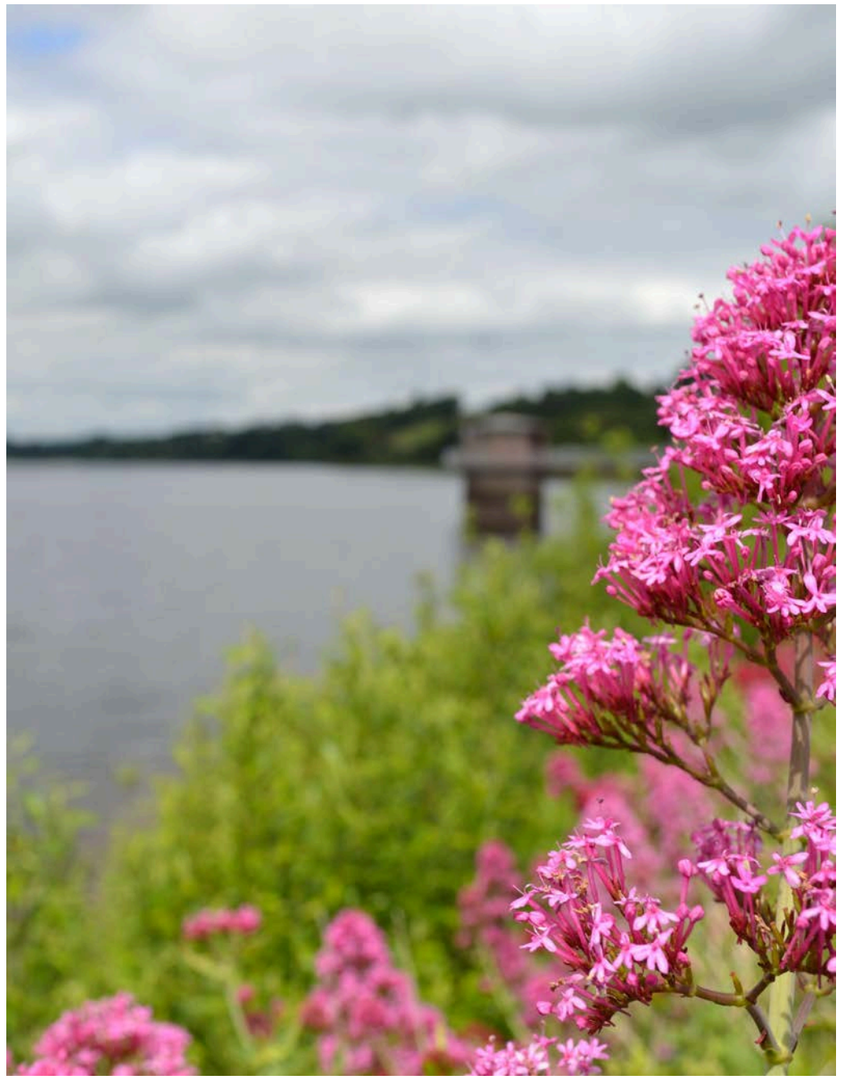
Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)



Public Involvement

Consultation will be undertaken throughout the process to ensure that the views of the public and other stakeholders are taken into account.

The purpose of this initial Information Gathering Day is to:

- Provide information about the Objectives of the Scheme
- Outline the Design and Statutory Process
- Provide an Opportunity for Comment at a preliminary stage
- Gather information about Environmental Constraints
- Obtain other information relevant to the Scheme

Following this initial public consultation, there will be further opportunities for involvement through attendance at future information days, when updates on the scheme progress will be presented. A questionnaire is available for you to complete and return with your own comments.

Members of the project teams are present today to answer any questions you have, or take note of any relevant information.

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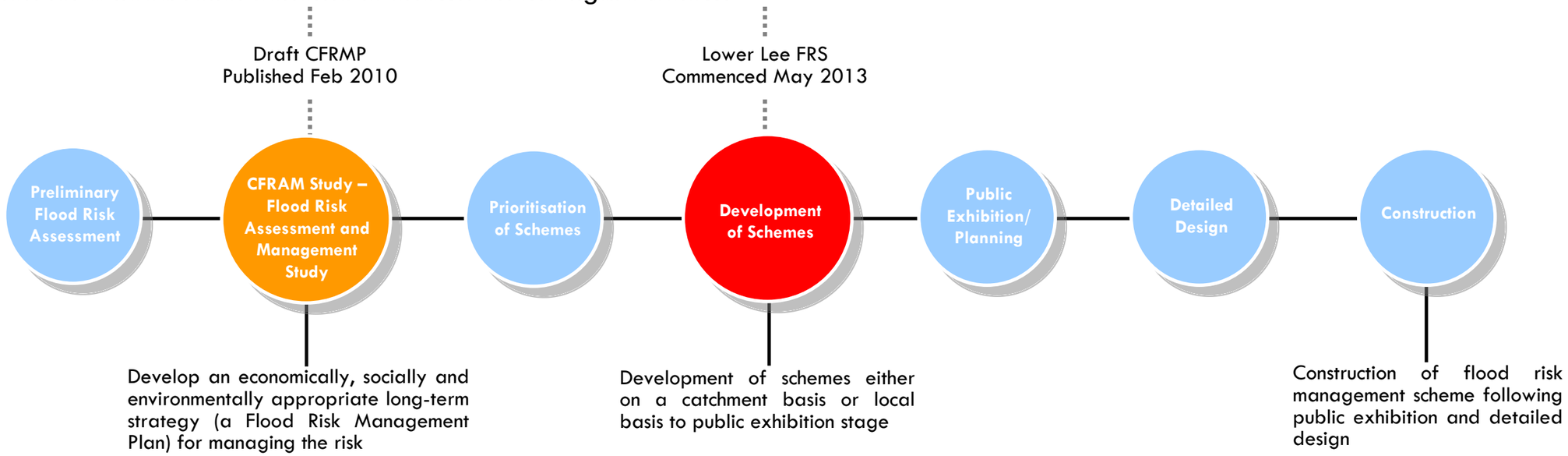
Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)

Scheme Objectives & Overview

The Office of Public Works, OPW have carried out a Catchment Flood Risk Assessment and Management (CFRAM) Study for the Lee Catchment. From this study, the draft Catchment Flood Risk Management Plan, published in February 2010, set out a range of potential flood risk management options for particular areas within the catchment including the Lower Lee (Cork City).

The OPW has now commissioned Engineering and Environmental Studies to assess and develop a viable, cost-effective and sustainable Flood Relief Scheme, based on the preferred option from the Lee CFRAM Study. A report will be prepared describing the findings of the Engineering Study, which will include a description of the measures and scheme options assessed and the justification for its selection.

The Project Team includes a Design Team made up of consulting engineers, the OPW, Cork City Council and Cork County Council in addition to the Environmental Team. A study area has been identified and the initial stages of the Lower Lee flood relief scheme have commenced, including Constraints Study and Preliminary Design Surveys. An Indicative Flow chart showing the process from inception through to construction for a flood relief scheme is shown on the figure below:



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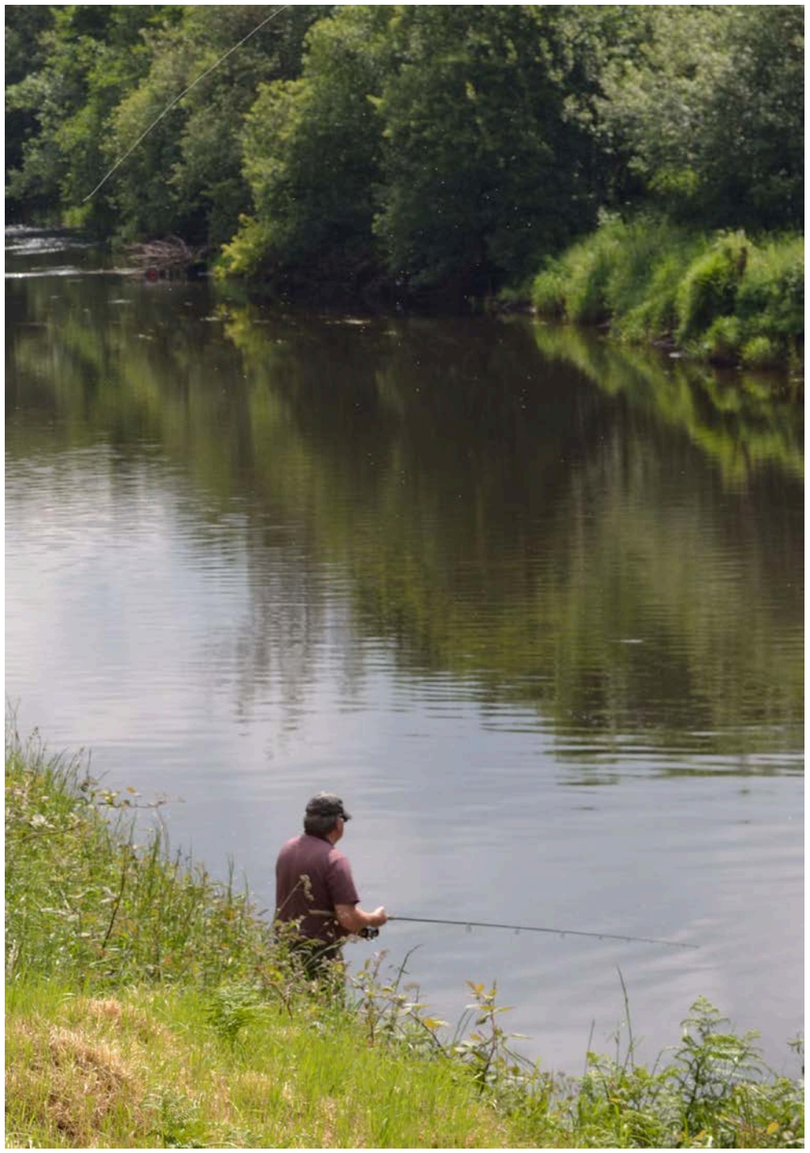
Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)



Formal Public Exhibition Process

Once a preferred Flood Relief Scheme has been determined and an outline design completed, the OPW will formally publicly exhibit the proposed scheme in accordance with the Arterial Drainage Acts.

This statutory process includes a four week Public Exhibition, during which the plans and particulars of the proposed scheme will be put on Public Display.

Representatives of the Project Team will attend the Public Exhibition on various dates to explain the scheme to members of the public and to address queries.

Copies of the EIS for the scheme will be available to the public during this time.

Members of the public will be invited to submit written observations which will be considered and responded to.

An Exhibition Report, including all observations received will be sent to the Minister for Public Expenditure and Reform before formal approval of the Scheme.

Statio Bene Fida Carinis

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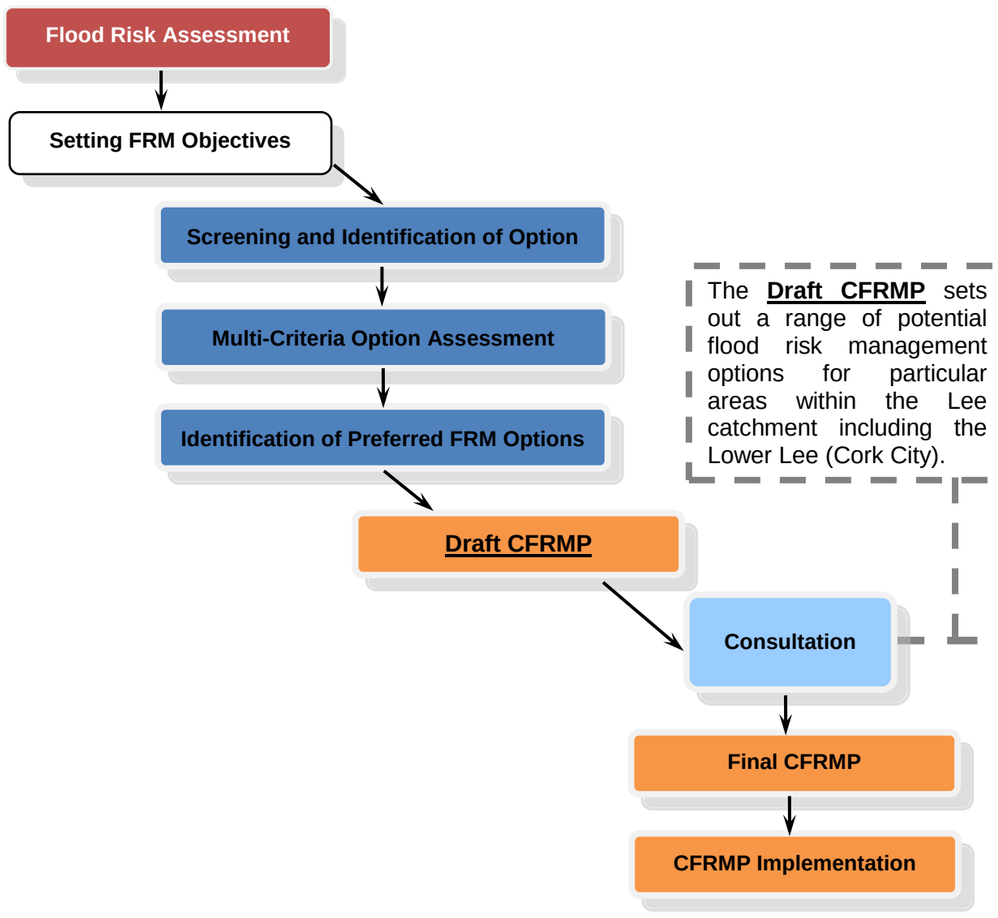
Lower Lee (Cork City) Flood Relief Scheme

CFRMP Process



The **Draft CFRMP** sets out a range of potential flood risk management options for particular areas within the Lee catchment including the Lower Lee (Cork City).

Lee Catchment Flood Risk Assessment and Management Study (Lee CFRAMS)

Catchment Flood Risk Assessment and Management Studies (CFRAMS) and their product - Catchment Flood Risk Management Plans (CFRMP) - are at the core of this new national policy for flood risk management and the strategy for its implementation.

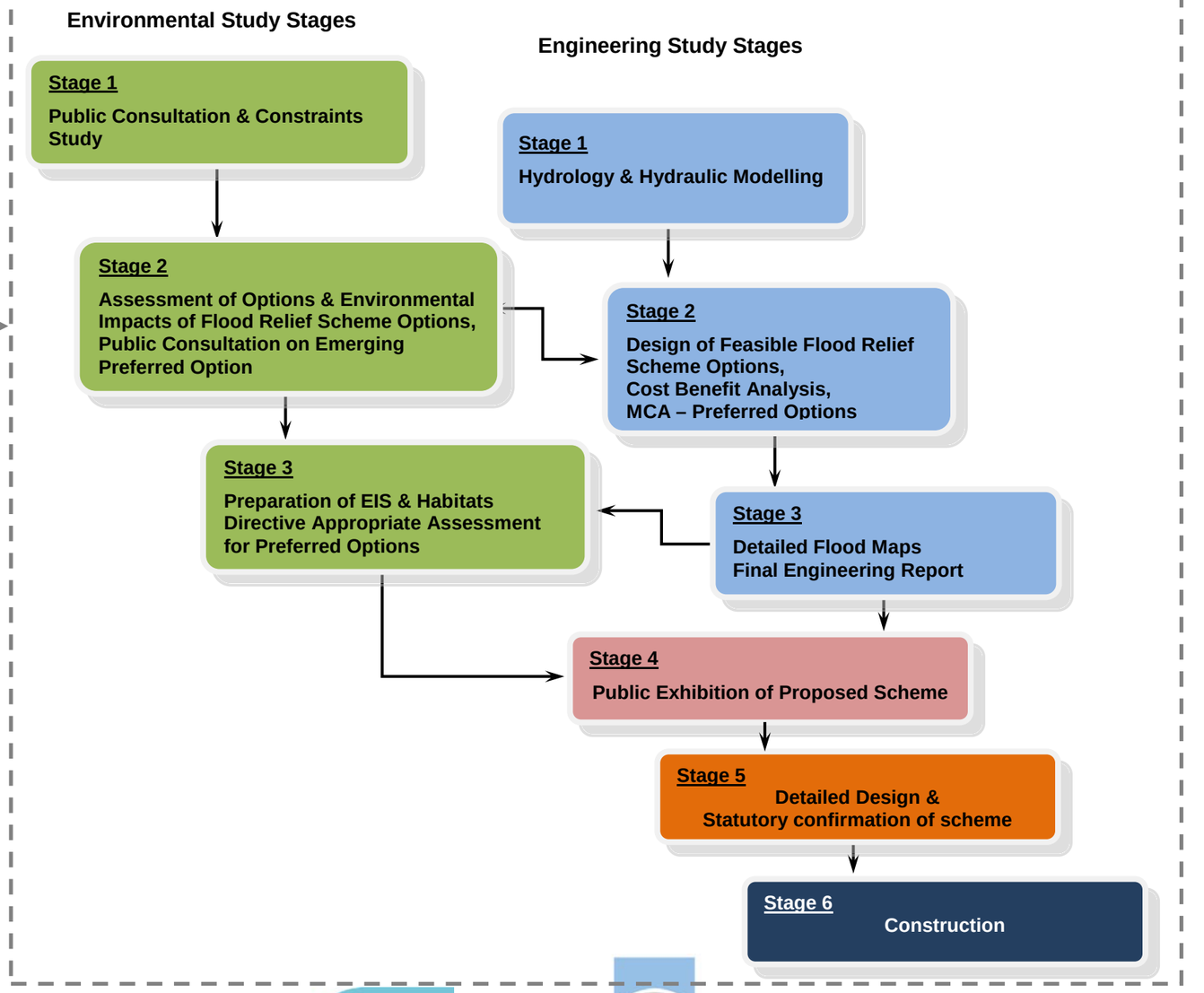
The Lee CFRAM Study was the first pilot CFRAM Study for the new Flood Risk Assessment and Management Programme. The **CFRMP Process** chart above shows how the range of potential flood risk management options identified in the draft CFRMP (for the Lower Lee) progress to the Lower Lee (Cork City) Flood Relief Scheme as part of the overall **Lee CFRAMS**.

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool & Ballyvolane)

The Office of Public Works has employed consulting engineering companies to undertake an Engineering Study of the flooding problems along the Lower Lee downstream of Inniscarra reservoir to Cork City and on the River Bride in the Blackpool and Ballyvolane areas in Cork.

The chart below shows how the Lower Lee (Cork City) Flood Relief Scheme follows on from the Lee CFRAMS and details the interaction between the Environmental Study Stages and the Engineering Study Stages for the Scheme.

Lower Lee (Cork City) Flood Relief Scheme Process



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Consulting Engineers

Lower Lee (Cork City) Flood Relief Scheme

History of Flooding in Cork City

The Irish Times - Saturday, November 18, 1916 - Page 5

THE IRISH TIMES

STORM AND FLOODS.

GREAT DAMAGE IN THE PROVINCES.

ENORMOUS DAMAGE IN CORK.

Accompanied by torrential rains, a storm has been sweeping over Cork for the past twenty-four hours, and up to 10 a.m. yesterday the gale, which was from the south-east, blew with hurricane force. It caused enormous damage to property, and has been the worst storm experienced there for twenty years. To the west of the city the River Lee overflowed its banks to a depth in some places of six feet, and, sweeping with great force over the grazing lands which lie on either bank, carried away horses, cattle, and sheep, notwithstanding the efforts of the owners to save them. University College football grounds were covered with four feet of water, and here a number of sheep are stated to have been lost. The caretaker's house was severely flooded. Indeed, the valley of the Lee extending westwards was one huge lake. The Cork and Muskerry Railway, which traverses this district, was inundated to a depth of several feet, and the train service had to be suspended yesterday, with great inconvenience to the public. The Cork cricket grounds upon the Mardyke were swept by the tide early in the morning, and the waters rose with such rapidity that the residents of the pavilion were considered in danger, and a pleasure boat manned by local gentlemen went to their assistance, and rescued them. Houses on the Mardyke Walk and Western road suffered flooding to the extent of from three to four feet. The Fitzgerald Park was also under water. The district of Blackpool, which is low-lying, was ravaged by the floods, which ran down some of the streets like a fair-sized river, and so bad was the flooding that bread van drivers had in places to deliver their bread on the top of poles into the upper windows of the flooded houses. On St. Patrick's Bridge and other bridges which span the north channel, hundreds of people stood watching the flood as it brought down dead cattle and tree trunks. The river steamer Roslellan, of Cork, Blackrock, and Passage Railway Co., was torn from its moorings at Merchant's quay and dashed against the city railway bridge, sustaining serious damage. It afterwards ran aground lower down the river.

The great floods in Cork reached their climax at nine o'clock last night, when the water rose to five feet in the vicinity of the courthouse and to four and five feet in the western and northern districts. The river presented a wonderful spectacle as the enormous volume of water surged down, with waves seven feet high and the torrent breaking itself against the houses on either bank of the river. People gathered on the bridges were perturbed to see a sealed coffin with a breastplate tossed about in the torrent, and a Cork undertaker gave it as his opinion that it had been washed out of the Innisearra graveyard.

Courtesy
The Irish Times

Irish Examiner

(Previously the Cork Examiner) Friday Evening November 4 1853 "The Late Dreadful Flood"

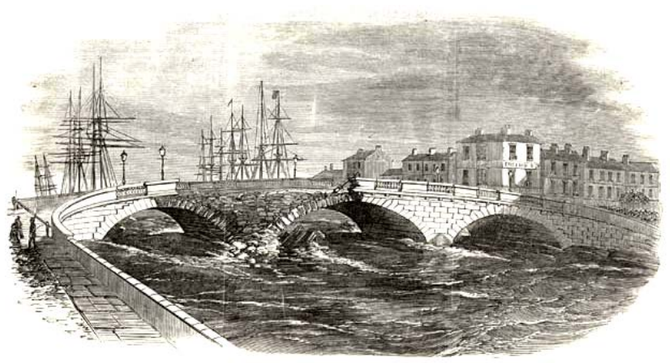
CONSIDERABLE doubt still exists as to the number of persons who lost their lives by the sad accident on Patrick's Bridge, but the general opinion is that the number did not exceed seven or eight. Amongst those who fell in was a tradesman named Murphy, who struck out manfully and was fortunately rescued some distance below the Custom House.

In the latter part of the day, the gate-house or lodge of the Munster Model farm at Inchigaggin was carried away and conveyed down the Western Road but it subsequently floated to Parliament Bridge where it was picked up and removed to the Constabulary station in Dunbar Street.

The house which fell down in Fishamble Lane was one in the occupation of a person named Hingston. The inhabitants fortunately perceived the danger that impended over them in time to escape with their lives into the next house and no accident happened beyond the destruction of whatever property the house contained.

In a short time, the house in which they took refuge was threatened with the same fate that had befallen the adjoining tenement, but the Officers of the Courthouse procured a boat into which the parties got and were then conveyed to the Courthouse. They were placed in the Grand Jury Room and were supplied with fire, provisions and every other comfort that their miserable circumstances required.

In rescuing them from their perilous situation and removing them to the Courthouse — Constable Carey exerted himself with great courage and activity and narrowly escaped with his life. He was carried away by the force of the water as far as Broad Lane and was in imminent danger of being swept into the river when a gingle man reached him the handle of his whip and thereby rescued him.



THE calamitous inundation of which we gave intelligence in our publication of Wednesday has from the City at least subsided, and the waters have returned to their usual course, leaving still however, a rapid and dangerous fresh in the river.

This flood, the largest that has been ever known in this city, since the year 1769, it is needless to say, resulted from the enormous rains which fell during the last month.

From the meteorological observations of Mr Humphreys, of the Cork Institution, which we publish in another part of the paper, it will be seen that the number of wet days out of the preceding month amounted to the very large number of 23, and the rain in inches reached an enormous quantity.

On Tuesday evening, a portion of the city was flooded, but chiefly the low grounds such as the Mardyke and the City Park, and of course little alarm of apprehension was excited as such occurrences have been very common. But before this had subsided, another inundation followed, which soon caused feelings of a very different character to be excited.

Towards the morning of Wednesday, the river which had hitherto borne a turbid and angry appearance, but which at the approach of winter caused little surprise, soon rose to a height that caused some alarm to those living in the neighbourhood of the Western Road, the Mardyke, and the lower part of Sunday's Well, but that feeling was not at all shared by those living further in towards the city.

Before eight o'clock, the water below Wellington Bridge, which for a long time previously had overflowed its banks, now rose steadily, higher and higher, until the water formed in a tremendous stream across the fields and found an access for itself in the Western Road and Mardyke, which became like the bed of a torrent and swept along in an eastward direction until all parts between those and North Gate Bridge were completely covered.

The main stream came right down along Great George's Street, which by 10 o'clock was hopelessly flooded — hence through the Parade along Patrick Street and the South Mall, until, by 12 o'clock, the whole flat of the city was submerged.

At the time the flood came first into the city, the condition of North Gate Bridge, whose construction and the number of small arches by which the rush of water through it is impeded has been so often condensed, began to excite serious apprehension, and certainly, by any spectator it would be supposed that no apprehension was too great.

The river, which makes a bend in Grenville Place, from that rushes upon a considerable slope down to that with tremendous velocity, and some idea of its appearance may be formed from the fact, that while on the eastern of lower side the water did not reach to within eight feet of the top of the arch, on the other side it was completely covered and the form of the waters actually springing over the parapets.

Below the bridge, the waters, which came through it in a fall of five or six feet, leaped and roared in enormous waves, and rushed through the channel at a rate whose rapidity was tremendous. At an early hour chains accordingly were placed across the North bridge to prevent further traffic upon it, as it was considered dangerous to human life to permit cars of passengers upon it.

But the danger came where it was least expected, and the surprise that was felt through the city nearly equalled the horror with which the intelligence was heard of the breaking of Patrick's Bridge and the sacrifices of eleven human lives.

The fall of Patrick's Bridge of course compelled the necessity of allowing traffic to be resumed, but cautiously on North Bridge.

At 12 o'clock, the appearance of the western portion of the city from the heights above was that of a broad and disturbed lake. For miles along the course of the river its natural bed

THE baths known as Welstead's were the first to suffer, the whole of the wooden erections there having been borne away along the Western Road, and not a vestige left to mark where they stood.

The inhabitants of the houses along the Mardyke, were for the entire day, confine to upper stories, as the lower portion were filled with water, which in some cases reached the fearful height of nine feet, actually touching the drawing room floors.

Along the high hedge which separated Mr Heath's garden from the Mardyke there can be yet seen straw and vegetable matter, deposited on the tops by the subsiding of the water which had rolled above it. But a deposit of a rather more extraordinary character was made in Mr Heath's garden in the shape of a 20 ton sand barge, which was buried into the middle of it by the force of the flood.

This matter may indeed be accounted on exceedingly fortunate circumstances, for had the lighter been carried down the channel of the river, in all human probability it would have smashed the piers of North-bridge, or else acted as a dam to the terrific stream, and forced the waters in a more fearful deluge through the city.

The little street which joins the Mardyke with the Western Road was flooded at an early hour, so much so that at 10 o'clock a gentleman requiring to leave his home had to mount on the top of a gingle from the window of his drawing room and progress from the lower part being completely barred by the progress of the flood.

Owing to the enormous rapidity with which the water rushed through the streets, the depth of the water in places of nearly the same elevation varied considerably. On Grenville place it averaged about four feet. Great damage was done to shopkeepers, particularly to those in the grocery trade, their goods being particularly liable to being spoiled by the action of water.

At present it is impossible to arrive at anything resembling a just calculation or estimate of the damage done. but taking into account the injuries to public and private property in and about the city it is believed that it will exceed £80,000.

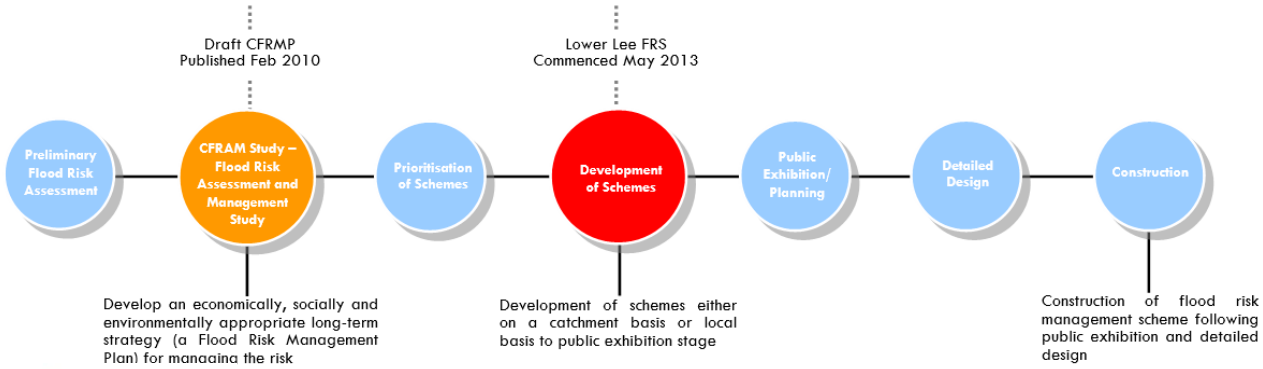
Courtesy Irish Examiner

Planning & Environmental Consultants

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)

Scheme Objectives & Overview

- The Office of Public Works (OPW) has carried out a Catchment Flood Risk Assessment and Management (CFRAM) Study for the Lee Catchment. From this study, the Draft Catchment Flood Risk Management Plan, published in February 2010, set out a range of potential flood risk management options for particular areas within the catchment including the Lower Lee (Cork City).
- The OPW has now commissioned Engineering and Environmental Studies to assess and develop a viable, cost-effective and sustainable Flood Relief Scheme, building on the preferred option from the Lee CFRAM Study.
- The Project Team includes a Steering Group made up of the OPW, Cork City Council and Cork County Council, the ESB in addition to the engineering and environmental consultants.
- A broad study area was initially identified. The project has since progressed through a constraints study, hydrological and hydraulic analysis, preliminary geotechnical investigations and is currently at the options assessment stage.
- The process of identifying the preferred scheme includes a detailed assessment of a range of flood risk management measures to determine their technical, economic, social and environmental viability.
- An Indicative Flow chart showing the process from inception through to construction for a flood relief scheme is shown to the right:



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Public Consultation

Public Information Day No.1

17th July 2013

Purpose of project set out

Constraints study explained

Overview of potential outcomes provided

Your views were sought

What has happened since?

Constraints Study

Hydrology and Hydraulic Modelling

Assessment of Viable Options

Preliminary Geotechnical Investigations

Emerging Preferred Options

Public Information Day No.2

29th July 2014

Progress update

A chance to have your views heard on the emerging preferred options

What happens next?

Scheme Review

Production of Scheme Documentation

Appropriate Assessment

Environmental Impact Assessment

Public Exhibition

Four week exhibition

(Dates yet to be announced)

A third chance to have your views heard

And then?

Scheme Refinement

Detailed Design

Detailed Geotechnical Investigations

Confirmation of Scheme

Your views taken on board

Planning & Environmental Consultants

Constraints Study

- The Constraints Study for the scheme was completed following the initial public consultation, taking into account your views.
- The purpose of a Constraints Study is to identify the key environmental issues in a study area which might be impacted by possible flood alleviation measures and/ or which may impose constraints on the viability and/ or design of these measures.
- The design constraints identified include the requirement to maintain traffic and pedestrian links across the River Lee in addition to local amenity and angling areas, minimise disruption to residents and businesses, protect the various landscape types in the study area and also protect archaeological, architectural and cultural heritage sites. Ecological constraints include the importance of the River Lee and banks as a habitat. Other constraints include the protection of water quality and material assets in the study area.
- A copy of the full Constraints Study Report is available to download from the project website www.lowerleefrs.ie.

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Option Development

Flood Risk Management Options Considered at Preliminary Assessment	Options Brought Forward for Detailed Assessment	Emerging Preferred Options
• Do Nothing • Non-Structural Measures (e.g. flood warning system or individual property protection) • Relocation of Properties and/or infrastructure • Reconstruction of Properties and/or infrastructure to a higher level • Flow Diversion (e.g. river diversion or flood flow bypass channel) • Flow Reduction (e.g. upstream catchment management or flood storage) • Flood Containment through construction of Flood Defences • Increase Conveyance of Channel (upstream and/ or through and/or downstream of the town)	• Flood defences • Flood forecasting system • Channel widening • Bridge modifications/ Removal of obstructions from channel • In-channel flow regulation • Modified operation of Inishcarra Dam • Upstream flood storage/ washlands • Local conveyance improvements • Flood early warning system	River Lee (Inishcarra to Cork City) Blackpool Ballyvolane

Options assessed using Technical, Social, Environmental & Economic Criteria

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Formal Public Exhibition Process

- Once a preferred Flood Relief Scheme has been determined and an outline design completed, the OPW will seek consent for the proposed scheme in accordance with the provisions of the Arterial Drainage Act.
- This statutory process includes a four week Public Exhibition, during which the plans and particulars of the proposed scheme will be put on Public Display.
- Representatives of the Project Team will attend the Public Exhibition on various dates to explain the scheme to members of the public and to address queries.
- Copies of the EIS for the scheme will be available for sale to the public during this time.
- Members of the public will be invited to submit written observations which will be considered and responded to.
- An Exhibition Report, including all observations received will be sent to the Minister for Public Expenditure and Reform before formal approval of the Scheme.

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