

8.0 RISK MANAGEMENT

8.1 Introduction

Risk management is an important element in the development and management of assets. For asset management planning to be robust and sustainable it must be integrated with other corporate risk management processes and that this encompass strategies for Council's most critical assets, provide for the effects of asset failure and be integrated with disaster recovery plans and business continuity plans. Currently asset management planning is listed as a Top 50 Risk in the Council Risk Register.

8.1.1 BACKGROUND

Council has reviewed and adopted in 1999 a Risk Management Charter. In 2013 Council's Audit & Risk Committee reviewed and adopted a revised Risk Management Charter. Council determined its overall policy would be to continually develop a Risk Management System that reflects best practice. Key objectives are:

- "to provide a logical and systematic method for identifying and managing risk within the organisation that will assist the organisation to meet its goals and objectives efficiently and effectively. This achieved by aligning key organisational objectives, risks and mitigating controls,
- to minimise losses and maximise opportunities – Risk Management is an much about defining opportunities as avoiding and mitigating losses
- to improve the decision-making capabilities of staff recognising that the greatest knowledge and capacity for management of risks often rests with those"

Overarching strategies for managing risk within Council are:

- Council's Chief Executive Officer will establish and implement a Risk Management system that is relevant to the organisation and which reflects the provisions of Council's Charter. The overarching objective of that Risk Management system will be to identify, and where feasible, mitigate risk factors that might prevent Council achieving its objectives. Risk Management systems established within Council will reflect prevailing best practice including relevant industry standards – especially AS/NZS Risk Management Standard 4360 and AS/NZS ISO 31000.
- The ongoing effectiveness of Councils Risk Management systems and compliance with them by employees will be demonstrated by appropriate reporting to Council and its appropriate Committees. Currently this is achieved by programed reporting to Council's Audit & Risk Committee who meets 3-4 times per annum.

8.1.1.1 Current Risk Management Status

Council has an Audit & Risk Committee which oversees the governance of a Risk Management Programme within the Taupō District Council. Risk Management is continuously being integrated into Councils culture, philosophy, practices, activities and plans rather than being viewed or practised as a separate programme.

The accountability for the management of risk is not removed from the specific activity managers and the Senior Leadership Group or those responsible for the management of assets and this is viewed as a collaborative process between governance and management.

The high level assessment of critical assets is done and now needs to be coordinated with the other assets to determine true criticality, this work is an improvement task and will be completed over the next couple of years.

TDC is also a member of the Waikato Utility Lifelines group and the wider Waikato Civil Defence and Emergency Management Group.

The Transportation maintenance contracts includes an after hours emergency response for network issues and customer complaints. After hours staff (the Palmerston North call centre) receives calls and forward emergency calls directly to the contractor who are required to respond in a certain time.

8.2 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 the Taupō District Council are as follows and reflect the risk management standard ISO 31000:2009 and 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.”

8.3 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. As at June 2017, the reserve fund had a balance of approximately \$1.6 million. Council has chosen not to insure its below ground assets given the position of its reserves.

Secondly the TEL Fund was established in September 1995 when TDC sold its investments in Taupō Electricity Ltd and Taupō 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 Taupō district. The value of the fund as at 30th June 2017 is approximately \$56.3 million.

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.

8.4 Lifelines Risk Assessment

TDC is a member of the Waikato Utility Lifelines Group. This process has identified components within the TDC road network that may be vulnerable to seismic, flood or volcanic events and the impact of failure of these assets. The critical assets identified, to date, include major roads and bridges including road links to pump stations etc.

8.5 Risk Register

The specific asset risk register (see following) identifies risks, the consequence of the risk, the existing controls in place, treatment options and the level of risk to the asset as assessed and updated by Council Officers. A possible improvement to the register is to provide each treatment options with an associated cost and added to the risk register, however these are yet to be costed by TDC.

8.6 Risk Classification Matrices

8.6.1 LIKELIHOOD

Likelihood scale for consideration based on **ANZS 4360** is as follows.

<u>Level</u>	<u>Descriptor</u>	<u>Damage / Failure Indicative Frequency</u>
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 8.1: Risk Likelihood

8.6.2 CONSEQUENCE

A consequence scale as a result of a risk event occurring based on **ANZS 3460** is shown for consideration as follows.

<u>Level</u>	<u>Descriptor</u>	<u>Description</u>
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 8.2: Risk Consequence

8.6.3 RISK RATING MATRIX

With both likelihood and consequence scales in place a qualitative risk analysis matrix/level of risk can be determined.

Likelihood	Consequences					
	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 8.3: Risk Matrix

The rating legend for the matrix, in this example, can be summarized as follows

E = Extreme risk

H = High risk

M = Moderate risk

L = Low risk

N = Negligible risk approaching nil / no risk

8.6.4 RISK MITIGATION MEASURES

High to Extreme risk would normally involve more detailed studies, action plans and management responsibility specifically assigned.

Moderate risk would be managed by monitoring or response procedures and management responsibility specified.

The Transportation team contracts all include an after hours emergency response. For after hour response, the Palmerston North call centre receives calls and forwards any calls deemed as emergencies directly to the contractor, who are required to respond in a certain time as per their contract. The call centre have a process to follow in terms of consultation, if roads are to be closed for major periods of time especially when alternative routes are required.

In case of emergencies, overweight vehicles which may not be able to access alternative roads due to bridges and access permissions will have to wait until the roads are reopened.

8.6.5 SUMMARY OF IDENTIFIED HIGH RISKS

This is a summary of the high risks, the complete list is included as table 8.5.

Asset Risk	The Risk	Mitigation Measures
Ice/Snow	Vehicle crashes due to extreme weather conditions.	<ul style="list-style-type: none"> • Weather warnings • Signage such as Ice/Grit • Regular grit runs undertaken by road maintenance contractor on roads where ice is known to form. • Road safety campaigns to highlight "drive to the conditions" especially during winter months.
Vehicle crashes	<p>Roads or road structures are damaged or blocked due to vehicle crashes.</p> <p>Personal injury or fatality</p>	<ul style="list-style-type: none"> • Ongoing improvements at existing traffic controls via minor improvement works. • Road maintenance contract in place to repair damage and attend to debris. • Crash reduction studies are undertaken every 5 years to look at safety improvements. • Road safety campaigns. • Signage, Policing, education, major works road program, safety audits.

Table 8.4: Identified High Risks

8.7 Critical Assets

To date only work has been undertaken to identify critical transport assets such as bridges and structures refer table 7.5. Further work is required to identify critical lifelines such as roads to service other infrastructure, such as water and wastewater treatment facilities. Mapping of critical assets is in progress. The critical assets for transportation will include arterial roads, retaining walls and possible roads to water and wastewater treatment plants.

Table 8.5: Transport Risk Register

Taupo District Council

Asset Management Plan

Risk Register

Division:	Infrastructure Group	Compiled by:	Jess Raethel	Date:	30/09/2005	
Asset:	Transport	Updated:	Claire Sharland	Date:	28/07/2017	Updated volcanic ash fall based on ash modelling by Lifelines project & added new note 32.
		Reviewed by:				

NATURAL RISKS

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Adequacy of existing controls	Consequence rating	Likelihood rating	Level of risk	Risk priority
		Consequences	Likelihood					
Earthquake	Roads or road structures damaged or impassable due to an earthquake due to:							
	- consolidation of fills	Moderate	Possible	PE (See note 1)	3	C	M	See note 27
	- fault line vertical or horizontal movement	Major	Unlikely	NC	4	D	M	See note 28
	- triggering of land slides/slips	Major	Possible	PE (see note 2)	4	C	M	See note 27
	- bridge deck movement/structure failure	Major	Unlikely	E (see note 3)	4	D	M	See note 27
	- dam structure rupture resulting in downstream flooding and over bridge impassable	Catastrophic	Almost Impossible		5	N	N	
- failure of control gates causing reopening of original river channel and resulting in SH1 and future local roads in the vicinity impassable	Major	Rare	PE (see note 4)	4	E	L	See note 27	
Volcanic Eruption	Local roads and state highways blocked or damaged due to major volcanic activity	Major	Almost Impossible	NC (see note 5)	4	N	N	See note 28
	State Highways blocked or damaged due to minor volcanic activity, resulting in local roads having to take diverted traffic	Minor	Rare	NC (see note 5)	2	E	L	See note 32
Volcanic Ash fall	Ash fall deposit and build up on road surfaces possibly resulting in prevention or hindering of traffic movement, traction and/or visibility problems.	Moderate	Likely	NC (see note 5)	3	B	L	See note 32
Lahar	State Highways possibly un-passable resulting in traffic being re-routed onto local roads	Minor	Unlikely	E (see note 6)	2	D	L	See note 27

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Consequence rating
		Consequences	Likelihood	
Flooding	Roads or road structures damaged, blocked or destroyed due to flooding	Moderate	Possible	E (see note 7)
Tsunami	Roads or road structures damaged due to tsunami	Moderate	Almost impossible	NC
Fire	Roads damaged or blocked due to scrub/bush fire	Minor	Unlikely	E (see note 8)
Lightning	Street lights damaged due to power outages	Insignificant	Unlikely	E (see note 9)
High winds	Roads or road structures blocks/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	E (see note 9 & 10)
Land slide/slip	Roads or road structures blocked, damaged or destroyed by land slide/slip possible occurring during heavy rain or earthquakes.	Major	Possible	E (see note 2)
Tomo's	Hazard to road users if tomo appears within road carriageway resulting in possible road closure, or one lane traffic movement	Moderate	Likely	NC
Geothermal activity	Roads or road structures damaged or destroyed due to migrating geothermal activity	Moderate	Unlikely	NC
Ice/Snow	Impassable roads due to build up of snow	Moderate	Unlikely	PE (see note 11)
	Vehicle crashes due to extreme weather conditions	Moderate	Almost certain	PE (see note 12)
Subsidence	Roads or road structures damaged or destroyed due to migrating subsidence	Moderate	Likely	NC
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	

EXTERNAL RISKS

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Adequacy of existing controls
		Consequences	Likelihood	
War	Roads and road structures destroyed or commandeered	Major	Almost impossible	NC
Terrorism	Roads or road structures damaged or destroyed due to terrorist acts	Major	Almost impossible	NC
Protests/Riots	Roads or road structures damaged or blocked due to riots	Minor	Unlikely	NC
Vehicle crash(es)	Roads or road structures damaged or blocked due to vehicle crash	Moderate	Almost certain	E (see note 13)
	Personal injury/fatality due to vehicle crash	Major	Almost certain	PE (see note 13)
Contractual obligations not fulfilled by external parties	Delayed works programme potentially resulting in lost funding opportunity	Minor	Unlikely	E (see note 14)
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	PE (see note 15)
Lack of contractors to carry out works	Loss of competitive contract rates and increased contract rates due to having to import contractors from outside the district.	Minor	Likely	PE (see note 15)

PHYSICAL RISKS

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Adequacy of existing controls
		Consequences	Likelihood	
Inadequate design, construction or maintenance of asset	Premature pavement or road structure renewal required	Minor	Possible	E (see note 16)
	Major failure e.g. bridge collapse	Major	Rare	E (see note 16)
Premature asset failure	Failure due to not predicting growth rates accurately	Minor	Possible	E (see note 17)
Failure of Control Gates	Reopening of original river channel resulting in SH1 and future local roads in the vicinity impassable	Catastrophic	Almost impossible	NC
Failure of underground services	Water mains pipe rupture	Minor	Possible	PE (see note 18)
	Trench failure	Minor	Possible	NC

OPERATIONAL RISKS

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Adequacy of existing controls
		Consequences	Likelihood	
Legislative non-compliance	E.g. Not obtaining Resource Consent, not abiding by LGA, etc.....	Moderate	Rare	E (see note 19)
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	E (see note 20)
Incorrect assessment of financing required to renew or create assets	Over spent budget and/or delayed project completion	Minor	Likely	E (see note 21)
Community expectation not met	Communities faith and trust of Council lost	Moderate	Likely	PE (see note 22)
Loss of Council reputation	Communities faith and trust of Council lost	Moderate	Likely	PE (see note 22)
Public safety non-compliance	Public safety put at risk	Major	Possible	PE (see note 23)
Loss of electronic data/information on assets	No access to data – potential for work to be delayed	Minor	Almost Certain	PE (see note 24)
	Partial loss of data – data will have to be recollected, and work delayed	Minor	Almost Certain	PE (see note 24)

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Adequacy of existing controls
		Consequences	Likelihood	
	could have an affect on the delivery of this plan.			
Political changes	A change to Council's strategic direction could have profound changes on outcomes and projects associated with this plan.	Minor	Unlikely	

Notes:

1. Road pavement design
2. Waihi Hill known landslide risk, has warning system
3. All bridges have been assessed for seismic vulnerability and retrofitted as necessary
4. If flood gates jam, they will be blown open using explosives, will therefore have time to make evasive measures
5. There will be some warning before this occurs and preventative measures will be put in place
6. Lahar warning system
7. Weather warnings, stock banks
8. Vegetation control within road reserve, fire restrictions, fire brigade, firebreaks within forest plantations
9. Utility Providers have controls such as circuit breakers, etc.
10. Vegetation control within road reserve, planning control for tree planting close to road
11. Weather warning
12. Gritting of roads, weather warning, signage
13. Crash investigation studies, minor safety works, signage, Policing, education, major works roading program, safety audits
14. Contractual laws and clauses
15. Long term (3 year) fixed cost maintenance contracts, annual review of budgets
16. Design standards, peer review, safety audit, construction audit
17. TDC Asset lives are regularly reviewed and assets renewed when their useful life is exhausted
18. Peer review
19. Peer review
20. Condition rating, regular revaluations
21. Peer review, annual review of budgets
22. Community Outcomes, consultation, communication via website/media
23. Traffic management plans, staff training and education
24. Daily computer back-ups, virus protection software, some data in hard copy
25. Asset Management Plans, documentation
26. Abide by all requirements of NZTA to ensure subsidy is approved
27. The existing controls are deemed adequate for this risk
28. There are no practicable improvements that can be made
29. Monitoring of known geothermal sites and appropriate measures taken when required
30. Monitoring of known subsidence site and appropriate measures taken when required
31. On-going improvements to existing controls
32. Advice materials of risks and/or reduce non-essential travel

Component / Segment	Importance	Vulnerability Ranking						Impact			AADT	Comments Dated 8/11/17 This section needs to be updated based on the	
		Seismic					Flood	Volcanic Ash fall	Seismic	Flood			Volcanic
		Ground Shaking	Liquefaction	Fault displacement	Land Slide	Ground Settlement							
WAIKATO RIVER BRIDGE OHAKURI ROAD ATIAMURI	3	C	D	D	E	D	C	C	3	2	1	210	NOTE - IF CONTROL GATES BRIDGE WENT (SH1) THEN THE
HAUWAI STREAM CULVERT ORAKEI KORAKO ROAD KAINGAROA	2	D	D	D	C	D	D	C	2	2	1	100	CONCRETE BOX CULVERT 2.45M X 2.45M, 19M LONG
KAKUKI STREAM BRIDGE OTUKOU ROAD TONGARIRO	2	B	D	D	D	D	D	C	2	2	1	170	Single lane bridge
WAIREHU STREAM CULVERT PAERATA ROAD	1	D	D	D	E	D	D	B	1	1	1	7	HUMECAST CONCRETE BOX CULVERT 3.5M w X 2.5M h, 9. Medium priority
WAIKATO RIVER BRIDGE PAERATA ROAD	1	C	D	D	E	D	C	C	1	1	1	50	Repair spall exposed steel, repair minor spall RHS deck cant
PAKONUI ROAD PAKONUI RD STOCK UNDERPASS													Spall repair - \$1,000 - Low priority
POIHIPI ROAD POUAKANI POTUNGUTUNGU STREAM CULVERT	2	D	D	D	D	D	C	C	2	2	1	491	CONCRETE BOX CULVERT 2.25M X 2.25M, 30.0M LONG, PRE Clean and seal cracks, repair spall exposed steel barrel - \$1
POIHIPI ROAD CULVERT POKURU ROAD WEST POUAKANI													
MARAEMANUKA STREAM PVTEBRIDGE PUATAATA ROAD PUATAATA ROAD CULVERT	1	A	D	D	D	D	B	C	1	1	1	6	Single lane bridge, repair spall exposed steel beam, install f Remove corrosion and concrete line invert - \$50,000 - Medi
SANDEL ROAD POUAKANI SANDEL ROAD STOCK UNDERPASS	2	D	D	D	E	D	NA	C	1	NA	1	80	CONCRETE BOX CULVERT 2.00M h X 3.50M w, 11.2M LONG Single lane bridge - replace mortar pad beam Abutment D \$100,000 - Low priority
MANGAKINO STREAM BRIDGE SH 1 D SH 5 JNCT 01N-0617 CHAD STREET GULLY CULVERT #4	2	B	D	D	D	D	D	C	2	2	1	62	Clean and seal vertical crack, repair exposed steel - \$900 - NOTE - FOOTBRIDGE VULNERABILITY DEPENDANT ON BRIDGE (SEE TNZ)
WAITAHANUI FOOTBRIDGE SH 1 E HATPEPE 01N-0639	1	C	D	D	E	D	D	C	1	1	1		

Component / Segment	Importance	Vulnerability Ranking						Impact			AADT	Comments Dated 8/11/17 This section needs to be updated based on the		
		Seismic					Flood	Volcanic Ash fall	Seismic	Flood			Volcanic	
		Ground Shaking	Liquefaction	Fault displacement	Land Slide	Ground Settlement								
ONGARAHU STREAM CULVERT	3	D	D	D	E	D	C	C	3	3	1	266	TWIN CONCRETE BOX CULVERTS 2.7M w X 2.5M h, 10.3M L	
TIROHANGA ROAD CULVERT	3	D	D	D	E	D	C	C	3	3	1	249	TWIN CIRCULAR CS PIPES 3.00M DIA, 28M LONG, ARMCO M	
WAIHI ROAD TONGARIRO														
OMUHO STREAM BRIDGE	2	C	D	D	A	D	B	C	2	2	1	250		
WAIHORA ROAD														Clean and seal cracks, remove silt, clear all vegetation - \$8,
WAIHORA ROAD CULVERT														
WAIHORA DRIVE														
CONTROL GATES FOOTBRIDGE	1	D	D	D	E	D	E	C	1	1	1		NOTE - FOOTBRIDGE VULNERABILITY DEPENDANT ON BRIDGE BRIDGE, Replace severely corroded SHS support to Repair small spalls, repair minor exposed steel Pier D - \$31,	
WAIHORA STEAM PIPES BRIDGE														Investigate re-lining options \$50,000 – High priority
WAIHORA STREAM CULVERT														
TWIN BOX														
WHANGAMATA ROAD														
POUKANI														
WHANGAMATA ROAD 1 CULVERT	2	D	D	D	D	D	D	C	2	2	1	500	ARMCO MULTIPLATE ARCH PIPE 4.20M w X 2.60M h, 15.0M	
WHANGAMATA 2 CULVERT	2	D	D	D	D	D	D	C	2	2	1	500	TWIN CONCRETE BOX CULVERT 3.1M X 3.1M, 13.0M LONG,	
WHANGAMATA 3 CULVERT	2	D	D	D	D	D	D	C	2	2	1	500	PRECAST CONCRETE BOX CULVERT 2.15M X 2.15M, 50.0M L	

Table 8.7: Roads Risk Assessment

Below is a list of roads which are at risk from flooding or other high risk factors.

Component / Segment	Importance	Vulnerability Ranking					Impact			AADT	Comments		
		Seismic					Flood	Volcanic ash fall	Seismic			Flood	Volcanic
Ground Shaking	Liquefaction	Fault displacement	Land slide	Ground settlement									
Low lying roads													
KOROHE ROAD	2	D	D	D	D	D	A	C	1	2	1	267	
WAIOTAKA ROAD	1	D	D	D	D	D	A	C	1	1	1	50	
GRACE ROAD	1	D	D	D	D	D	A	C	1	1	1	157	
AWAMATE ROAD	2	D	D	D	D	D	A	C	1	2	1	62	Access to sewerage plant
WHARF ROAD	1	D	D	D	D	D	B	C	1	1	1	10	
HEUEHU PARADE	1	D	D	D	D	D	C	C	1	1	1	50	
ORUATUA AVE	1	D	D	D	D	D	C	C	1	1	1	125	
Other Roads													
OHAKURI ROAD	2	D	D	D	B	D	D	C	2	2	1	100	Narrow/cliffs/rock
WAIHI ROAD	2	D	D	D	A	D	C	C	2	2	1	255	Prone to land slides
MAPARA ROAD	2	D	D	C	D	D	D	C	2	1	1	170 - 1200	
TUKAIRANGI ROAD	2	D	D	C	D	D	D	C	2	1	1	60-150	
POIHIPI ROAD	2	C	E	D	C	D	D	C	2	2	1	500 - 3300	
WAIPAPA ROAD	2	C	E	D	C	D	D	C	3	3	1	140 - 1230	
ARIATIATIA - NTH OF DAM	2	D	D	D	C	D	D	C	2	2	1	200 - 800	
TIROHANGA ROAD	3	C	D	D	C	D	D	C	3	3	1	266	
ACACIA BAY / WILY TCE	1	D	D	D	B	D	D	D	1	1	1	30	
HUKA FALLS ROAD	2	D	D	D	C	D	D	D	1	1	1	50-700	

Definitions for the above tables are as follows:

Importance Ranking		Vulnerability Ranking		Impact Ranking	
Extremely important	5	Almost certain	A	Catastrophic	5
Very important	4	Likely	B	Major	4
Important	3	Possible	C	Moderate	3
Some importance	2	Unlikely	D	Minor	2
Not important	1	Rare	E	Insignificant	1

Table 8.8: Definitions for Critical Assets Table