

1 Chapter 14: Risk Management

1.1 Introduction

Risk identification for the Lake Mokoan Future Land Use Strategy has been generally carried out in accordance with the principles described in AS/NZS 4360:2004. The aim this risk identification and assessment is two-fold:

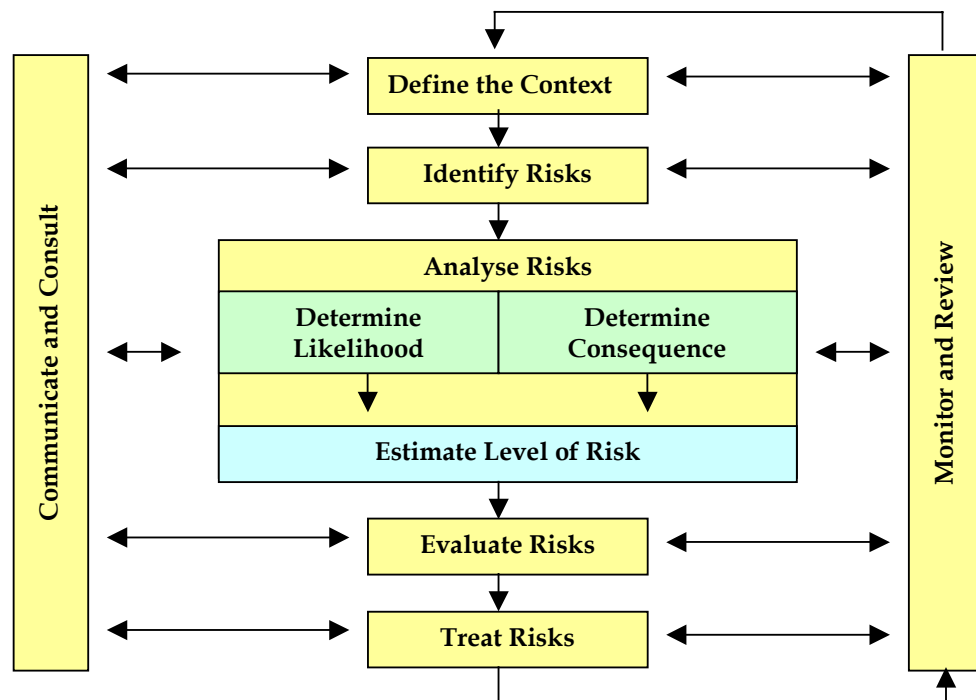
- To test that the FLUS identifies and attempts to respond to key risks identified by the Committee; and
- To identify risks to the implementation of the FLUS so that those risks can be managed in the future.

This chapter of the working documentation aims to provide an overview of the risk management process in the context of the Lake Mokoan Land Use Study. It also records the results of a risk workshop with the LMFLUSC held on Monday 10th July 2006 in Benalla.

1.2 Purpose of Risk Management

The primary purpose of the risk management procedure is to provide a structured methodology to assist DSE to make the best decisions throughout the implementation process of the FLUS. The risk management process is defined in Figure 1.

Figure 1: Risk Management Methodology



1.3 Define the Context

Establishing the context sets the scope for the risk process. It allows an understanding of who or what could be at risk. Solutions can be misdirected for risks that are not correctly identified. Therefore establishing context is important as it is establishing the objective of what you are trying to achieve.

In this risk assessment, the context is a high level strategic document. While a great deal is known about the study area, at this stage in the implementation process, there are many unknown elements, many of which can only be identified as further detailed planning and design occurs. The FLUS recognises this, and identifies the further work program required. As the FLUS is implemented, a number of risks identified by the Committee to date will no doubt be removed, reduced or resolved satisfactorily. Other risks will be identified. Given this context, the risk assessment is a relatively simple tool, and cannot provide significant levels of detail.

1.4 Risk Identification

Risk identification sets out to identify the FLUS's exposure to uncertainty, and the areas of risk associated with implementation. At this review stage, risk identification provides a check that the FLUS provides a strategic level and well-structured process for implementation. At this stage, the FLUS is not able to provide absolute certainty on every issue raised during the process to prepare it. However, the aim of this risk assessment as stated above, is to identify risks to the implementation of the FLUS so that those risks can be managed in the future.

Risks were identified by the Committee at a workshop on 10th July. In addition, the Beca team identified a number of risks which have been included in this assessment. A total of 42 risks have been identified.

1.5 Risk Analysis

Following risk identification by the Committee, Beca have provided the analysis of each risk based on our judgement. Risk analysis is determined by a qualitative assessment of consequence and likelihood of the identified risk. This analysis provides data that enables the prioritisation of the risk. For all risks, we have undertaken a check against the FLUS that an adequate response is included.

When assessing the levels of consequence and likelihood we have taken into account information at the time of carrying out the analysis, and not what may happen in the future. One important message from this process, is that risk management will be an important ongoing activity. Within the FLUS, we have identified potential governance structures (Figure 14 in the FLUS), and future responsibility for risk management will need to be an issue in resolving the approach to governance and land management. To this extent, at this stage in the process, the critical issue is that risks have been identified. The actual rating provided while important is not worthy of detailed attention at this stage. This scrutiny should come as the implementation process begins.

The scoring of both likelihood and consequence has been be judged qualitatively based on the following criteria.

Figure 2: Qualitative measures of consequence or impact

Level	Descriptor	Example of detail description
1	Insignificant	No injuries, low financial loss
2	Minor	First aid treatment, on-site release immediately contained, medium financial loss
3	Moderate	Medical treatment required, on-site release contained with outside assistance, high financial loss
4	Major	Extensive injuries, loss of production capability, off-site release with no detrimental effects, major financial loss
5	Catastrophic	Death, toxic release off-site with detrimental effect, huge financial loss

Figure 3: Qualitative measures of likelihood

Level	Descriptor	Description
A	Almost Certain	Is expected to occur in most circumstances
B	Likely	Will probably occur in most circumstances
C	Possible	Might occur at some time
D	Unlikely	Could occur at some time
E	Rare	May occur only in exceptional circumstances

The assessment of qualitative risk score is made using the following calculation:

$$\text{Risk} = \text{Consequence} \times \text{Likelihood}$$

1.6 Risk Prioritisation

Following the rating of each risk, we have used the following table to assess the priority of the risk. This may provide a ‘framework’ for risk management in the future as the implementation process gets underway.

Figure 4: Qualitative risk analysis matrix - risk prioritisation

Likelihood	Consequence				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
A (almost certain)	H	H	E	E	E
B (likely)	M	H	H	E	E
C (possible)	L	M	H	E	E
D (unlikely)	L	L	M	H	E
E (rare)	L	L	M	H	H

Legend:

E: extreme risk; immediate action required

H: high risk; senior management attention needed

M: moderate risk; management responsibility must be specified

L: low risk; manage by routine procedures

In relation to all risks identified by the Committee, we have provided a comment on the risk, and in particular how the FLUS provides mitigation of the risk, or in many cases, identifies a process that will allow the risk to be further explored and/or managed.

1.7 Risk Management

The management of risk involves the preparation and implementation of action / mitigation plans. A risk may be managed using any one (or more) of the following methods:

- Avoidance – by deciding not to proceed with the activity likely to generate the risk
- Reduction of Consequence
- Reduction of Likelihood
- Transfer the risk – which involves another party bearing in full or part the risk, for example insurance or contractual clauses. Given that much of the FLUS relies on partnerships being established, it is not likely that this will be an effective technique for managing risk. This may ultimately result in increased risk for DSE.

When assessing the appropriate risk treatment options, DSE or the Land Manager should consider the balance of cost of implementing the action against the benefits derived from carrying out the action.

It is also important to assume that the best person, company or organisation best able to manage or control the risk is given responsibility to do so. The FLUS identifies a number of organisations that are important to the implementation process. Many of the actions in the FLUS will serve to reduce or eliminate risks, so it is important that the range of agencies or organisations identified are involved in implementation and by implication, risk management at the appropriate stage.

1.8 Monitor and Review

It is necessary to monitor the risk processes being implemented on a regular basis to ensure any change in project circumstances and do not alter the likelihood and/or consequence of any identified risks, and that any new risks have been appropriately recognised. This will be the responsibility of the governance group for the FLUS, however that group is comprised.

1.9 Communicate and Consult

This element of the process is important and needs to be implemented appropriately. The FLUS recognises the importance of communication, and the process to prepare the FLUS has been highly consultative. One of the recommendations of the FLUS is to develop a communication plan (refer Governance chapter) to allow ongoing communication and consultation with the community.

1.10 Risks

The following table identifies the risks, consequence, likelihood and risk priority. It also provides a comment on the risk.

The risk: what can happen and how can it happen	Relevant Section of FLUS	Comment	Likelihood Rating	Consequence Rating	Priority
Inadequate resources are allocated to organisations assigned responsibility for delivering the FLUS	Achieving the Vision	FLUS cannot deal with resource allocation. This is a Government decision. The FLUS has set out general resource requirements. If they are not available then components of the program will probably not proceed as outlined	Unlikely	Major	High
Continuing community opposition to the Government's decision to decommission Lake Mokoan	Achieving the Vision	Continued local concern is likely until issues relating to reliability are resolved. Whether opposition continues beyond this is really dependent on whether early successes can be demonstrated to the local community.	Possible	Moderate	High
Key partnerships prove difficult to establish or maintain	Achieving the Vision	Establishing partnerships will be critical. The FLUS recognises their importance, and identifies clear opportunities for other organisations to become involved.	Unlikely	Major	High
Rate of lake draw-down does not allow for establishment of wetland fringe vegetation.	Strategy 1: Ecosystem Management	FLUS recommends a Draw-Down Management Plan and associated monitoring program to ensure the process of draw-down is managed with reference to these ecological outcomes. This should minimise potential for an inappropriate draw-down regime.	Unlikely	Major	High
Research identifies issues that may be fatal to ecosystem restoration	Strategy 1: Ecosystem Management	This is very unlikely. Should such an issue arise, Governance process will need to identify suitable resolution depending on the nature of the finding.	Rare	Major	High
More detailed land assessment after draw down of the lake provides new information that does not support elements of the FLUS	Strategy 1: Ecosystem Management	FLUS recognises that elements will need to be confirmed post draw-down. The restoration plan together with appropriate monitoring will allow for adaptive management techniques to be employed as the actual rehabilitation process is occurring. If a major issue is identified, it is likely the restoration plan will require significant review. A Scientific Panel is planned to guide the draw-down phase and this could be extended, particularly if a major issue is identified.	Unlikely	Major	High
Aboriginal community opposition to land use for specified purposes (e.g.: major tourism development)	Strategy 2: Cultural Heritage	FLUS aims to ensure a collaborative approach with the aboriginal communities. The establishment of a protocol will provide clear direction to ensure appropriate consultation continues.	Possible	Moderate	High
Lower than expected attraction value of wetlands	Strategy 3: Tourism and Commercial Development	The aim of the FLUS is to create an environment that is attractive and ecologically sustainable. FLUS reviews and business cases for investment will be used to make decisions about investment relative to amenity. The estimated visitor numbers are indicative and not linked to a business case at this stage. A business case will almost certainly be able to adapt to significantly lower visitor numbers to those indicated.	Possible	Moderate	High
Visitor numbers don't warrant further develop of infrastructure	Strategy 3: Tourism and Commercial Development	Business case process will identify whether further investment is warranted. This issue is not expected to affect the restoration of the wetlands or the provision of a base level of infrastructure for management and visitor use.	Possible	Moderate	High
Access to wetlands from highway, Benalla and Glenrowan compromised	Strategy 3: Tourism and Commercial Development	If access is compromised from the Hume Hwy, this would not be a significant problem for visitors, unless a tourist node is provided for on the south side of the wetland. There are however multiple options for accessing the major nodes identified in the FLUS, each with different emphasis from a visitors perspective. This suggests that there is relatively low risk of this occurring.	Rare	Major	High
Agroforestry may lead to unsustainable levels of ground-water draw down, impinging on wetland viability.	Strategy 4: Primary Industry	The FLUS identifies this as a serious risk. Investigations including modelling, are required to ensure the likely impacts are understood, prior to plantation establishment occurring.	Unlikely	Major	High

The risk: what can happen and how can it happen	Relevant Section of FLUS	Comment	Likelihood Rating	Consequence Rating	Priority
Management structures may lack the flexibility to respond in a timely manner to rehabilitation and weed/pest management issues.	Strategy 6: Land Ownership and Governance	The FLUS identifies options for future land management arrangements, and in resolving the most appropriate option, this issue should be considered. Restoration is the key plank of this Strategy. Adapting practices in line with the results of monitoring will be essential,	Unlikely	Major	High
Responsible authorities fail to reach agreement on required roles and resources	Strategy 6: Land Ownership and Governance	Roles of agencies are well defined and they typically work together effectively. All governance issues are not yet resolved, so this will need to be resolved through the process set out in the FLUS.	Unlikely	Major	High
Private investment may not occur	Strategy 9: Infrastructure and Services	The FLUS identifies the potential for various partnerships to be developed with other than public sector organisations. Some proposed actions/projects will not go ahead without private sector involvement	Possible	Moderate	High
No clear responsibility for maintenance of infrastructure agreed	Strategy 9: Infrastructure and Services	FLUS identifies clear responsibility for infrastructure provision and maintenance. Much of this will fall to the land manager, and funding and maintenance will likely be an issue to be resolved during the process to identify an appropriate land manager.	Rare	Major	High
Water not sufficient for ecological draw-down due to inlet channel being re-configured	Strategy 10: Inlet and Outlet Channels	The draw-down process will be linked to the operation of Lake Mokoan over the next 3 years. The draw-down plan will identify the scenarios possible and monitoring will look at the water levels in conjunction with the restoration process. Water may be able to come from other sources and this will need further investigation in the draw-down plan.	Unlikely	Major	High
Strong community opposition to the PSA through a panel hearing.	Strategy 11: Planning	The consultation process undertaken to date does not indicate a high level of opposition to the FLUS. The hearing process can deal with differences of opinion. Strong opposition may result in less investment, if there is no support for the provision of access to the study area.	Possible	Moderate	High
Introduced Planning Scheme provisions fail to guarantee FLUS outcomes. E.g.: a land use or management practice is proposed on freehold (sold) land that is contrary to the FLUS or incompatible with the values of the core ecological area	Strategy 11: Planning	The Planning Scheme Amendment will need to go through a public process. If there is support for these mechanisms, this process is well adapted to resolving any future problems, provided the intent of the provisions is clear. The FLUS provides clear intent of what is sought.	Rare	Major	High
Funding for monitoring and management actions may not be sufficient in the short – long term.	Achieving the Vision	There is a risk that funding is not adequate. However, at this early and strategic stage, it is considered that the FLUS has identified those major elements of any monitoring program that will be necessary to enable sustainable management of the area.	Unlikely	Moderate	Moderate
Poor buffer management and inappropriate activity in the adjoining land may lead to degradation of core ecological values.	Strategy 1: Ecosystem Management	FLUS includes land control measures for Precinct B land, as well as a margin of safety around the Precinct A area. Activities proposed both on Precinct B land and in the local catchments are likely to include agriculture, which is existing in many parts of the catchment, and possibly the introduction of forestry. Strict controls and investigations will be required prior to introducing forestry.	Unlikely	Moderate	Moderate
Some species are impacted negatively by the draw-down and wetland re-establishment compared to present management of the Lake	Strategy 1: Ecosystem Management	Potential impacts on some species have been identified in the FLUS and supporting documentation. This will also be considered in detail as part of the State and Federal planning approval processes. In general restoration of a natural wetland system is thought to favour the long term protection and enhancement of flora and fauna associated with this area.	Unlikely	Moderate	Moderate
Agreement with indigenous community organisations cannot be	Strategy 2: Cultural Heritage	Every effort has been made to date to engage with indigenous community, and this will continue during implementation of the FLUS.	Possible	Minor	Moderate

The risk: what can happen and how can it happen	Relevant Section of FLUS	Comment	Likelihood Rating	Consequence Rating	Priority
reached on future indigenous involvement		The protocol will be important to assist in resolving any issues.			
Partially dependent on successful implementation of Glenrowan Masterplan, which may not succeed	Strategy 3: Tourism and Commercial Development	Linkages with Glenrowan and Ned Kelly story are important, and are encouraged in the FLUS.	Possible	Moderate	Moderate
Not supported in regional tourist strategies	Strategy 3: Tourism and Commercial Development	Regional Tourism strategies will be important in establishing linkages to support the level of visitation to Winton Wetlands. It is difficult to imagine such an important site being left out of regional strategies. If this were to occur, it is likely the area would continue to draw its own visitation, albeit at a lower level that if leverage from other regional attractions were to occur.	Unlikely	Moderate	Moderate
Increased public access and tourism activities in the area increase risk levels (e.g.: camping and bushwalking)	Strategy 3: Tourism and Commercial Development	Presumed risks in relation to increased visitation are increased risk of fire, vandalism or other damage to the area. Vigilance, education and a good presence of other visitors and park 'rangers' will mitigate this risk.	Possible	Minor	Moderate
Return from land sales is less than anticipated in project budgeting	Strategy 4: Primary Industry	A conservative approach has been adopted for land sale. Various options have been proposed for how to subdivide and sell land. If land values are less, there will be less money available to offset costs of restoration, and this risk will likely fall to government. Government are advised that independent valuations should be undertaken, as part of a land disposal process to minimise this risk	Unlikely	Moderate	Moderate
Future owner or manager of freehold land is not willing to support ecological principles	Strategy 4: Primary Industry	Planning mechanisms and legal mechanisms will be in place to minimise the impact of adjoining landowner activities. Usual legal enforcement options exist.	Unlikely	Moderate	Moderate
Landholders do not abide by protocol leading to environmental or cultural site impacts	Strategy 4: Primary Industry	Protocols will include means to protect any values on Precinct B land. The legal or other mechanism to achieve this has not been discussed in detail. As this is confirmed, the level of certainty can be increased if there is concern that this is a significant risk.	Possible	Minor	Moderate
Local Government does not support the FLUS recommendations relating to recreation and community facilities	Strategy 5: Recreation and Community Facilities	Risk of local and state government failing to agree on infrastructure and services exists. FLUS proposes a process for agreement. Provision of infrastructure should not necessarily require local government buy-in, as some infrastructure can be provided within Winton Wetlands.	Unlikely	Moderate	Moderate
Negotiations with Mokoan Yacht Club in relation to use of their facilities are unable to be resolved	Strategy 5: Recreation and Community Facilities	Likely to mean refurbishment of facilities and provision of the site as a community facility does not proceed as easily as it might.	Possible	Minor	Moderate
Clear roles and responsibilities between authorities are not assigned	Strategy 6: Land Ownership and Governance	This would likely cause a number of tasks not being completed. The FLUS does identify lead agency for all tasks.	Unlikely	Moderate	Moderate
Lack of research funding	Strategy 7: Research and Monitoring	The FLUS states that there is already a lot known about restoration techniques - and that restoration will be based on adaptive management and monitoring. Research will be useful to support this but may not be essential unless some major concerns become evident. Funding for research will generally come through partnerships with other organisations. This is likely to occur due the 'world scale' nature of this restoration process. If partnerships are not developed then the opportunity to use this site for a broader level of research activity may be lost.	Unlikely	Moderate	Moderate
Areas of dryland developed for agricultural and forestry use conflict with fire management principles	Strategy 8: Fire and Flood Management	While this is possible, the use of land for agricultural activities does not differ from other land use around the study area. The management of fire and flood risk on Precinct B and other surrounding properties	Unlikely	Moderate	Moderate

The risk: what can happen and how can it happen	Relevant Section of FLUS	Comment	Likelihood Rating	Consequence Rating	Priority
		should be consistent, and tools for both exist.			
Agreement between DSE and Council relating to PSA cannot be reached.	Strategy 11: Planning	The planning scheme amendment will best be delivered with Council support. Various alternatives exist to prepare the PSA, including this being funded and managed by DSE. BRC leadership would be preferable.	Unlikely	Moderate	Moderate
Insufficient technical detail for a panel to support the specific location of the three overlays required.	Strategy 11: Planning	Legal review and review by DSE officers of PSA documentation will provide an indication of whether detail is sufficient. Onus will be on DSE/BRC and others putting up the amendment to provide sufficient technical justification.	Unlikely	Moderate	Moderate
Zone provisions do not provide sufficient flexibility for future investors/landowners or landowner intentions are at odds with FLUS.	Strategy 11: Planning	Amendments can be undertaken at a future stage if the FLUS has not allowed for a particular activity proposed by a future landowner.	Possible	Minor	Moderate
Ground conditions create additional cost	Achieving the Vision	Soil study has generally shown that the impact of inundation is likely to be minimal on the ability of soils to recover. In Precinct A, there is sufficient flexibility in the location of major facilities to allow some prospect that this risk can be avoided.	Unlikely	Minor	Low
'Stag' management for visitor safety purposes may impinge on habitat values.	Strategy 1: Ecosystem Management	The FLUS includes clear guidance on how removal of stags can be contemplated. This will include assessment of ecological value. Where safety issues arise, it is assumed that practical park management will result in areas being cordoned off around specific stags if there is a threat.	Unlikely	Minor	Low
Incorporation of archaeological site and area sensitivity overlay in Benalla RC planning does not occur	Strategy 2: Cultural Heritage	The FLUS recognises the importance of protection of sites. Sites within Precinct A are the primary concern, and these are protected by land ownership. Precinct B land owners will be required to undertake these assessments. Other safeguards exist if the information is not placed in BRC overlays	Rare	Moderate	Low
Funding not available for archaeological assessments relating to business ventures on freehold land.	Strategy 2: Cultural Heritage	Planning process is clear that it is the developers responsibility to undertake appropriate surveys. Should a developer not be able to meet the requirements of the responsible authority, any development application would not be approved.	Unlikely	Minor	Low
Dependent on continued political support for Winton Raceway activities, and the continued operation of the raceway. If closed, tourism potential of Winton Wetlands would be under threat.	Strategy 3: Tourism and Commercial Development	The ecotourism accommodation cabins would be dependent to a large extent on a regular customer base. The degree to which visitation to the Winton Wetlands is tied to the raceway is not yet certain. Again, regional tourism initiatives which tie various destinations together are encouraged.	Unlikely	Minor	Low
Bird-flu virus limiting access to wetlands	Strategy 3: Tourism and Commercial Development	Biosecurity issues should be dealt with by park management. Largest consequence would be impact on wildlife.	Rare	Minor	Low