

~~recognises that there is existing development, including infrastructure and historic heritage, already located on land subject to natural hazards, and that in some circumstances new infrastructure development in natural hazard areas may be appropriate where the criteria in the plan are met. These areas will require management through mitigation and adaptation to ensure that the risk of damage to property, historic heritage or sites and areas of significance to Maaori or injury or loss of lives is not increased.~~

- ~~(2) Maaori freehold land has particular considerations when addressing the potential impact of natural hazards and climate change. This issue has been recognised in this chapter.~~
- ~~(3) This district plan adopts a risk-based approach to natural hazard management. The risk that natural hazards pose to the Waikato District is made up of several factors including:
 - ~~(a) the nature, magnitude and extent of the hazard;~~
 - ~~(b) the anticipated frequency or probability of the hazard event occurring; and~~
 - ~~(c) the exposure and vulnerability of the environment to the hazard, including the likely community losses/damages that could occur.~~~~
- ~~(4) An understanding of both the scale and likelihood of the natural hazard event, and the likely consequences to the community, are central to the risk-based approach. From a district plan perspective, a risk-based approach requires identification and management of activities based on the level of risk to which they are exposed (e.g. farming may be acceptable in a high flood risk area, whereas residential development may not). The level of control over activities in the district plan is therefore related to the level of risk, and whether such risks are considered acceptable or not.~~
- ~~(5) More frequently occurring natural hazards in the Waikato District include flooding, coastal erosion and land instability (land slips and subsidence). The Waikato and Waipa Rivers for instance, flow through the district and can carry large flood flows. The coastal margins are subject to storm events, and sandy areas are particularly vulnerable to erosion by such events. In addition, flood ponding often occurs after heavy rainfall in the Waikato basin.~~
- ~~(6) New Zealand in general is a high earthquake hazard region and earthquake (and associated fault movement, ground shaking and liquefaction) considerations are integral to the design of the built environment¹. Location of faults in Waikato District may be problematic, due to alluvial sediment and associated processes masking fault traces. While liquefiable soils are generally found within Holocene sediments in river valleys, more work is required within the Waikato District to determine areas where the liquefaction risk is high.~~
- ~~(7) Less frequent natural hazards in the Waikato District, such as wild fires, tsunamis, extreme wind events and drought, may not need a district plan response. Emergency management by groups such as Civil Defence play a significant role, using hazard management tools such as education and advocacy, warning systems and emergency preparedness. There are also non-statutory instruments or processes, such as civil defence recovery plans, and programmes to increase community preparedness, including contingency planning. Insurance and emergency services also play an important role.~~
- ~~(8) High quality up-to-date information is important for natural hazard risk management. The district plan requires the use of the best information available to identify land that may be subject to natural hazards. This includes historical flood data and photographic evidence of flood or high flow events, hazard maps, databases (such as the regional and district hazard registers) and technical reports held by the Council, and the interpretation of these by qualified and experienced professionals.~~

¹ MBIE module 3: Identification, Assessment and Mitigation of Liquefaction Hazards May 2016 Rev 0

