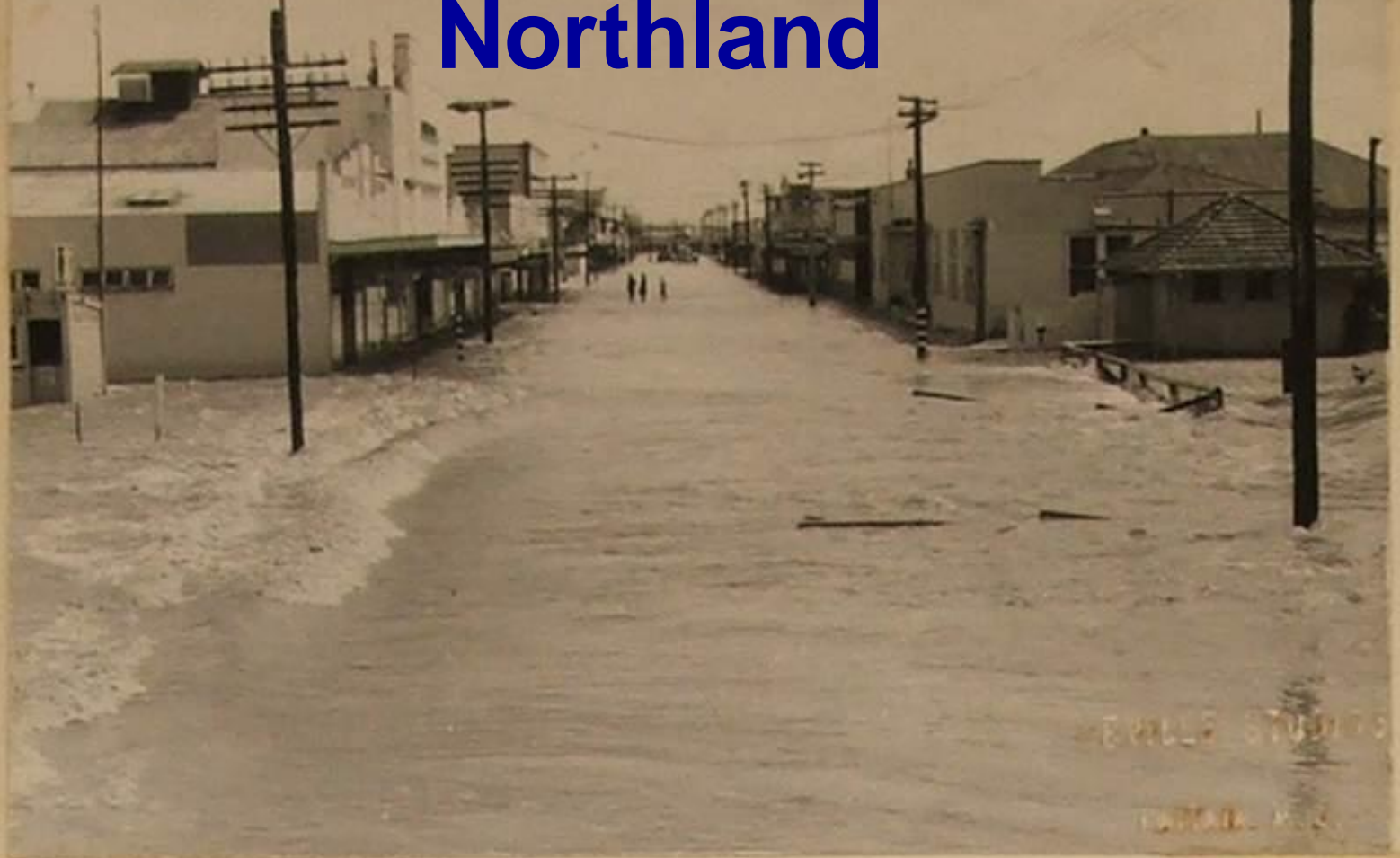


A wide river flows through a landscape with a dense forest of tall, thin trees on the left bank. The water is calm and reflects the sky. In the distance, a line of trees marks the horizon under a clear blue sky. The text 'Priority Rivers Flood Risk Reduction Project' is overlaid in large, bold, blue letters across the center of the image.

Priority Rivers Flood Risk Reduction Project

Bruce Howse
Land/Rivers Programme Manager
Northland Regional Council
bruceh@nrc.govt.nz

A Short History Of Flooding In Northland



Kaitaia 1958

Major Historical Floods

Feb 1917	Mar. 1995
? 1920	Jan. 1999
? 1934	Apr. 1999
Feb 1936	May 2001
? 1937	Jul. 2005
? 1944	May 2006
May 1956	Mar. 2007
? 1958	Jul. 2007
Apr. 1968	Feb. 2008
? 1981	Jul. 2008
Mar. 1988	Jun. 2009



Kaeo 1910



© FarNorthPhoto Ltd 2007 Photo #512 Circa 1910



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Whangarei 1956



Kerikeri 1981



4/81/20



3/81/24

3/81/22

Stone Store Bridge

Hokianga (Panguru) 1999



Whangarei 1999



The Priority Rivers Flood Risk Reduction Project

The Priority Rivers Project: Three Phases

1. Inception (Completed)

–90 plus rivers assessed based on life risk, buildings, access, infrastructure & farmland

2. Investigation (Now)

–River Management Plan development

3. Implementation (Future Years)

–Prioritisation of outcomes, funding and flood risk reduction measures



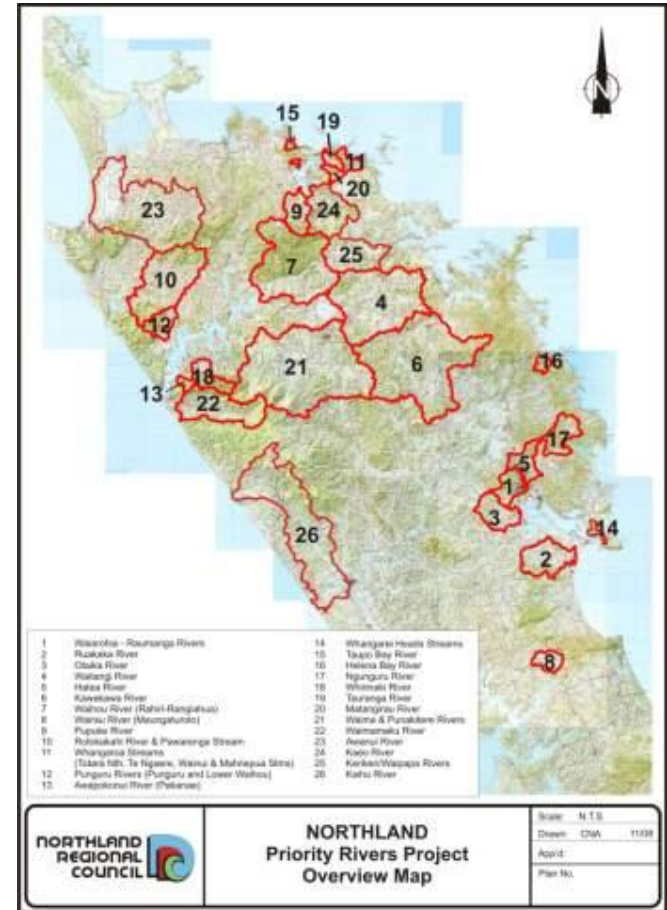
Priority Rivers Project Objective

We are seeking to provide a balanced regional-based framework for managing flood risk

This objective is to be achieved through the assessment of flood risk, and the development of river management plans, which will be used to guide the prioritisation and implementation of structural and/or non-structural flood risk reduction measures

Project Objective Outcomes

- 27 Priority Rivers
 - Regional hydrological analysis
 - Hydraulic models
 - Flood hazard & risk maps
 - Risk assessment
 - Options for reducing risk
 - Soil conservation - identification & prioritisation
 - River management plans



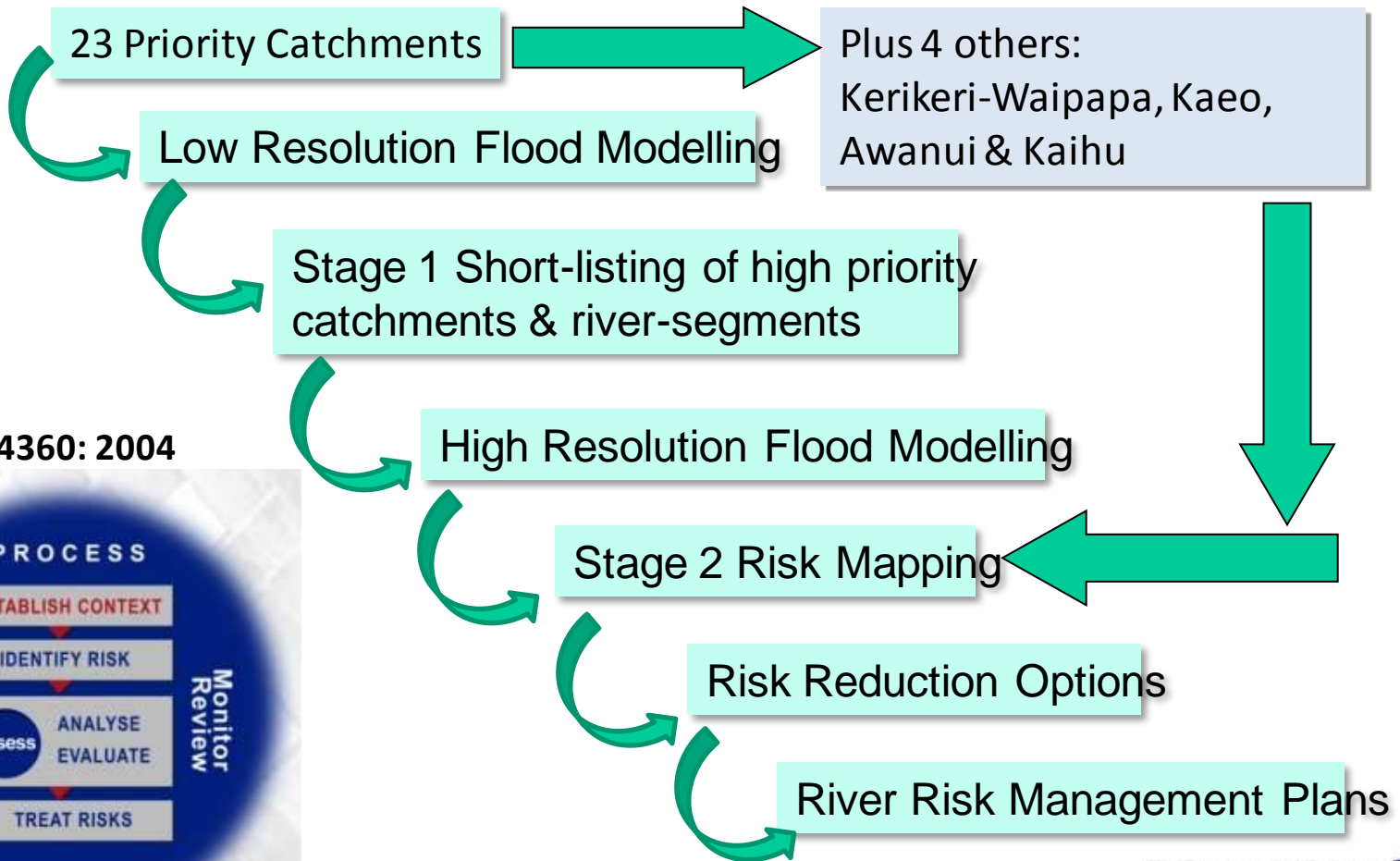
Project Partnership

Project Run as a Partnership
and with a strong emphasis on Consultation

Local Community



The Priority Rivers Project: Investigation – Risk Based

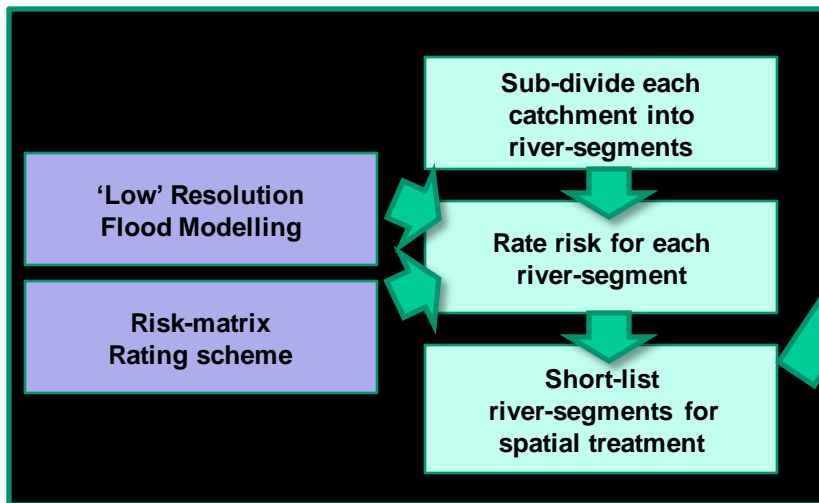


NZ 4360: 2004

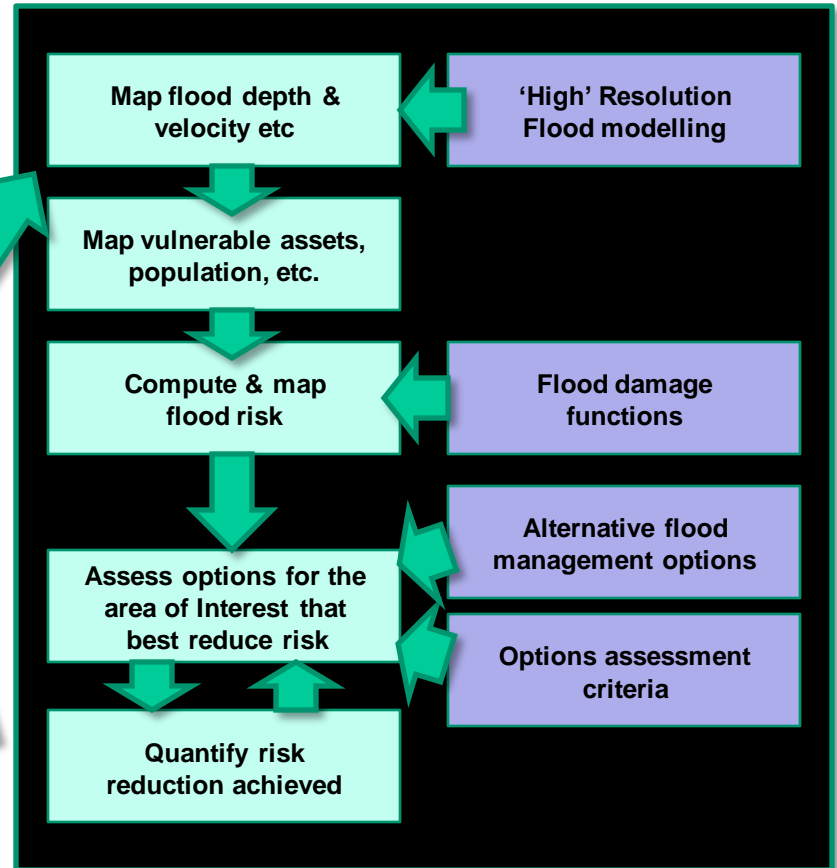


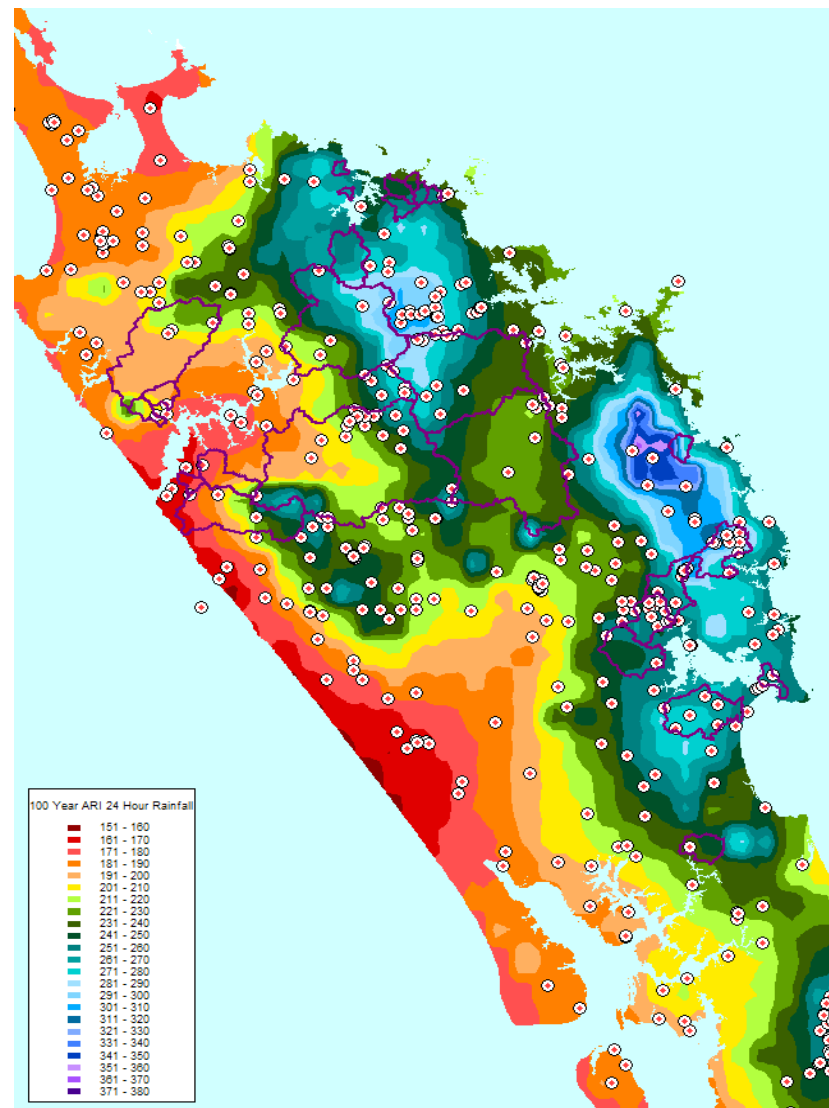
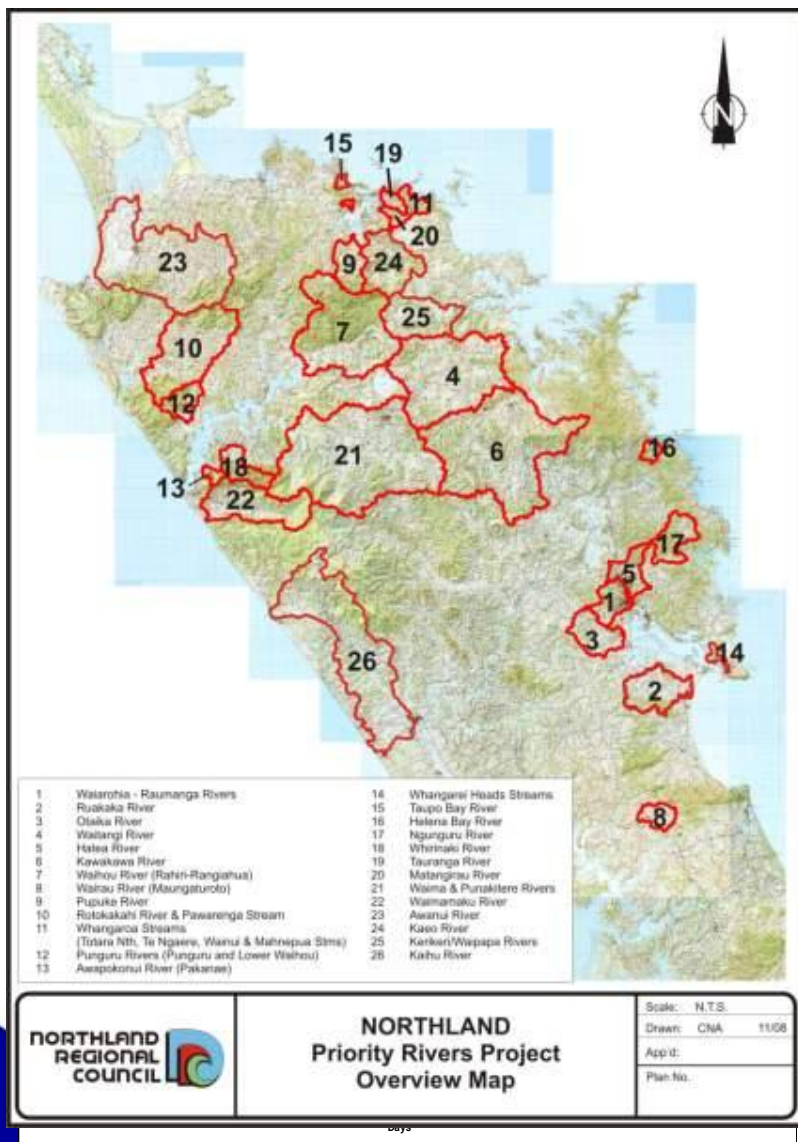
Two-Stage Risk Evaluation Process

Stage 1: Screening Risk Assessment

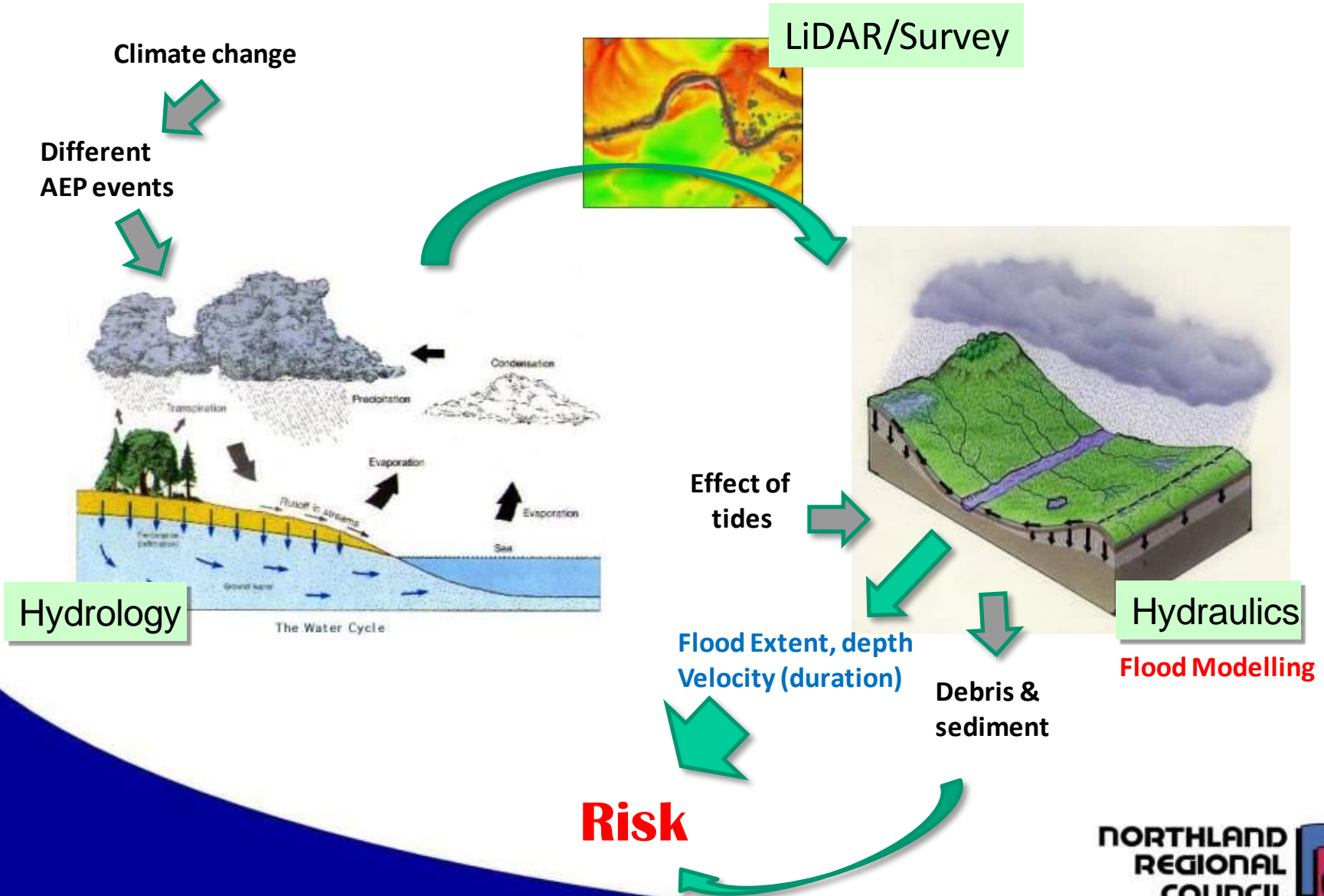


Stage 2: Risk Mapping



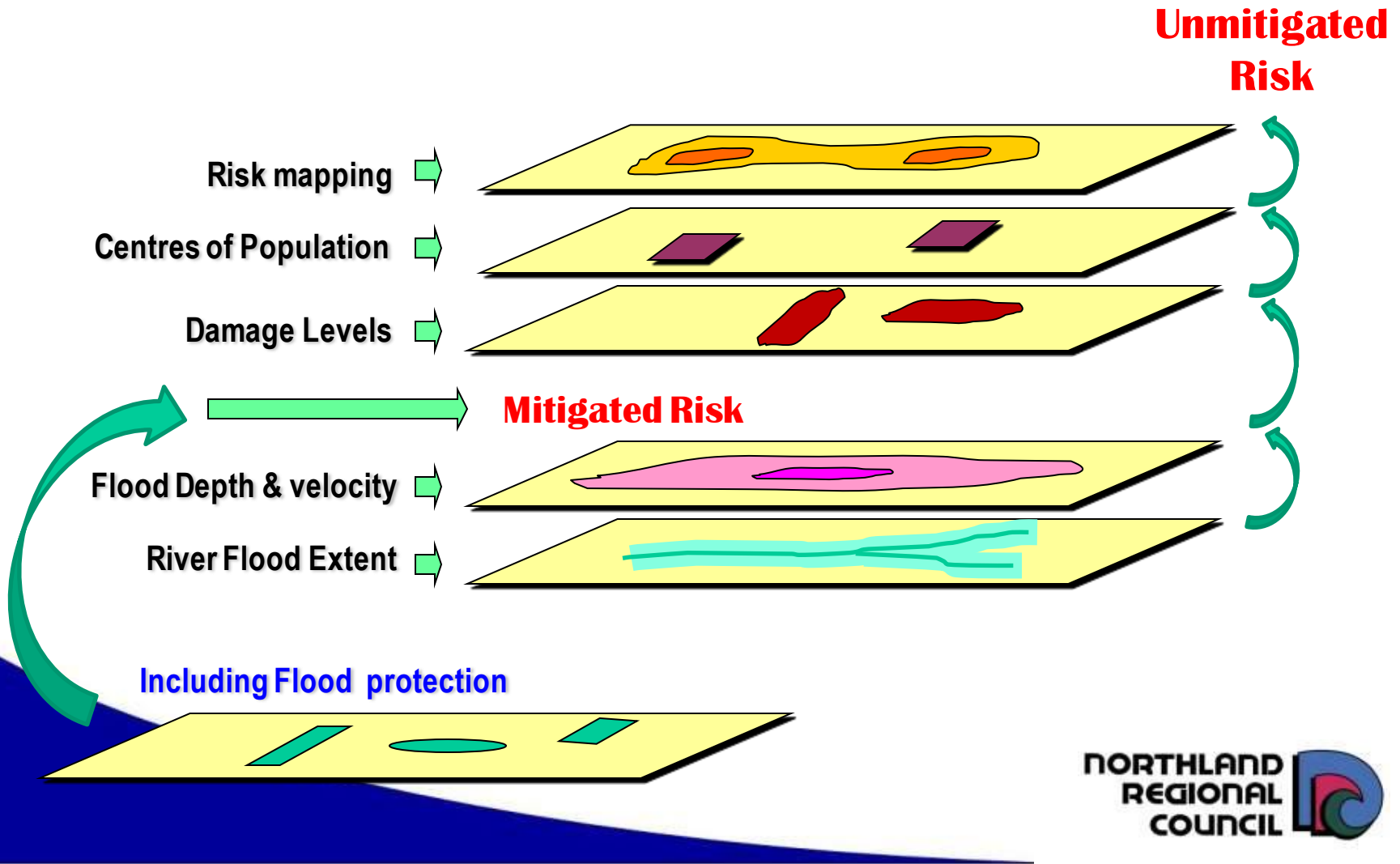


Modelling Floods

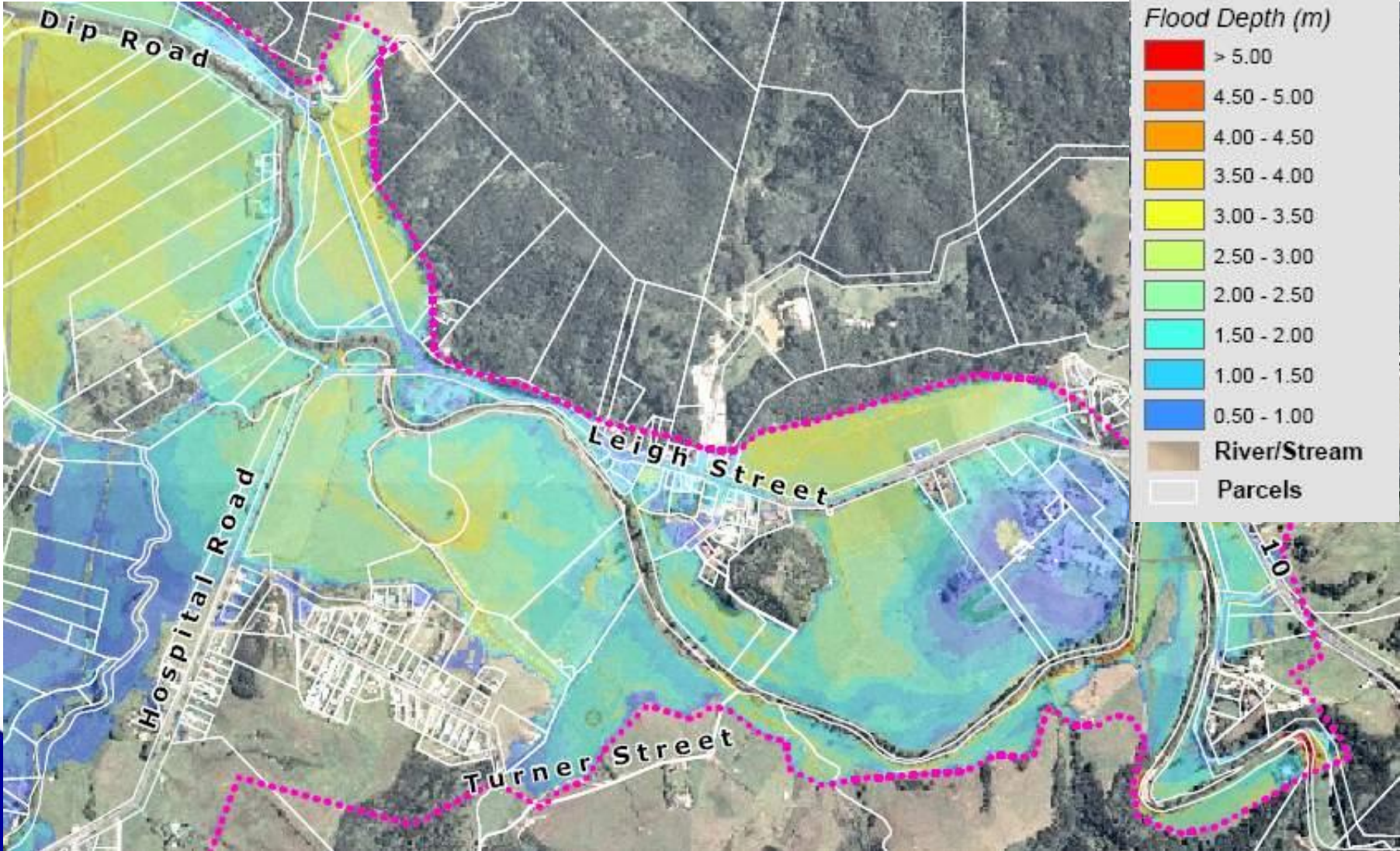


Risk Mapping

Combining layers of mapped information to evaluate risk

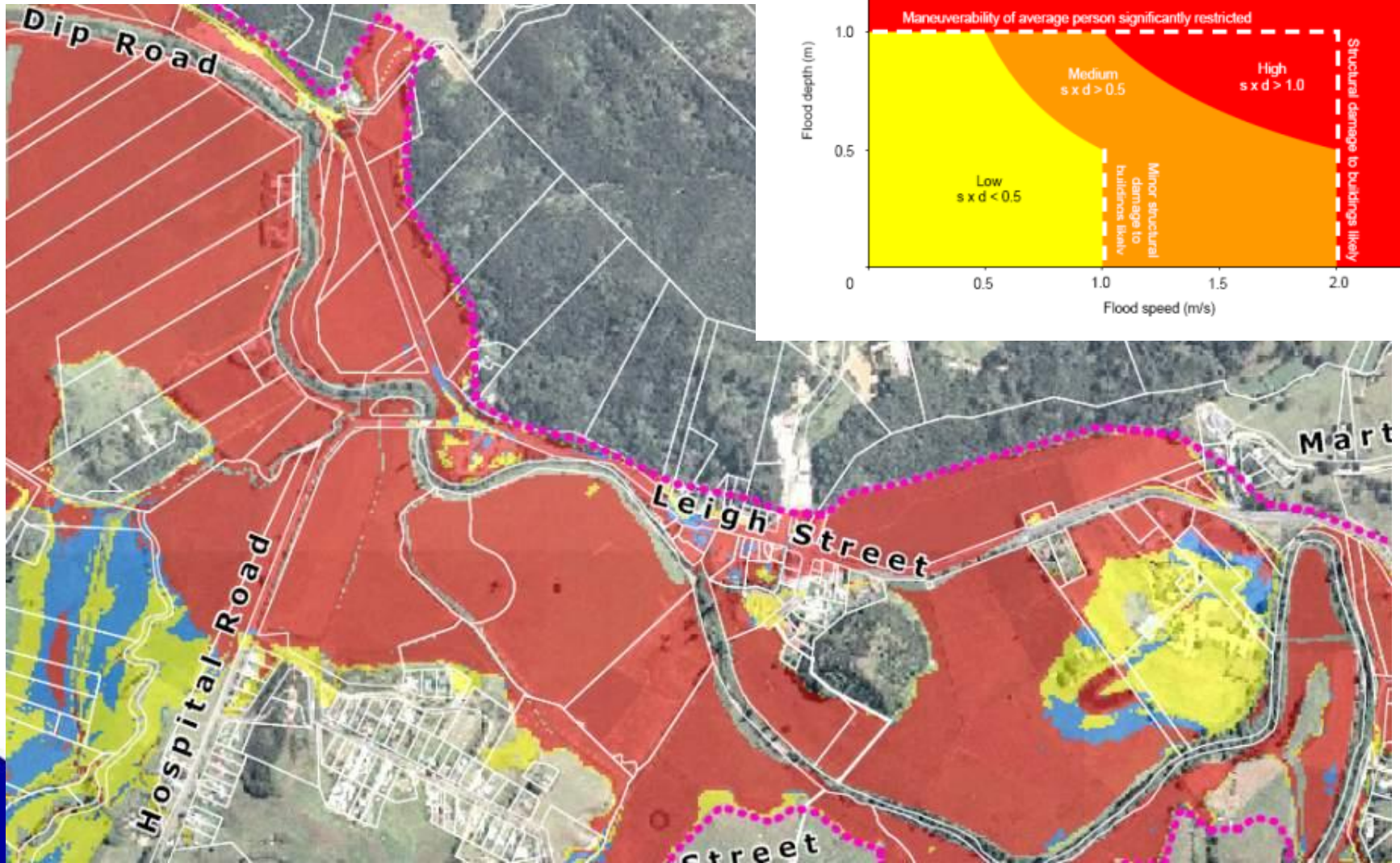
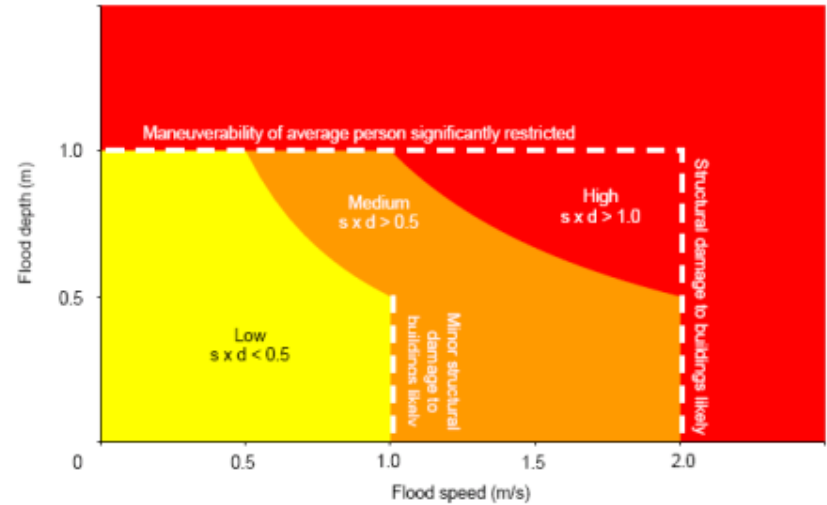


Flood Hazard



Flood Risk

Figure 13: River flood hazard classification matrix



Risk Reduction Measures

Category One: Containing or diverting flood waters

- Flood walls, stop banks
- Retention dams, flood basins, temporary storage

Category Two: Creating and maintaining floodways

- Channel clearance and dredging
- Stabilise channels
- Drainage channels & culverts
- Move Assets, use of flood resilient designs

Category Three: Planning and response

- Early warning
- Emergency recovery and response
- Land use management & planning restrictions

Structural

Non-Structural

Selecting Treatments - Key Questions

Technical:

- Is the treatment **technically possible** and buildable?
- Will it be **robust and reliable**?

Economic:

- Is it **affordable** and will the benefits compensate the costs?

Social & cultural:

- Will the **community benefit or suffer** from the implementation of the treatment?

Environmental:

- Will the **environment benefit or suffer** from the implementation of the treatment?

Objectives:

- Will it help to achieve the objectives?

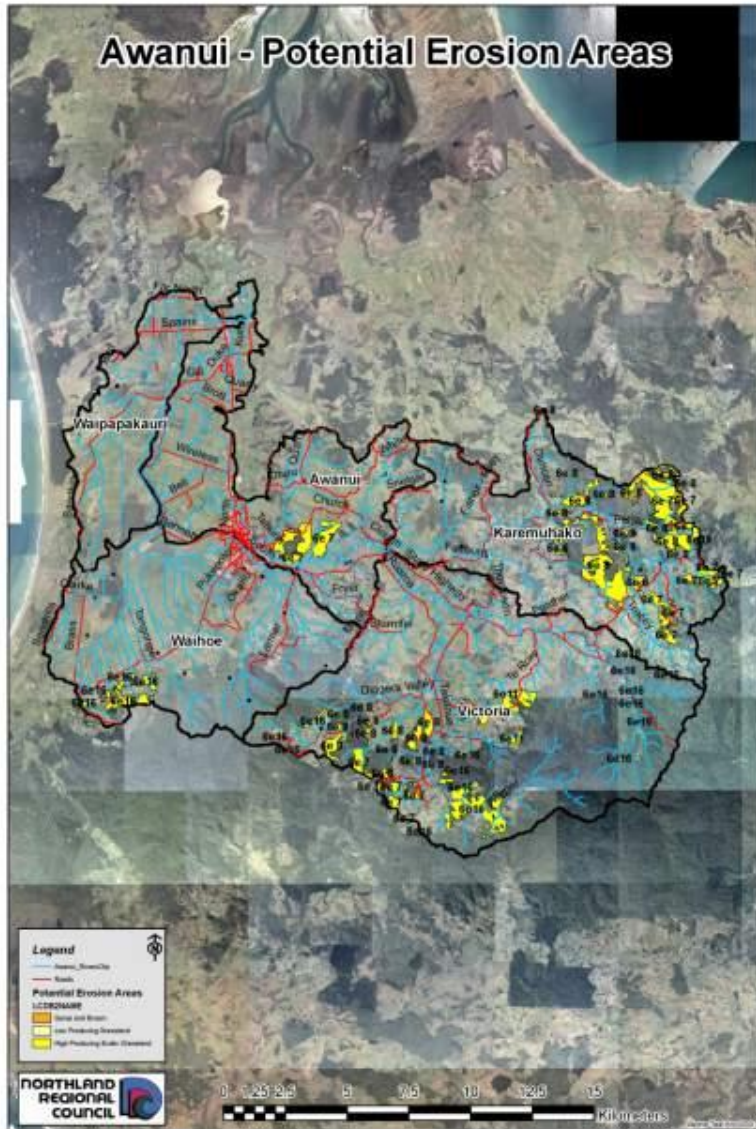
Soil Conservation

- Risk and effectiveness based prioritisation
- Identifying erosion prone soils and likely sources of sediment
 - Catchment Maps produced using Landcover Database 2 and Land Use Capability
 - Ground truthing on a catchment by catchment basis
- Promote soil conservation initiatives where required





Soil Conservation



River Management Plans

- Document from which to prioritise and guide future flood risk reduction
- Summarises results of investigation
- Key contents
 - Background
 - River management
 - Soil conservation
 - Implementation
 - Monitoring



Implementation – The Future Years

- River Management Plans completed July 2010
- Consultation with stakeholders
- Prioritisation of flood risk reduction measures
- Establishment of funding
- Implementation of flood risk reduction measures