

Hazard Guideline No. 1  
Hazard Information Management for Local Authorities

AUGUST 2002

Auckland Local Authority Hazard Liaison Group

Auckland Regional Council  
Technical Publication No. 106  
ISSN 1172 6415  
ISBN 0-908938-77-2



## Executive Summary

This is the first of three guidelines making up a set of “Guidelines for Hazards Management” aimed at assisting local authorities in minimising risks to their communities from hazards.

The guidelines follow the risk management process outlined in the standard AS/NZ 4360:1999, “Risk management”. Guideline No. 1 covers hazards information management, and addresses how to identify sources of hazards information, hazards information capture and quality assurance and storage and maintenance of hazards information.

### Identify sources:

In order to attain comprehensive hazard information both existing and potential sources should be considered. Information can be captured from external sources as well as from within an organisation. Contact lists should be maintained for all information sources.

### Capture and quality assurance:

Hazards information capture and quality assurance requires the establishment of systems that:

- o enable hazards information to be collected and received;
- o communicates council’s hazard information requirements to information providers;
- o ensure council staff have knowledge of hazards and hazard information sources;

- o ensure the integrity and validity of hazards information is consistently assessed.

### Storage and maintenance:

A hazards information storage system should:

- o ensure that hazards information source is apparent;
- o ensure that information is accessible, available to end-users, and tailored to their needs as much as is possible;
- o be maintained and data checked to ensure that there are no information gaps;
- o ensure that corporate knowledge is retained.





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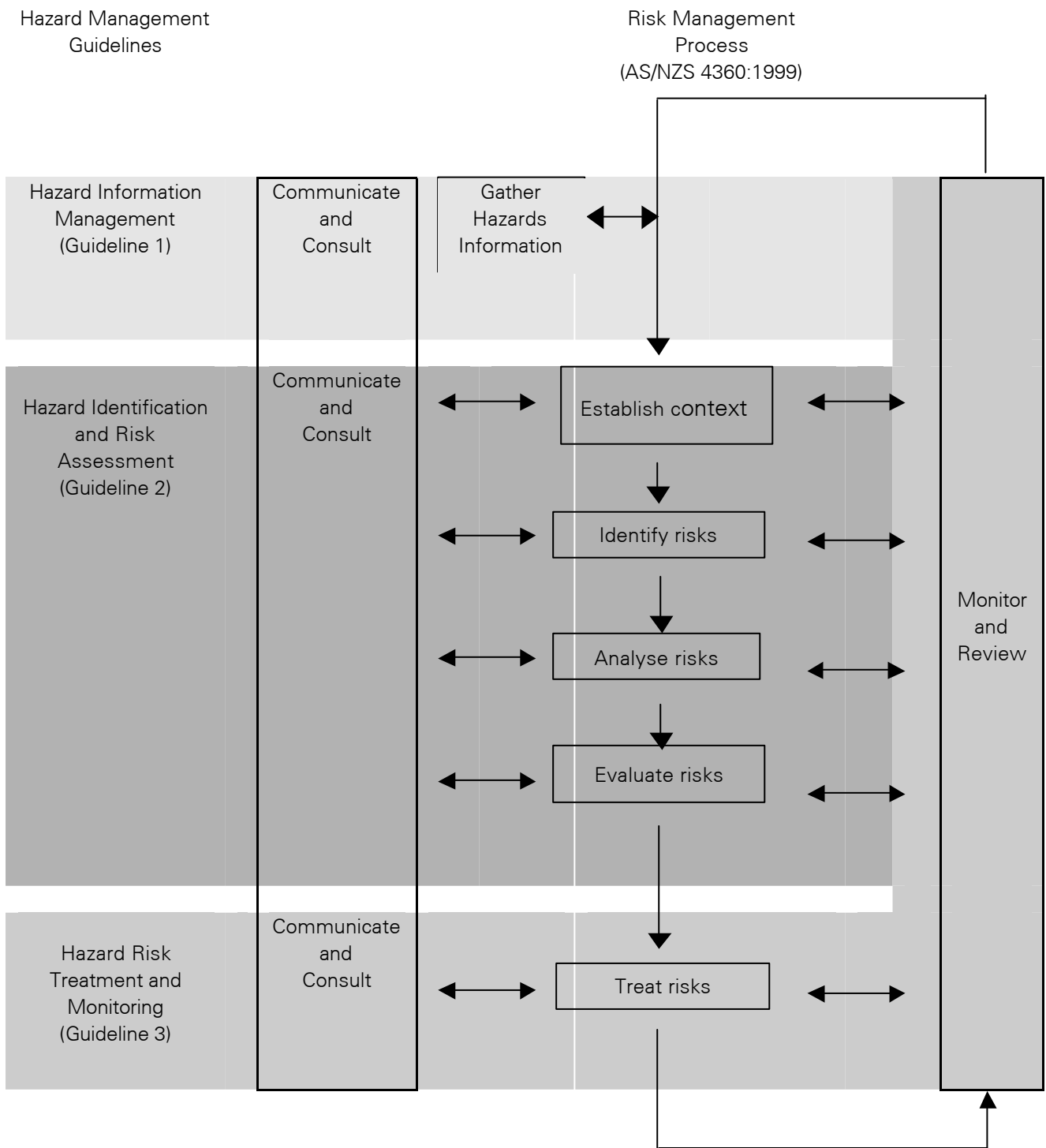


Figure 1 Relationship of the Hazard Guidelines to the Risk Management Process

Diagram adapted from Figure 3.1 in the Australian/New Zealand Risk Management Standard (AS/NZ 4360:1999).

# 1 Introduction

## 1.1 The Guidelines

This is the first of three guidelines making up a set of “Guidelines for Hazards Management”. The guidelines set comprises:

- o Guideline No. 1: Hazard Information Management;
- o Guideline No. 2: Hazard Identification and Risk Assessment;
- o Guideline No. 3: Risk Treatment and Monitoring for Hazards.

The overarching goal of the guidelines is to minimise the risks to communities and the environment from the effects of a range of hazards, including natural and technological hazards.

The guidelines are intended to provide guidance on how hazard information is managed by Councils, particularly with regard to the application of the Australian/New Zealand Risk Management Standard (4360:1999). The relationship between the guidelines and AS/NZS 4360:1999 is summarised in Figure 1.

Background information on the guidelines including reasons for the guidelines, who the guidelines are for and the relationship of this guideline to Guidelines No. 2 and 3 is provided in Introduction to the Guidelines. Definition of terms used throughout the guidelines are also provided in Appendix to the Guidelines.

Parts of the guidelines, particularly Guideline No. 2, use structure and content from the publication Disaster Risk Management (Queensland

Department of Emergency Services, 2000). Permission to use this material is acknowledged and greatly appreciated.

## 1.2 Scope of Guideline No. 1

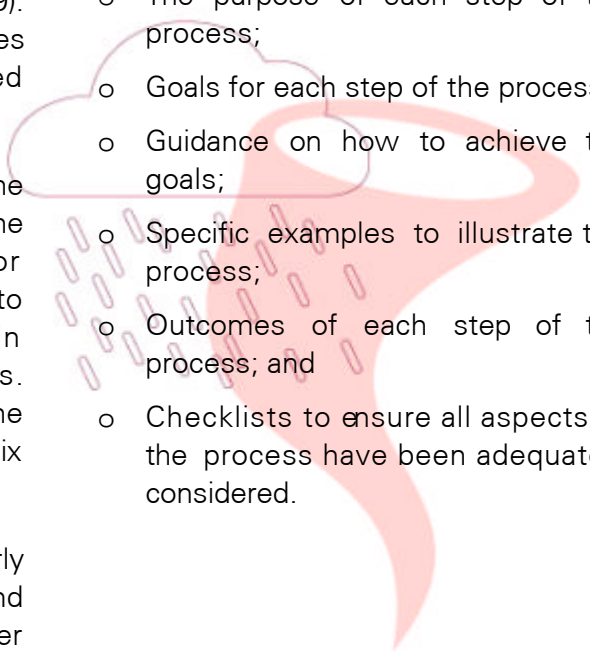
Guideline No. 1 focuses on hazards information management. There are 3 key steps to ensure adequate hazards information is obtained, and Guideline 1 will address each of the following:

- o Identifying sources of hazards information (Section 2);
- o Information capture and quality assurance (Section 3);
- o Storage and maintenance of hazards information (Section 4).

The guideline has been kept general to allow the principles introduced to be applied to a broad range of hazards (natural, technological and biological hazards) in a variety of locations.

The general structure of each section of this guideline comprises:

- o The purpose of each step of the process;
- o Goals for each step of the process;
- o Guidance on how to achieve the goals;
- o Specific examples to illustrate the process;
- o Outcomes of each step of the process; and
- o Checklists to ensure all aspects of the process have been adequately considered.



### 1.3 Hazards Information Management Survey

A survey was undertaken of all councils in the Auckland region to determine practices with regard to management of natural hazards (Appendix 1 and 2). The survey results provided an indication of those issues that should be addressed through these guidelines and form the foundation for guideline development.

### 1.4 Consultation and Review Process

The development of Guideline No. 1 has included a number of consultative steps, peer reviews, and revisions. It will be reviewed again once Guideline 2 and 3 have been in circulation for a year. Details of the consultation and review process are provided in Appendix 3.

#### DISCLAIMER

This guideline is intended to provide accurate and adequate information on its subject matter within the limitations of the size and scope of the publication. Nevertheless it has been written and made available on the basis that its authors and publishers exclude any liability to any person or entity for damages in respect of or arising from reliance by any person or entity upon any of the contents of this publication for any purpose.

## 2. Identify Sources of Hazards Information

### 2.1 Purpose

To identify sources of hazard information, including:

- o Existing sources;
- o Potential sources;
- o Externally generated sources; and
- o Internally generated sources.

### 2.2 What to do

- o Establish a contact list of hazard information producers or sources.

### 2.3 How to do it

- o Compile a contact list of hazards information providers and sources.

This information may come from a variety of information providers or sources, including:

- o Hazard analysts or consultants, undertaking hazard identification and analysis; For example the Auckland Regional Council has in more than 25 Technical Publications on hazards in the Auckland region;
- o Property owners, developers or their consultants, submitting applications for subdivision and building consents; (note however, usually only flooding and land instability hazards are identified by this sector, as the Building Act 1991 requires specific investigation of these hazards);

- Council's engineering staff, engineers of infrastructure providers, or consulting engineers, carrying out engineering investigations for infrastructure works (such as road realignments or reconstruction, new road construction, and pipeline or transmission line construction);
  - Council staff involved in processing, issuing and monitoring building consents;
  - Civil defence personnel or local residents reporting the effects of hazard events such as flooding, land-slips, or wind damage;
  - Consulting or council engineers, investigating proposals or consent applications for coastal works or structures (for example from engineering investigations to establish the safety and stability of coastal structures such as wharves, or to determine whether there is a need for coastal protection structures). This information will be contained within consent application files and may take some time to extract;
  - Researchers (such as university or Crown Research Institute personnel, e.g. staff from the Institute of Geological and Nuclear Sciences in Wellington and Taupō and provide information on a range of geological hazards, and the National Institute of Water and Atmospheric Research can provide information on coastal hazards like storm surge and tsunami) undertaking research projects which may bring to light information about hazards of various sorts;
  - Regional or district council engineers, or engineering consultants, carrying out catchment-wide studies to establish flood-management regimes. Information on flood hazards in Auckland is held within Comprehensive Flood Management Catchment Plans. Copies of all of these are held at the Auckland Regional Council and within local councils
  - Rural fire officers, establishing or reviewing the existence of forest areas and their safety margins; or identifying potential fire hazards in their districts;
  - Persons involved in the establishment, control, or monitoring of sites used for the processing, storage or disposal of hazardous substances and associated databases. For example: Dangerous goods licensing and inspectorial staff; Auckland Regional Council NEW Site Information Database (NEW SID); Occupational Safety and Health; Public Health Office; Fire Service. General information on hazardous substances can also be obtained from Environmental Risk Management Authority (ERMA).
- Set up a process to maintain this database of sources. For each potential source, record:
- Contact organisation;
  - Contact person;
  - Job title of contact person (in case they leave);
  - Hazard for which information can be provided;
  - Specific detail on the information provided (e.g. geographical area; type of information; format of information);
  - Note on the reliability of source;

- o The regularity of which the contact organisation updates their information;
- o The next date that your organisation should contact the supply organisation to obtain updated information;
- o The name of the person in your organisation who last updated your data and the date on which this was undertaken.

## 2.4 Results

- o An up to date contact list of hazard information producers and sources.

## 2.5 Sources of Hazards Information Checklist

- o Have you developed a contact list of actual, potential, externally generated and internally generated information producers and sources?
- o Is a process in place to update this list when new sources or contact details become available?

## 3. Hazards Information Capture and Quality Assurance

### 3.1 Purpose

- o To develop a process for collecting and receiving hazards information.
- o To ensure the quality of the hazards information received.

Reasons for Documentation:

Documentation is required in order to:

- a. demonstrate the process is conducted properly;
  - b. provide a record of risks;
  - c. provide the relevant decision makers with a risk management plan for approval and implementation;
  - d. provide an accountability mechanism and tool;
  - e. facilitate continuing monitoring and review;
  - f. provide an audit trail; and
  - g. share and communicate information.
- (5.2 AS/NZS 4360:1999)

### 3.2 What to do

- o Implement a formal documented process for collecting/receiving hazard information.
- o Ensure that information providers are aware of council's requirements for hazard information and its procedure for managing the information.
- o Train council staff in identifying hazards and sources of hazards information.
- o Ensure that hazards information is consistently assessed in terms of:
  - a. Integrity/validity of source
  - b. Quality of information
  - c. Level of verification

### 3.3 How to do it

#### 1 Implement a formal documented process for collecting/receiving hazard information

- o Design a system for collecting and receiving hazards information.

The collection of hazard information must be the result of an intentional process rather than a series of ad hoc actions. The effectiveness of a hazard register will be improved when it is built up and maintained through a well designed system. If the process for gathering the information into the register is poorly defined it is unlikely that the information it contains will be valued by its users.

- o Write procedures for collecting and receiving hazards information, and create a manual to guide staff and for training.

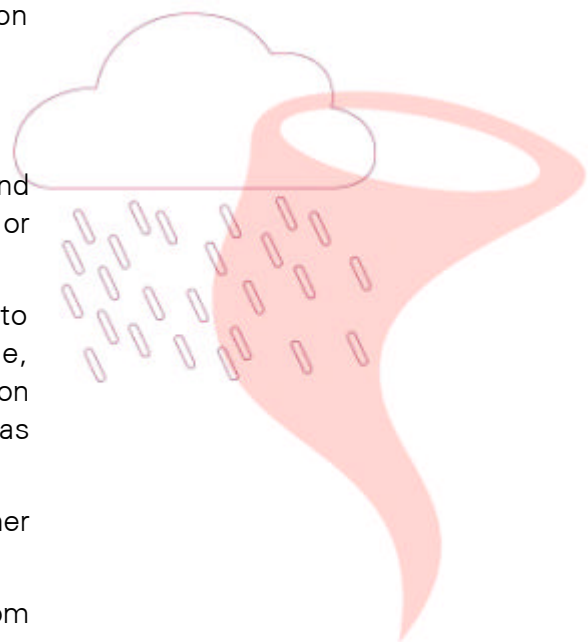
Procedures for how hazard information is to be collected will help ensure the consistency and accuracy of the hazard register. Procedures should describe how to collect and receive information from various sources.

The procedures may include:

- o Common features and methodologies from research or consultant reports;
- o A basic framework of questions to be answered for each hazard type, comprising required information about each type of hazard (such as its probability of occurrence);
- o Standardised forms or other standardised input methods;
- o Incorporating information from within councils and from other

councils (e.g. consent applications, submissions, site visits, regional reports);

- o How to handle informal inputs (e.g. personal communications, media reports);
- o How to handle non site specific hazard information (e.g. regional overview reports);
- o A requirement for critical hazards information (e.g. area of occurrence, magnitude, probability, consequences) to be sought in all cases, even though this may not be available from all sources, or in relation to all hazards. Critical hazards information is needed for the risk assessment process (see Guideline No. 2).



## 2 Ensure that information providers are aware of council's requirements for hazard information and its procedure for managing the information

- o Design a standard format for new hazards information to be provided in and communicate this format to all information providers.

Using a standard format for collecting hazard information allows providers to present new information in a readily acceptable form that is easy to enter into the hazards register system.

- o Develop a relationship with the information providers.

Developing a relationship with the information providers encourages co-operation and sharing of information. This can increase effectiveness and improve the quality of the information provided.

- o Make potential providers aware of the information management process and its likely end uses.

This will ensure that relevant information is provided and that information collection is targeted.

## 3 Train council staff in identifying hazards and sources of hazards information

- o Assign adequate resources to the hazard management process.

Managing hazards, and having the appropriate information to do so, is a statutory obligation for councils. Councils therefore need to ensure there are adequate resources to undertake this function.

- o Make all council staff who might come across hazards information aware of the procedure for managing hazard information (even if they are not directly responsible for collecting the information).

These staff could include call centre personnel, inspectors and community advisors.

- o Inform all council staff of who, within the council, has responsibility for collecting hazards information and managing the hazard information process and encourage liaison with this person.

Include council's requirements for collecting hazard information together with the procedure for managing the information in all work, projects or other undertakings by the council where this information is likely to be relevant.

## 4 Ensure that hazards information is consistently assessed

- o Have all incoming information reviewed by persons with qualifications and experience which enables them to:

- assess its significance with regard to its source;
- evaluate the possible consequences of a hazard event; and
- trigger action if needed.

The hazard information collected by local authorities will vary in quality or validity. Filtering the information initially in terms of its source and reliability will allow it to be assessed and then applied appropriately in future decision making.

Detailed or scientific reports of a hazard may provide more of the information needed to enable the possible

consequence of hazard events to be analysed, and to assess the risks to communities and the environment. Information from non-professional/community sources may not be sufficient to enable systematic analyses to be undertaken, but may serve to trigger the need for further investigations, either by the council or by would-be developers where subdivision or building consents are sought. The accuracy or validity of the information may also vary and even detailed or professional accounts of a hazard may include errors or omissions.

Any information which contains facts that cannot be verified should be identified as “not verified”, or marked for further investigation.

- o Link the time spent on verification and substantiation of hazards information to the importance of the hazard to the district and the adequacy of the existing information with regards to the risk assessment process (see Guideline No. 2).

### 3.4 Results

- o A system for collecting and receiving hazards information, documented as a manual.
- o A standard format for new hazards information to be provided in.
- o An understanding among information providers of the standard information format and the relevance of the information they provide.
- o Adequate council resources provided to the hazards information management process.
- o A training system designed to acquaint council staff with the hazards information collection

process, their roles and responsibilities and the roles of other personnel involved.

- o A process for incoming information to be reviewed by suitably qualified people

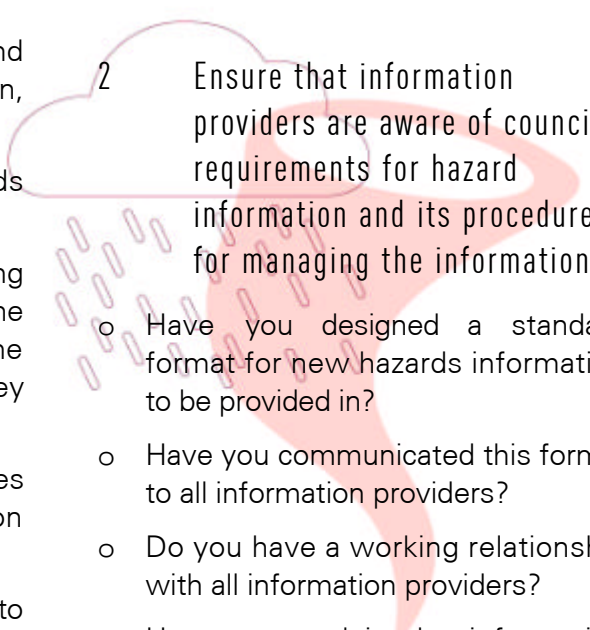
### 3.5 Hazards Information Capture and Quality Assurance Checklist

#### 1 Implement a formal documented process for collecting/receiving hazard information

- o Have you designed a system for collecting and receiving hazards information?
- o Have you defined procedures for collecting and receiving hazards information, and created a procedures manual?
- o Do the procedures describe how to collect and receive information from a variety of sources?

#### 2 Ensure that information providers are aware of council's requirements for hazard information and its procedure for managing the information

- o Have you designed a standard format for new hazards information to be provided in?
- o Have you communicated this format to all information providers?
- o Do you have a working relationship with all information providers?
- o Have you explained to information providers the likely end uses and



relevance of the information they provide?

### 3 Train council staff in identifying hazards and sources of hazards information.

- Are adequate resources assigned to the hazard management process to fulfil Council's statutory obligations?
- Has a training system been developed to ensure that all council staff who might be presented with information regarding hazards during the course of their duties are aware of the procedure for managing hazard information?
- Is a system in place to ensure that all council staff are aware of who, within the council, has responsibility for collecting hazards information and managing the hazard information process?
- Are staff aware that council's requirements for collecting hazard information and its procedure for managing the information need to be included in all work, projects or other undertakings by the council where this information is likely to be relevant?

### 4 Ensure that hazards information is consistently assessed

- Is a process in place for review of incoming information by suitably qualified people?
- Have you developed a training system to ensure that these people are able to assess the significance of incoming information, evaluate the possible consequences of a hazard event and trigger action if needed?

- Has the process of verification and substantiation of hazards information been designed to depend on the importance of the hazard to the district and the adequacy of the existing information with regards the risk assessment process?

## 4. Storage and Maintenance of Hazards Information

### 4.1 Purpose

- To develop a process for storage and maintenance of hazards information.
- To ensure the quality of the hazards information stored.

### 4.2 What to do

- Implement a formal documented process for storage and maintenance of hazards information.
- Ensure that the sources of hazards information are always apparent.
- Make the hazards information accessible and available to end-users and tailored to the needs of end users as much as is possible (with given technology).
- Carry out rigorous and ongoing checks on the integrity and consistency of hazards information so that there are no gaps in time or information.
- Ensure that corporate knowledge is retained.

### 4.3 How to do it

#### 1 Implement a formal documented process for storage and maintenance of hazards information

- o Design a system for storage and maintenance of hazards information.

The efficient storage of the hazard information obtained by council is critical to its use in later stages of the risk management process and other applications.

The storage system should be designed to suit the nature of the information. The information should not have to be altered or omitted to meet the limitations of the storage system. The system should be designed to store information about both site specific hazards and hazards affecting large areas.

- o Design the storage system to be flexible, dynamic and “living”.

This will allow data to be added, deleted and modified (i.e. if information is proved to be incorrect, refined by further studies or subject to change in the built environment).

The need for a formal “Change” or “Variation” to be made whenever new information about natural hazards is added to the information base makes district plans an inflexible medium for storing such information. It is however, important to reference within the District Plan the existence of a “hazards” database for the district or region, to outline its scope, its place in the Council’s administrative structure in relation to information flows and decision processes, and the uses

intended to be made of the information it contains.

The District Plan should also include information about wide ranging (as distinct from site specific) natural hazards, may affect a district or generally defined parts of it. Examples may include risk of drought, risks of volcanic activity, or exposure to the effects of tsunami.

#### 2 Ensure that the sources of hazards information are always apparent

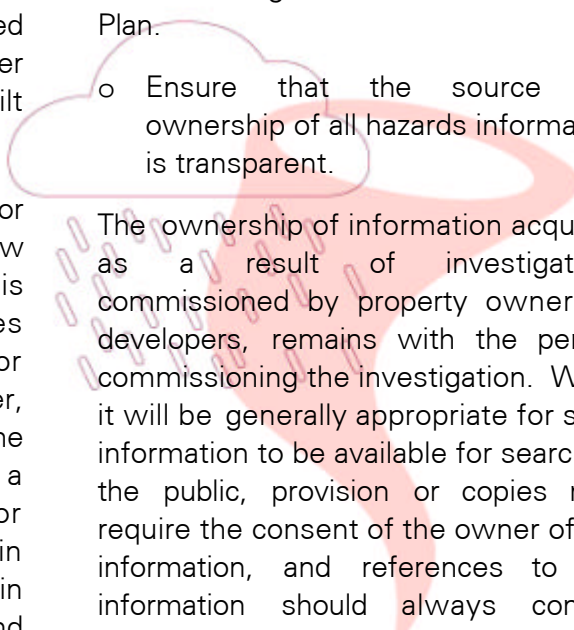
- o Store hazards information with a trail back to its originator, including any additions or alterations.

This will ensure that further clarification can be sought and potential conflicts identified at a later date if necessary.

It is important to retain and make accessible the originals of any studies identifying and/or assessing hazards, and that interpretation is avoided in referencing the material into the Hazards Register and/or the District Plan.

- o Ensure that the source and ownership of all hazards information is transparent.

The ownership of information acquired as a result of investigations commissioned by property owners or developers, remains with the person commissioning the investigation. While it will be generally appropriate for such information to be available for search by the public, provision or copies may require the consent of the owner of the information, and references to the information should always contain appropriate acknowledgements of its source.



### 3 Make the hazards information accessible/available to end-users and tailored to the needs of end users as much as is possible (with given technology)

- o Make information retrievable from the storage system in a form that suits its end use.

The hazard information will be of greatest value when it is widely accessible.

While it is important to ensure that hazards information is accessible, it is also very important that responsibility for interpreting hazards information remains with the end users of the information. It is essential that Councils and their officers do not take responsibility for interpreting information for users, and that they spell out as clearly as possible, that interpretation of the information is the responsibility of the party accessing and using the information.

### 4 Carry out rigorous and ongoing checks on the integrity and consistency of hazards information so that there are no gaps in time or information

- o Design the storage system to facilitate the maintenance of the information, including the ability to easily relate new facts to previous information.
- o Clearly mark (and if possible, automatically update) any information that is time sensitive, such as licences or permits.
- o Design the storage system to facilitate identification of information gaps and allow spatial analysis.

For example, if properties A, C and E are affected by flooding, or underlain by an unstable stratum, then perhaps properties B and D are as well.

### 5 Ensure that corporate knowledge is retained

- o Use an established process for the collection, storage and maintenance of hazard information to prevent the loss of corporate knowledge.

This is especially important when dealing with hazards that have a long return period, or when risks accumulate over time, or when staff with considerable knowledge leave the organisation.

- o Protect the information by making sure the system and/or the secured back-up can withstand a natural hazard event and be assessed following such an event.

The frequency of creating backups and the manner in which they are stored should have regard to the possible need to access the information at times when the base information facility is affected by a hazard event. There may be a need not only for data backups, but also to ensure that access can be obtained in times of emergency, to an alternative data-processing facility.

- o Include a verification step in data entry procedures and carry out regular checks to ensure data is correctly filed.

This will ensure accurate entry of hazards information to the Hazard Register.

#### 4.4 Results

- A formally documented process for storage and maintenance of hazards information.
- A hazards information system, which is accessible and available to end-users and tailored to their needs as much as is possible (with given technology).
- A system for rigorous and ongoing checks on the integrity and consistency of hazards information so that there are no gaps in time or information.
- Retention of corporate knowledge.

#### 4.5 Storage and Maintenance of Hazards Information Checklist

##### 1 Implement a formal documented process for storage and maintenance of hazards information

- Have you designed a system for storage and maintenance of hazards information?
- Is the storage system flexible, dynamic and "living" such that it allows data to be added, deleted and modified as needed?
- Is general hazards information included in the District Plan?

##### 2 Ensure that the sources of hazards information are always apparent

- Is hazards information stored with a trail back to its originator, including any additions or alterations, so

further clarification can be sought or potential conflicts can be identified?

- Are originals of any studies identifying and/or assessing hazards retained in case clarification is needed?
- Is the source and ownership of all stored hazards information transparent?

##### 3 Make the hazards information accessible/available to end-users and tailored to the needs of end users as much as is possible (with given technology)

- Is information retrievable from the storage system in a variety of forms that suit various end uses?
- Have staff been made aware that responsibility for interpretation of the information is the responsibility of the party accessing and using the information, and not the Council?

##### 4 Carry out rigorous and ongoing checks on the integrity and consistency of hazards information so that there are no gaps in time or information

- Does that the design of the storage system facilitates the maintenance of the information, including the ability to easily relate new facts to previous information?
- Is all time-sensitive information clearly marked?
- Are systems in place to automatically update time sensitive information where possible?

- o Does the design of the storage system facilitate the identification of gaps of information
- o Does the storage system allow spatial analysis of hazards information?
- o Ensure that corporate knowledge is retained
- o Are systems in place to ensure that corporate knowledge is retained?
- o Is information regularly backed up to a secure offsite location?
- o Can the information system withstand a natural hazard event?
- o Can the information system be accessed following a hazard event?
- o Is a verification step included in data entry procedures to ensure accurate entry of hazards information to the Hazard Register?
- o Are regular checks carried out to ensure data is correctly filed?
- o Review of Guideline No. 1 – July 2001
- o Revision of Guideline No. 1 – June 2002
- o Survey of Implementation (Guideline No.'s 1, 2 and 3) – August 2003 (scheduled)
- o Final Revision (Guideline No.'s 1, 2 and 3) – September 2003 (scheduled)

## Consultation and Review Process

The development of Guideline No. 1 has included a number of consultative steps, peer reviews, and revisions. It will be reviewed again once Guideline No.'s 2 and 3 are developed and have been in circulation for a year.

- o First draft of Guideline 1 circulated for internal review within the councils – November 1998
- o Second draft of Guideline 1 circulated to selected external peer reviewers – January 1999
- o Final draft of Guideline 1 – June 1999
- o Implementation of Guideline 1 – June 1999 - June 2000