7.0 RISK MANAGEMENT

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7.1 Risk Management Process

The risk management process is an integral part of good management practice. It is an iterative process of continuous improvement that is embedded into existing practices or business improvement.

The main elements of the risk management process to be used at Taupo District Council are consistent with the risk management standard AS/NZS ISO 31000:2009. AS/NZS ISO 31000:2009 *Risk Management – Principles and guidelines* is a joint Australia/New Zealand adoption of ISO 31000:2009, and supersedes AS/NZS 4360:2004.

a) Communicate and consult

Communicate and consult with internal and external stakeholders of Council as appropriate at each stage of the risk management process and concerning the process as a whole.

b) Establish the context

Establish the external, internal and risk management context in which the rest of the process will be undertaken. Criteria against which risk will be evaluated should be established and the structure of the analysis defined.

c) Identify risks

Identify where, when, why and how events could prevent, degrade, delay or enhance the achievement of asset's objectives.

d) Analyse risks

Identify and evaluate existing controls. Determine consequences and likelihood and hence the level of risk. This analysis should consider the range of potential consequences and how these could occur.

e) Evaluate risks

Compare estimated levels of risk against pre – established criteria and consider the Balances between potential benefits and adverse outcomes. This enables decisions to be made about the extent and nature of treatments required and about priorities.

f) Treat risks

Develop and implement specific cost effective strategies and action plans for increasing potential benefits and reducing potential costs

g) Monitor and review

It is necessary to monitor the effectiveness of all steps of the risk management process. This is important for continuous improvement. Risks and the effectiveness of treatment measures need to be monitored to ensure changing circumstances do not alter priorities.

7.2 Audit and Risk Committee

In July 2013, Taupo District Council established an Audit and Risk Committee as a committee of Council. The objective of this committee is to provide governance and oversight of the effectiveness of risk management and internal control practices.

7.3 Risk Management Charter

In 2013, Taupo District Council adopted a Risk Management Charter (Appendix E). The objectives of the charter are:

- To provide a logical and systematic method for identifying and managing risk within the organization that will assist the organization to meet its goals and objectives efficiently and effectively. This is achieved by aligning key organizational objectives, risks and mitigating controls.
- To minimize losses and maximize opportunities – Risk Management is as much about defining opportunities as avoiding and mitigating losses.
- To improve the decision-making capabilities of frontline staff recognizing that the greatest knowledge and capacity for the management of risk often rests with those who are closest to the action.

The charter is reviewed annually by the Audit and Risk Committee.

7.4 Council Funding for Risk

Council looks to provide funding for disaster recovery through a separate reserve. It appropriates funding each year to a Disaster Recovery Fund reserve to enable access to ready cash in the event of a natural disaster. This is intended to assist reinstatement and to finance any short term needs in the time between any disaster and the recommencement of services.

The TEL Fund was established in September 1995 when TDC sold its investments in Taupo Electricity Ltd and Taupo Generation Ltd. The use of that sale capital and subsequent investment income generated each year are included in Council's Treasury Management Policy. One requirement of that policy is that the portfolio and funds are managed in a manner that reflects their potential utilisation as a disaster recovery fund in the event of a natural disaster within the Taupo district.

With these two funding mechanisms in place Council considers it is prudently but effectively managing the risk of being able to fund both short and long term needs with respect to potential natural disaster and subsequent recovery operations in the district.

7.5 Lifelines Risk Assessment

TDC have completed a Lifelines risk assessment as part of a regional project. This process has identified components that may be vulnerable to seismic, flood or volcanic events and the impact of failure of these assets. The Council's Office Buildings at Lake Terrace, Rifle Range Road, Turangi & Mangakino Service Delivery Offices contribute significantly towards any Civil Defence Emergency events, and other Council properties are also used utilised for additional Civil Defence emergency services. However, while these properties may be used for this purpose, they are not considered as critical assets, as alternatives properties can be used should these assets be rendered unusable.

7.6 Risk Classification Matrices

7.6.1 LIKELIHOOD

Likelihood scale for risk based on **ISO 31000:2009** is outlined in Table 7.1

Level	Descriptor	Damage / Failure Indicative Frequency
A	Almost Certain	Once per year or more frequently
B	Likely	Once every three years
C	Possible	Once every ten years
D	Unlikely	Once every thirty years
E	Rare	Once every 100 years
N	Almost Impossible	Once in 10,000 years

Table 7.1: Risk Likelihood

7.6.2 CONSEQUENCE

A consequence scale as a result of a risk event occurring based on **ISO 31000:2009** is shown in Table 7.2

Level	Descriptor	Description
5	Catastrophic	Extreme Impact of damage or failure
4	Major	High impact of damage or failure
3	Moderate	Medium impact of damage or failure
2	Minor	Low impact of damage or failure
1	Insignificant	Very little impact of damage or failure
N	Negligible/Nil	Assessment is Nil

Table 7.2: Risk Consequence

7.6.3 RISK RATING MATRIX

With both likelihood and consequence scales in place, a qualitative risk analysis matrix (Table 7.3) can be determined for the level of risk, where the rating legend for the matrix can be summarized as follows:
E = Extreme risk
H = High risk
M = Moderate risk
L = Low risk
N = Negligible risk approaching nil / no risk

Likelihood	Consequence					
	N	**1**	**2**	**3**	**4**	**5**
A	N	L	M	H	E	E
B	N	L	M	M	H	E
C	N	L	L	M	M	H
D	N	L	L	L	M	H
E	N	L	L	L	L	M
N	N	N	N	N	N	N

Table 7.3: Risk Matrix

7.7 Summary of Identified Risks

Taupo District Council keep a Top 50 Risks register, which is a summary of the top 50 governance and operational risks for the organisation. The register is kept under review by the Risk and Audit Committee (governance risks) and senior management (operational risks).

There are no currently identified high or extreme risks for Parks and Reserves assets. Identified risk levels range from negligible to moderate. The risk of erosion damage to lakeshore reserves is moderate (possible occurrence with high impact of damage). However, due to the presence of sewerage reticulation assets in some reserves, the priority assigned is high.

7.8 Mitigation of identified risk

The level of mitigation is related to the level of risk. High to extreme risk requires more detailed studies, action plans and management responsibility specifically assigned. Moderate risk is managed by monitoring or response procedures and management responsibility specified.

High lake level storm events can cause sudden and catastrophic erosion damage to lakefront reserves and critical sewerage assets. During these events staff actively monitor lake levels and wind conditions. In some cases it is necessary to provide emergency protection through use of sandbags or temporary rock revetment. However, this is not possible or effective in all circumstances and often it is necessary to wait until the storm is over to repair damage. A more effective form of mitigation is to armour vulnerable areas to reduce the potential for erosion.

7.9 Critical Assets

The following property assets are considered to be critical assets as they provide essential services:

- Lake Terrace Main Building – Telemetry Support, Emergency Generator for essential services
- Rifle Range Pre Fab Building – Emergency Operation Centre (EOC)
- Great Lake Centre – Telemetry Support & Welfare Centre, Emergency Generator
- Taupo Events Centre – Welfare Centre, Emergency Generator

7.10 Property Risk Register

7.10.1 NATURAL RISKS UPDATE INFO

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Consequence rating	Likelihood rating	Level of risk	Risk priority L M H
		Consequences	Likelihood				
Earthquake	Properties such as buildings and grounds damaged due to earthquake due to :						
	Poor consolidation of fills	Moderate	Unlikely	3	C	M	
	Triggering of land slides/slips	Major	Unlikely	4	D	M	
	Fault line vertical or horizontal movement	Major	Unlikely	4	D	M	
	Structure failure eg supporting beams resulting flooding, sewage, smoke, dust and electrical fires	Catastrophic	Possible	5	C	H	
	Exposure to hazards chemicals & materials caused by movement.	Major	Possible	4	C	M	
	Inaccessibility of property via footpath and/or road failure.	Major	Possible	4	C	M	
Volcanic Eruption	Access to Properties are blocked or property is damaged due to major volcanic activity	Major	Almost Impossible	4	N	N	
Ash fall	Ash fall deposit and build up on Properties and/or surfaces surrounding these, possibly resulting in prevention or hindering of traffic movement to access properties or making property uninhabitable.	Minor	Unlikely	2	D	L	
Lahar	Properties are not accessible or uninhabitable	Minor	Unlikely	2	D	L	

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Consequence rating	Likelihood rating	Level of risk	Risk priority
		Consequences	Likelihood				
Flooding	Properties blocked or destroyed due to flooding	Moderate	Possible		3	C	M
Tsunami	Properties damaged due to tsunami	Moderate	Almost impossible		3	N	N
Fire	Properties damaged or blocked due to scrub/bush fire	Moderate	Possible		3	C	L
Lightning	Properties damaged due to power outages	Insignificant	Unlikely		1	D	L
High winds	Properties damaged due to debris (fallen trees and/or power lines) and other objects blown into vehicle paths.	Minor to Moderate (if power lines down)	Likely		2	B	M
Land slide/slip	Properties damaged or destroyed by land slide/slip possible occurring during heavy rain or earthquakes.	Major	Possible		4	C	M
Tomo's	Hazard to users if tomo appears within vicinity of property resulting in possible building closure.	Moderate	Likely		3	D	L
Geothermal activity	Properties damaged or destroyed due to migrating geothermal activity	Moderate	Unlikely		3	D	L
Ice/Snow	Properties inaccessible due to ice and/or snow.	Moderate	Unlikely		3	D	L
Subsidence	Properties damaged or destroyed due to migrating subsidence	Moderate	Likely		3	B	M
Climate change	Global warming may increase the number and intensity of extreme events ie more rainstorms. This may affect the construction timing of projects, material life and usefulness of asset.	Moderate	Likely		3	C	M

7.10.2 EXTERNAL RISKS

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Consequence rating	Likelihood rating	Level of risk	Risk priority
		Consequences	Likelihood				
War	Properties destroyed or commandeered	Major	Almost impossible	4	N	N	
Terrorism	Properties damaged or destroyed due to terrorist acts	Major	Almost impossible	4	N	N	
Protests/Riots	Properties damaged or blocked due to riots	Minor	Unlikely	2	D	L	
Vehicle crash(es)	Properties damaged due to vehicle crash	Moderate	Almost certain	3	A	L	
Contractual obligations not fulfilled by external parties	Delayed works programme potentially resulting in lost funding opportunity	Minor	Unlikely	2	D	L	
Excessive costs to maintain, renew or create assets	Excessively high maintenance and construction costs due to having to import material from outside the district resulting in less work achievable within budget or price of oil.	Minor	Likely	2	B	M	
Lack of contractors to carry out wks	Loss of competitive contract rates and increased contract rates due to having to import contractors from outside the district	Minor	Likely	2	B	M	

7.10.3 PHYSICAL RISKS

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Consequence rating	Likelihood rating	Level of risk	Risk priority
		Consequences	Likelihood				
Inadequate design, construction or maintenance of asset	Major failure e.g. building/roof collapse	Major	Rare	4	E	L	
Premature asset failure	Failure due to not predicting growth rates accurately	Minor	Possible	2	C	L	
Failure of Control Gates	Reopening of original river channel resulting in SH1 and future local roads in the vicinity impassable	Catastrophic	Almost impossible	5	N	N	
Failure of underground services	Water mains pipe rupture and create damage to property	Minor	Possible	2	C	L	

7.10.4 OPERATIONAL RISKS

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Consequence rating	Likelihood rating	Level of risk	Risk priority
		Consequences	Likelihood				
Legislative non-compliance	E.g. Not obtaining Resource Consent, not abiding by LGA, etc…..	Moderate	Rare	3	E	L	

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Consequence rating	Likelihood rating	Level of risk	Risk priority
		Consequences	Likelihood				
Failure to identify all assets condition and value	Won't have in place an optimum maintenance or renewal programme and budget. Rating for renewal incorrect	Minor	Possible	2	C	L	
Incorrect assessment of financing required to renew or create assets	Over spent budget and/or delayed project completion	Minor	Likely	2	B	M	
Community expectation not met	Communities faith and trust of Council lost	Moderate	Likely	3	B	M	
Loss of Council reputation	Communities faith and trust of Council lost	Moderate	Likely	3	B	M	
Public safety non-compliance	Public safety put at risk	Major	Possible	4	C	M	
Loss of electronic data/information on assets	No access to data – potential for work to be delayed	Minor	Almost Certain	2	A	M	
	Partial loss of data – data will have to be recollected, and work delayed	Minor	Almost Certain	2	A	M	
	Complete loss of data – data will have to be recollected	Major	Rare	4	E	L	

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Consequence rating	Likelihood rating	Level of risk	Risk priority
		Consequences	Likelihood				
	and work significantly delayed						
Loss of Council employees from high staff turnover	Loss of local knowledge, both present and historical	Moderate	Likely	3	B	M	
Loss of Government subsidy	Less work being carried out if rates remain the same, thus level of service decreased	Major	Unlikely	4	D	M	
	Major rates increase to fulfil works program and maintain level of service	Major	Unlikely	4	D	M	
Legislative changes	Legislation change may affect the management of assets could have an affect on the delivery of this plan.	Minor	Unlikely	4	D	M	
Political changes	A change to Council's strategic direction could have profound changes on outcomes and projects associated with this plan.	Minor	Unlikely	4	D	M	

7.10.5 NOTES:

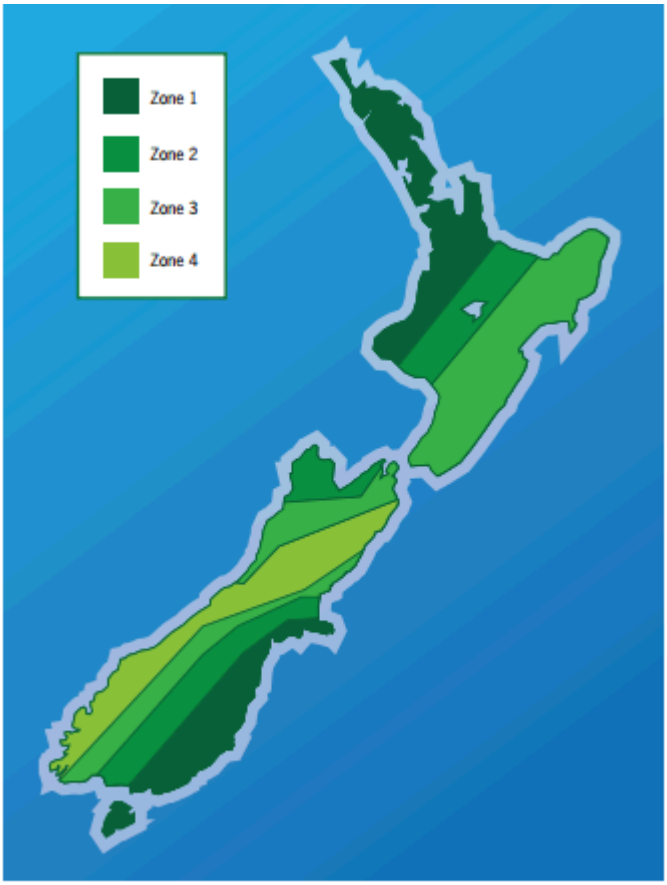

Figure 1: The new earthquake zones. For detailed maps, see NZS 3604:2011 Figure 5.4.