5.10. RISK ASSESSMENT DAINTREE RIVER FERRY PRECINCT

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DEPARTMENT Corporate Services

RECOMMENDATION

That Council:

- **notes the QSolutions Group Risk Assessment Report for the Daintree River Ferry Precinct and endorses the actions being undertaken; and**

- **adopts the Daintree Ferry Revenue General Policy which includes a capping of four (4) million dollars for funds to held in the Daintree Ferry Reserve as recommended by the abovementioned report.**

EXECUTIVE SUMMARY

QSolutions Group from Townsville were engaged to undertake a risk assessment of Council's assets within the Daintree Ferry Precinct and the operations of the land based boom gates at the approaches to the ferry. The two major findings of this risk assessment report are:

- Council should maintain $4,000,000 in the Daintree River Ferry Reserve to enable appropriate response to an event that has the potential to seriously disrupt this essential ferry service.
- That automated land based boom gates be installed to allow these gates to be lowered after the ferry is loaded and prior to disembarking from the land approaches.

Following receipt of this risk assessment report, Council staff have instigated certain actions which are being presented to Council for endorsement.

BACKGROUND

Included in this year's Operational Plan was Initiative 5.1.4 to *"Complete a risk assessment of the Daintree River Ferry precincts (south and north banks) including boom gate operations".* The success measure for this initiative was *"Report to Council on results of risk assessment and amend the Daintree River Ferry Reserve policy as required."*

To ensure independence of the risk assessment, submissions were sought from suitably qualified professionals, with specifications for the work to be undertaken advertised in early December 2016 having a closing date of 21 December 2016. There were three key components of the specifications:

- undertake a risk assessment of Council assets contained within the Daintree Ferry Precinct to determine an acceptable level of funds to be retained by Council to maintain this essential service with particular consideration given to the natural disasters that could impact on operations;
- undertake a risk assessment to determine whether the land based boom gates should be lowered after the ferry is loaded for each trip and before it disembarks from the land approach; and
- outline any additional infrastructure required for future implementation to allow the ferry operation to occur in an acceptable risk envelope.

There were six submissions received and the assessment panel engaged QSolutions Group from Townsville.

COMMENT

Representatives from QSolutions Group undertook site inspections at the ferry precinct on 13th and 14th February 2017 to obtain all relevant information and view first hand the operations of the ferry. They have approached their report on the basis that all elements that support the effective operation of ferry services are treated the same, without reliance on insurance or other claims therefore allowing Council to effect time sensitive decisions without being hampered financially.

Their full report is included as Attachment 1 and a precis of findings is as follows.

Risk Assessment – Financial Reserves

Their research has identified anecdotal evidence based on past events that in a moderate or major event the site would not be accessible for at least three (3) days. This would then be the trigger for a response and the timetable would be:

- Day 1 Event
- Day 3 Access and a 30 passenger motor vessel
- Day 9 A ten (10) vehicle motor vessel and possible repairs to the site
- Day 21 Standard motor vehicle vessel as per contract.

Based on that timetable it has been determined that the acceptable level of funds to be retained by Council to maintain this essential service would be:

- Cost to replace and/or repair Council assets in the ferry precinct - $2,800,000
- Cost to provide temporary ferry arrangements - $1,140,000

These amounts total $3,940,000 therefore QSolutions Group have recommended that Council maintains $4,000,000 in the Ferry Reserve to be safeguarded, financially, from a catastrophic event. In this regard the Daintree Ferry Revenue General Policy has been reviewed and the updated version is presented to Council for adoption.

Risk Assessment – Land Based Boom Gates

During the Coronial Inquest into the death of Julian Wlodarczyk, a commitment was given to the Coroner (at the Coroner's request) that a risk assessment would be undertaken on the land based boom gates and Council would implement any change in use/operations as deemed appropriate.

In undertaking their risk assessment, QSolutions Group considered a number of risk scenarios that may eventuate with vehicles moving beyond the current stop signs and road marking when not under control of a competent traffic controller. In each case it was concluded that the probability of a risk manifesting into an actual event was reasonably low, however the consequences to the person/s involved were likely to be significant in terms of injury.

Therefore lowering the boom gate when vehicles were not under the direction of a competent traffic controller reduced risk of serious injury to ferry users and accordingly it has been recommended that the land based boom gates be lowered after the ferry is loaded and before it disembarks from the land approach. It was further recommended that the land

based boom gates be automated so as the raising and lowering of the boom gates can be controlled from the ferry which should not cause any unnecessary delays in traffic movement.

As a result of this finding staff have included an allocation of funds in the 2017/18 Capital Works Program to progress the implementation of automated boom gates at the ferry land approaches. This will be a decision for Council in adopting the 2017/18 Annual Budget.

Additional Infrastructure

Contained within report are some recommendations for additional infrastructure and these recommendations will be considered in future budgets with the exception of the fencing for pedestrians and cable protection. As the fencing is a safety issue, any rectification works will be expedited under Council's current maintenance program.

PROPOSAL

That Council notes and endorses actions being undertaken following receipt of QSolution Group's Risk Assessment Report including the review of the Daintree Ferry Revenue General Policy which is presented for adoption.

FINANCIAL/RESOURCE IMPLICATIONS

There are financial implications in implementing recommendations from the report and this expenditure will be included in future budgets for Council's consideration.

RISK MANAGEMENT IMPLICATIONS

By implementing recommendations from this report will assist Council in mitigating risks within the ferry operations.

CORPORATE/OPERATIONAL PLAN, POLICY REFERENCE

This report has been prepared in accordance with the following:

Corporate Plan 2014-2019 Initiatives:

Theme 5 - Governance
5.1.1 - Establish and develop long term financial, resource and infrastructure planning to ensure ongoing capacity to fund operations and capital works programs.

5.2.1 - Provide Councillors and community with accurate, unbiased and factual reporting to enable accountable and transparent decision-making.

Operational Plan 2015-2016 Actions:

5.1.4 - Complete a risk assessment of the Daintree River Ferry precincts (south and north banks) including boom gate operations.

COUNCIL'S ROLE

Council can play a number of different roles in certain circumstances and it is important to be clear about which role is appropriate for a specific purpose or circumstance. The implementation of actions will be a collective effort and Council's involvement will vary from information only through to full responsibility for delivery.

The following areas outline where Council has a clear responsibility to act:

Asset-Owner	Meeting the responsibilities associated with owning or being the custodian of assets such as infrastructure.
Fully-Responsible	Funding the full cost of a program or activity

CONSULTATION

Internal:	General Manager Operations
External:	QSolutions Group engaged to perform work Ferry Contractors

ATTACHMENTS

1. RISK ASSSESSMENT REPORT - Daintree Ferry Precinct - V 2 A FINAL 10 APRIL 17 **[5.10.1]**
2. Daintree Ferry Revenue General Policy **[5.10.2]**

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RISK ASSSESSMENT REPORT

Daintree Ferry Precinct – Douglas Shire Council

TABLE OF CONTENTS

1 DOCUMENT CONTROL

Ser	Reversion No.	Date Amended	Author	Summary of Amendment	Person Approving the Amendment
1	0A	27 Feb 17	Andrew Gisinger Dawson Wilkie	Initial Framework	MD
2	0B	3 Mar 17	Andrew Gisinger Dawson Wilkie	First Draft – Peer Review – Andrew Harrod	MD
3	0C	7 Mar 17	Andrew Gisinger Dawson Wilkie	Final Review prior to DRAFT FOR COMMENT Release	MD
4	1A	9 Mar 17	Andrew Gisinger Dawson Wilkie	DRAFT FOR COMMENT release to Douglas Shire Council for review and comment	MD
5	2A	10 Apr 17	Andrew Gisinger Dawson Wilkie	FINAL REPORT	MD

2 EXECUTIVE SUMMARY

QSolutions Group where commissioned by the Douglas Shire Council to investigate the safety and operational risk associated with the contracted works of supplying a ferry service across the Daintree River. Three specific areas of interest were identified in the briefing document.

They were

- **Financial Reserve Required** - undertake a risk assessment of Council assets contained within the Daintree Ferry Precinct to determine an acceptable level of funds to be retained by Council to maintain this essential service with particular consideration given to the natural disasters that could impact on operations; and

- **Use of Land Based Boom Gates** - undertake a risk assessment to determine whether the land based boom gates should be lowered after the ferry is loaded for each trip and before it disembarks from the land approach.

- **Additional Recommended Infrastructure** - Outline any additional infrastructure required for future implementation to allow the ferry operation to occur in an acceptable risk envelope.

Following the introduction by Douglas Shire Council, QSolutions Group consultants undertook inspections of the Daintree River site on the 13th and 14th February. These inspections were to identify issues and to understand the operations and risks associated with the operation of the ferry. Along with these inspections and further investigations the following recommendations were derived.

- That the reserve established to provide an ongoing ferry service across the Daintree River in the event of a catastrophic event be maintained at $4,000,000

- In order to reduce the likelihood of unauthorised vehicles moving beyond the current STOP signs at times the vehicles are not under control of a competent traffic controller and thereby presenting unacceptable risk to the organisation's workers and others including pedestrians and the occupants of the vehicles, it is recommended that the land based boom gates be lowered after the ferry is loaded for each trip and before it disembarks from the land approach

- Due to the possible risks arising from the operation of the current boom gates consideration should be given to the installation of automated gates that can be controlled by the operator of the ferry (in conjunction with a competent traffic controller)

3 BACKGROUND

The Daintree River Ferry Provides and the supporting infrastructure provides a vital link for the residents on the Northern Side of the River to the services and facilities provided on the Southern Side of the river and is a vital part of the road network logistics supply chain into the Cape. It also supports the tourist industry which is vital to the economy in Far North Queensland.

Residents on the Northern Side of the River rely on this service to provide them access to schools, medical facilities, employment and everyday supplies that are taken for granted by those that live in cities and larger towns. This requirement places significant focus on Douglas Shire Councils capacity to provide an uninterrupted (as practical) service and having in place measures that in the event of significant flooding and/or cyclones that they have both the plans in place to re-establish the service as well as sufficient funds to achieve this.

Funding levels are required to be maintained for both Routine and ongoing maintenance and upgrades as well as a reserve to replace assets should they be destroyed by a significant event. It was clear though discussions with Council Staff that a level of differing opinions exist in regards to the required infrastructure including concerns that too much infrastructure including signage would have an effect on the uniqueness of the region.

4 INTRODUCTION

4.1 General

QSolutions Group were engaged by the Douglas Shire Council to undertake a study into the operation and recovery costs of the Daintree Ferry. The ferry operates from 6.00 to midnight daily providing access for residents and tourists alike to the northern areas of the Shire. It also provides access to the Tourist routes into the Daintree and into Cape York. Whilst there is an alternative access via Cooktown the use of the ferry provides direct access into the area. Parts of the Bloomfield Track can also be cut during the wet season.

The scope of the study is as follows

- **Financial Reserve Required** - undertake a risk assessment of Council assets contained within the Daintree Ferry Precinct to determine an acceptable level of funds to be retained by Council to maintain this essential service with particular consideration given to the natural disasters that could impact on operations; and
- **Use of Land Based Boom Gates** - undertake a risk assessment to determine whether the land based boom gates should be lowered after the ferry is loaded for each trip and before it disembarks from the land approach.
- **Additional Recommended Infrastructure** - Outline any additional infrastructure required for future implementation to allow the ferry operation to occur in an acceptable risk envelope.

4.2 Inspection Details

Two on site inspections were undertaken on the 13th and 14th February 2017. One of these inspections was undertaken with Officers of Douglas Shire Council (DSC) and interviewed the current operator of the ferry service.

The inspection considered the actions of the brief with especial emphasis on safety of both vehicular traffic and pedestrians. Whilst the inspections were undertaken during the non-peak months the loading and unloading activities are remain the same (without the build-up of vehicles queued to access the ferry on both sides of the river). Pedestrian traffic was also observed during the inspections.

5 DOUGLAS SHIRE COUNCIL RESPONSIBILITIES

Douglas Shire Council has an obligation to facilitate mechanisms for the residents of the shire to have input into the council's decision making process. Whilst it is understood that requests and opinions of Shire residents are vitally important and valid, they do not negate Douglas Shire Councils responsibility as a Person Conducting a Business or Undertaking (PCBU) under the WHS Act QLD 2011 and the WHS Regulations QLD 2011 to do all that is Reasonably Practicable in ensuring Health and Safety of workers and other persons.

5.1 Understanding the requirements of the WHS Act QLD 2011

The following provides references from the WHS Act QLD 2011 which support the following statement in regards to Douglas Shire Councils responsibility in assessing the risks and implementing control measures to ensure the health and safety of all persons utilising the Daintree River Ferry and supporting infrastructure.

> Douglas Shire Council as a **PCBU** and as **bound** by the WHS Act QLD 2011 have a **Duty of Care** to ensure that all **risks** associated with the operation of the Daintree River Ferry Service so far as **Reasonably Practicable** are either **Eliminated or Minimised**.

5.1.1 **Person conducting a business or undertaking (PCBU): a** business or an undertaking that is either conducted alone or with others, whether or not for profit or gain. A PCBU can be**:**

- a sole trader (for example a self-employed person)
- a partnership
- a company
- an unincorporated association
- a government department
- **a public authority (including a municipal council)**.

NOTE - An elected member of a municipal council acting in that capacity is not a PCBU.

5.1.2 The WHS Act QLD 2011 Part 1 Division 4 Section 10 states the following:

Act binds all persons
(1) This Act binds all persons including the State and, so far as the legislative power of the Parliament permits, the Commonwealth and the other States.
(2) The State, the Commonwealth and the other States are liable for an offence against this Act.
(3) Without limiting subsection (1), the State, the Commonwealth and the other States are liable for a contravention of a WHS civil penalty provision.

5.1.3 The WHS Act QLD 2011 Part 2 Division 1 Subdivision 2 Section 18 states the following:

What is reasonably practicable in ensuring health and safety
*In this Act, **reasonably practicable**, in relation to a duty to ensure health and safety, means that which is, or was at a particular time, reasonably able to be done in relation to ensuring health and safety, taking into account and weighing up all relevant matters including—*
(a) the likelihood of the hazard or the risk concerned occurring; and
(b) the degree of harm that might result from the hazard or the risk; and
(c) what the person concerned knows, or ought reasonably to know, about—
(i) the hazard or the risk; and

(ii) ways of eliminating or minimising the risk; and

(d) the availability and suitability of ways to eliminate or minimise the risk; and

(e) after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

5.1.4 The WHS Act QLD 2011 Part 2 Division 2 Section 19 states the following:

Primary duty of care

(1) A person conducting a business or undertaking must ensure, so far as is reasonably practicable, the health and safety of—

(a) workers engaged, or caused to be engaged by the person; and

(b) workers whose activities in carrying out work are influenced or directed by the person; while the workers are at work in the business or undertaking.

(2) A person conducting a business or undertaking must ensure, so far as is reasonably practicable, that the health and safety of other persons is not put at risk from work carried out as part of the conduct of the business or undertaking.

(3) Without limiting subsections (1) and (2), a person conducting a business or undertaking must ensure, so far as is reasonably practicable—

(a) the provision and maintenance of a work environment without risks to health and safety; and

(b) the provision and maintenance of safe plant and structures; and

(c) the provision and maintenance of safe systems of work; and

(d) the safe use, handling and storage of plant, structures and substances; and

(e) the provision of adequate facilities for the welfare at work of workers in carrying out work for the business or undertaking, including ensuring access to those facilities; and

(f) the provision of any information, training, instruction or supervision that is necessary to protect all persons from risks to their health and safety arising from work carried out as part of the conduct of the business or undertaking; and

(g) that the health of workers and the conditions at the workplace are monitored for the purpose of preventing illness or injury of workers arising from the conduct of the business or undertaking

6 FINANCIAL RESERVES

6.1 Introduction

It is clear that Council have a desire to have operational access to the north of the Daintree river as much as possible and understand that in a catastrophic event it will be required to step in. This stepping in comes at a cost and part of this brief is to determine what level of funds in a Ferry Reserve are required to ensure the desired level of service.

It was noted that even at the low period of the year the operations were busy with local residents, both in vehicles and as residents as well as tourists, indicating the importance of the link.

6.2 Flooding

The Daintree River catchment is located about 100 kilometres northwest of Cairns in far north tropical Queensland and drains an area of 2,125 square kilometres. The river rises in the Great Dividing Range, approximately 20 kilometres southwest of Daintree, the largest town within the catchment. Floods may develop quickly and with little warning from

high rainfalls on the 1000 metre high mountain ranges around the catchment and are often caused by cyclone influences in the adjacent Coral Sea.

The near record major flood of March 1996 caused widespread inundation of properties and roads throughout the lower reaches of the catchment. The rainfall recorded at Daintree Village recorded a total of 606 mm in the 24 hours to 9.00 am 6th March.

Flood Information

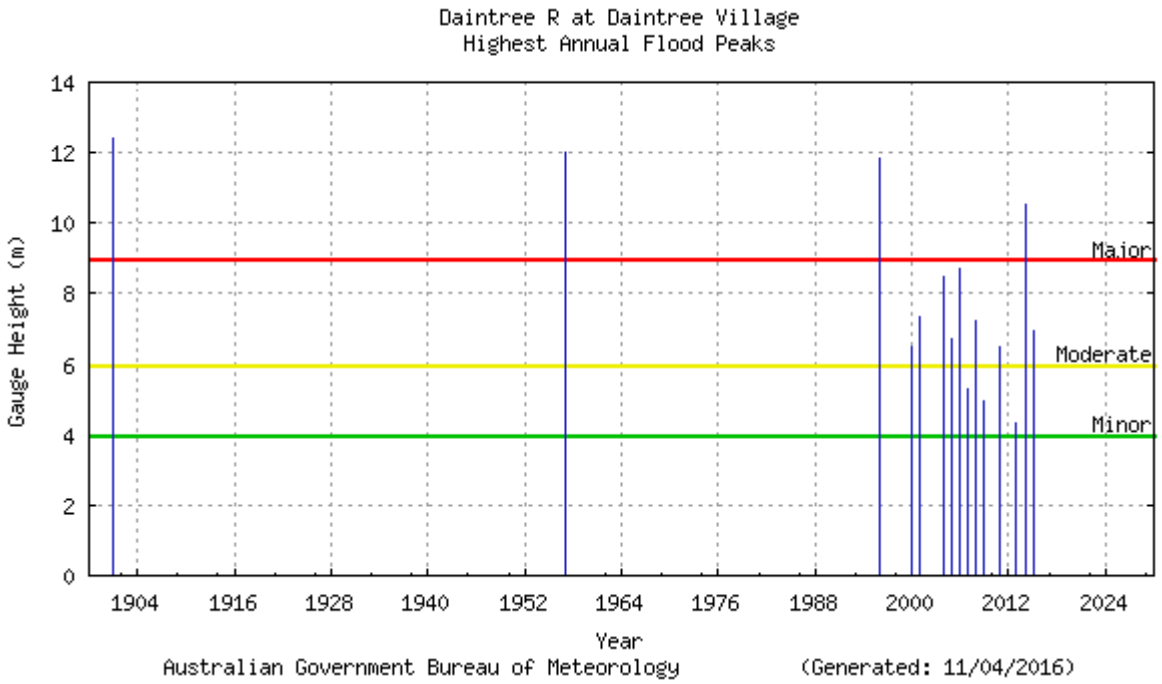
The previous data on flood levels is limited for the catchment. A long standing flood gauge at Bairds does however have data back to 1968.

This gauge indicates that there were

- 7 major events
- 6 moderate events and
- 12 minor events

In the last 50 odd years.

A newer gauge has been installed at the Daintree Village and this mimics the more recent events.

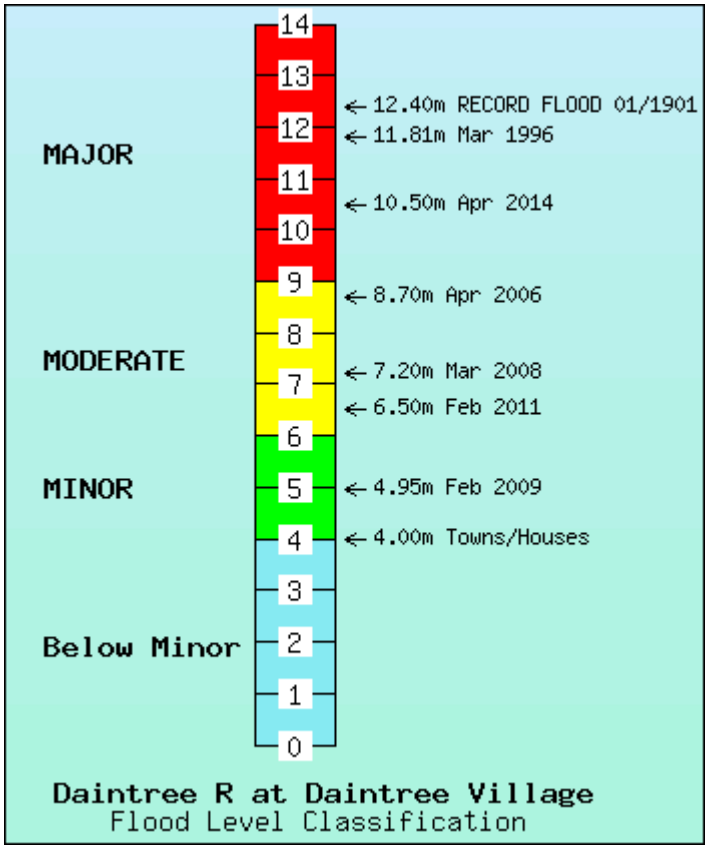


The Bureau of Metrology classifies floods into three levels in terms of potential damage.

Minor Flooding : Causes inconvenience. Low-lying areas next to watercourses are inundated. Minor roads may be closed and low-level bridges submerged. In urban areas inundation may affect some backyards and buildings below the floor level as well as bicycle and pedestrian paths. In rural areas removal of stock and equipment may be required.

Moderate Flooding : In addition to the above, the area of inundation is more substantial. Main traffic routes may be affected. Some buildings may be affected above the floor level. Evacuation of flood affected areas may be required. In rural areas removal of stock is required.

Major Flooding : In addition to the above, extensive rural areas and/or urban areas are inundated. Many buildings may be affected above the floor level. Properties and towns are likely to be isolated and major rail and traffic routes closed. Evacuation of flood affected areas may be required. Utility services may be impacted.



From the data available, the damage to the DSC infrastructure will be considered relative to these three event types. The area is low lying with the majority of infrastructure well within the minor flooding plan. Damage will relate to

- Water inundation
- Damage due to debris load on the infrastructure
- Erosion and damage to foundations
- Full inundation water and debris damage

Each asset has been assessed relative to the flood levels. Given the low level it is not unusual for lower level events to have a higher level of damage.

In order to categorise these floods, it is appropriate to stay with the three tiered system used by the Bureau of Metrology.

Minor Flooding will result in water levels just exceed the bank level, generally water flow will be a little faster than normal. Building built at ground level will be inundated and only minor damage experienced. Debris loads however will most likely remove fences and shelters etc.

Moderate Flooding will result in more damage. Water speeds will be increased resulting in erosion and scouring of road works. Building will suffer some damage and water depths will more than for minor. Lights and boom gate facilities will most likely be damaged and some damage to moorings.

Major Flooding could result in the loss of the entire mooring facilities for the ferry and possibly the ferry as well. Buildings will be completely inundated and severely damaged and may require rebuilding.

The results are shown in Annex D

6.3 Level of Service

In order to determine the service level in the event of a contingent circumstance the current contract provides some advice. Under the contract the Contractor is able to be relieved of their responsibilities in a Force Majeure clause. Force Majeure is defined as:-

Force Majeure means anything outside the reasonable control of a party, including but not limited to, acts of God, fire, storm, flood, cyclone, earthquake, explosion, accident,……

In the that event the contract details:-

18.10 Force Majeure

Subject to this clause:
(a) neither party will be liable for any delay or failure to perform its obligations under this Contract; and
(b) the performance of a party's obligations under this Contract shall be suspended;
if and to the extent that delay or failure is caused (directly or indirectly) by Force Majeure provided that the non-performing party is without fault in causing that delay or failure.
If a delay or failure by a party to perform its obligations due to Force Majeure exceeds 60 days, either party may immediately terminate this Contract by written notice to the other party.
This clause does not apply to an obligation to pay money.

This investigation would be for a Force Majeure event and consequently the responsibility for the provision of services can be clearly taken over by the Council.

The contractor has a responsibility to provide a Security against non-performance under the contract:

Lodgement of Security

Within 28 days of the Contract Commencement Date, the Contractor shall lodge with DSC's Representative a bank guarantee, at the Contractor's own expense, as security for the due and proper performance of the Contractor's obligations under this Contract.

The bank guarantee must be:

(a) from a financial institution in Australia that is acceptable to DSC;

(b) an irrevocable, unconditional and enforceable undertaking that is payable on demand to DSC; and

(c) for the amount of $100,000.

It is considered that in the event of a Force Majeure event the ability to draw on the security would be difficult. .

The summary is that Council will be required to take over the operations in the event of a Force Majeure.

6.4 Provision of Service.

The ability for Council to step in is clear what needs to be determined in when and to what level. Whilst there is no policy, existing practice or procedure the current contract puts a number of performance requirements on the Contractor during potential outages. The contract details the requirements as:

Temporary discontinuance of operations

(b) If the operation of the ferry service is discontinued for reasons other than:
(i) Inclement Weather or the condition of the water in the Daintree River; and/or
(ii) damage to DSC's ancillary equipment,
the Contractor must, at the Contractor's cost, provide an alternative ferry service as follows:
(iii) for the period of six (6) days from the date and time of such discontinuance, a motor vessel capable of carrying 30 people;
(iv) for the period from the sixth day (or such lesser period if DSC so requires) until the 18th day from the date and time of such discontinuance a ferry capable of carrying a minimum often (IO) medium size sedan cars; and
(v) thereafter a ferry capable of carrying eighteen (l 8) medium size sedan cars to the standard of the ferry service existing at the Contract Commencement Date.

It is reasonable to assume that the acceptance of the travelling public would be satisfied if a similar scenario was reached in the event of the catastrophic event and a Council take over. The anecdotal evidence from past events would suggest that in a moderate and major event the site will not be accessible for at least three days. This then would be the trigger for a response.

The time table would then be

- Day 1 Event
- Day 3 Access and a 30 passenger motor vessel
- Day 9 A 10 vehicle motor vessel and possible repairs to the site
- Day 21 1 28 vehicle motor vessel.

At any point in time there are a number of vessels that could operate available within three days steaming of the site. This would come at a cost and this cost has been incorporated into the contingency calculation.

Contingency Sum

The brief was to determine what level of contingency was required by Council to allow ferry operations to continue following flooding events.

The contingency has been built up as two parts

1. The cost to repair and or replace landside facilities. These are detailed in Annex D. The investigations into the operation have identified that because of the location both moderate and major flooding events "as defined by the Bureau of Metrology" are sufficient to provide the potential for an event that would trigger a Force Majeure event. In reality this would be the loss of the vessel or an ability to utilise the major land side facilities after a flood.

By considering the potential for damage and the cost to replace or repair these facilities then a suitable fund can be determined.

Estimated Cost $2,550,000

1. The cost to provide a temporary ferry arrangements. These are estimated in Annex E. An investigation was made into the current availability and the cost to provide an alternative arrangement in keeping with the intent of the current contract. Currently there are three vessels that would be suitable in the short available all within three days steaming of the site. Whilst the availability of vessels is a fluid state and there is no guarantee that one would be available at a particular point in time is does give a reference point for cost. An emergency such as this would allow the State Government to enact emergency powers and secure an available vessel. Estimated Cost $760,000 per month. Given the extent of repairs required and the fact that this vessel would not be as efficient as the current situation it is reasonable to assume that fees would only cover 50% of the operations and that the vessel would be required for at least three months.

Estimated cost - $ 1,140,000

Total provision Required - $3,790,000 -$4,000,000

6.5 Recommendation

That the reserve established to provide an ongoing ferry service across the Daintree River in the event of a catastrophic event be maintained at $4,000,000

6.6 Annual Maintenance

From the observations during the site inspections it is suggested that the level of maintenance could be improved. Of particular note was the fence erected to direct pedestrians and separate them from both vehicle traffic and the cables was not in good condition and was not fir for purpose. This could have been a result of a cable replacement the previous evening.

The other areas were in a suitable condition and presented well. From advice and recommendations further it is expected that further works will be undertaken on both sides of the river and as such the annual maintenance

allocation will need to be increased accordingly. With these types of infrastructure it would be reasonable to assume that an annual maintenance allocation of 4% of the replacement value be allowed.

7 RISK ANALYSIS – BOOM GATES

7.1 Risk Assessment

A formal risk assessment was undertaken to determine whether the land based boom gates should be lowered after the ferry is loaded for each trip and before it disembarks from the land approach. The completed risk assessment is at Annex C with supporting information to provide additional understanding for those not familiar with the infrastructure at Annex A Site Diagram and Annex B Issues Increasing Risk Exposure.

The risk assessment considered a number of risk scenarios that may eventuate as a result of not using the land based boom gates. The scenarios involved the movement of a vehicle beyond the current STOP signs and road marking (unbroken white line) at a time when the vehicle is not under control of a competent traffic controller. The scenario outcomes included unplanned interaction of the vehicle with persons that may include the organisation's workers or others such as pedestrians that had failed to comply with the signage associated with excluding them from that location, or an outcome that involved an occupied vehicle entering the Daintree River. These risk scenarios may arise due to, amongst other things, human error or intentional rule breaking (all of which must be considered when making decisions about how to meet compliance obligations). In each case, an analysis of the risk concluded that whilst the probability of the risk scenario manifesting into an actual event was found to be reasonably low, the consequences to the persons involved were likely to be significant in terms of injury.

Assuming the community need for this particular operation to continue and the existence of compliance obligations associated with that operation (particularly in the work health and safety context), risk treatment options limit the organisation's ability to transfer the risk (at least in whole) or avoid it.

Given the relationship between compliance obligations including doing what is *'reasonably practicable'* and implementing '*good practice'*, the risk assessment considered whether lowering the land based boom gates after the ferry is loaded for each trip and before it disembarks would be defined as part of *'good practice'* in restricting vehicular entry into the location beyond the STOP sign when a competent traffic control operator is not in attendance. A considerable amount of research determined that, whilst not always the case, boom and other types of gates are commonly and effectively utilised at similar kinds of operations to the Daintree River Ferry Crossing operation. Given:

- The risk scenarios are '***low probably*** *but* ***high consequence events***'
- What was established as ***'good practice'***
- The **absence of other risk controls other than <u>administrative controls</u>** (signage and unbroken white lines),

an evaluation determined that the Douglas Shire Council may currently be operating outside of its own appetite to accept the risk (including not be complying with its work health and safety obligations and duties of care).

Analysis of risk given the lowering of a boom gate at times when vehicles are not under control of a competent traffic controller concluded that the likelihood of one of the risk scenarios manifesting into an actual event involving serious injury was reduced. Evaluation of the residual risk levels suggested that they may be acceptable in the context of the

organisation's own risk appetite and, based on what is reasonably practicable, assist in meeting the organisation's work health and safety obligations and duties of care.

7.2 Recommendations:

- In order to reduce the likelihood of unauthorised vehicles moving beyond the current STOP signs at times the vehicles are not under control of a competent traffic controller and thereby presenting unacceptable risk to the organisation's workers and others including pedestrians and the occupants of the vehicles, it is recommended that the land based boom gates be lowered after the ferry is loaded for each trip and before it disembarks from the land approach
- Due to the possible risks arising from the operation of the current boom gates consideration should be given to the installation of automated gates that can be controlled by the operator of the ferry (in conjunction with a competent traffic controller)

(Execution of the recommendations will ensure that Douglas Shire Council are meeting their obligations in regards to the WHS Act Qld 2011)

7.2.1 In Simple Terms:

Current Controls in place to control vehicle movement between and prior to boarding ferry and when ferry is not on that particular side of the river (cars lined up waiting for ferry to arrive and then waiting to board the ferry after other cars have disembarked) are ADMINISTRATIVE CONTROLS in accordance with the Hierarchy of Control Measures specified within the Work Health and Safety Regulation 2011, Queensland, Chapter 3 Section 36.

7.2.2 Hierarchy of control measures (explanatory notes in red)

(1) This section applies if it is not reasonably practicable for a duty holder to eliminate risks to health and safety. (Douglas Shire Council CANNOT ELIMINATE THE RISKS – eg the Ferry must load and unload – Elimination would involve a different measure such as construction of a bridge)

(2) A duty holder, in minimising risks to health and safety must implement risk control measures under this section.

(3) **The duty holder must minimise risks, so far as is reasonably practicable, by doing one or more of the following**—(Duty Holder is Douglas Shire Council)

(a) substituting (wholly or partly) the hazard giving rise to the risk with something that gives rise to a lesser risk; (Not able to achieve this effectively other than a full time traffic controller located on both banks of the river for 18hrs per day)

(b) **isolating** the hazard from any person exposed to it; (installation of automated boomgates whilst in the down position will isolate the person/s in the vehicle from the hazards)

(c) **implementing engineering** controls.(an automated boom gate is an engineering control to physically stop vehicle moving past the required point without approval)

(4) If a risk then remains, the duty holder must minimise the remaining risk, so far as is reasonably practicable, by implementing administrative controls.

(5) If a risk then remains, the duty holder must minimise the remaining risk, so far as is reasonably practicable, by ensuring the provision and use of suitable personal protective equipment.

Note—A combination of the controls set out in this section may be used to minimise a risk, so far as is practicable, if a single control is not sufficient for the purpose.

8 Additional Recommended Infrastructure

Improvements

During the inspections and after inspection of the Daintree Gateway Master Plan there were a number of improvements identified. Again they can be divided in categories

8.1 Safety

The current pedestrian protection is far from adequate and in need of maintenance. The fencing separating the public from the cables were not secure and do not provide an adequate level of safety.

The current operation of the boom gate is discussed elsewhere in this report. It is considered that a secondary line of restriction be provided and this would be by way of a remote controlled boom.

The queuing facility on the North Side is non existent and needs to be replicated with something similar to what occurs on the South Side. A 300m queuing lane should be considered.

8.2 Improvement

The Master Plan shows a number of improvements that are considered worth in this report and include

- A better toilet facilities on the North Side
- Improved parking at the boat ramp
- Improved parking at the ferry itself
- Ticket booth and kiosk

9 ANNEX A – SITE DIAGRAM – SUPPORTING INFRASTRUCTURE

SITE DIAGRAM - DAINTREE RIVER FERRY SERVICE - SUPPORTING INFRASTRUCTURE

LEGEND	
1	PONTOON – TOURIST OPERATORS
2	PUBLIC BOAT RAMP
3	TOURIST OPERATOR BUILDINGS
4	TOILETS AND TOURIST INFORMATION
5	FERRY TICKET BOOTH
6	OPERATOR RESIDENCE
7	TOILET BLOCK
8	FERRY BOOMGATE (SOUTH)
9	FERRY
10	FERRY BOOMGATE (NORTH)
11	CARPARK/TURNAROUND POINT
- -	APPROXIMATE LOCATION OF CABLE
→	TRAFFIC FLOW DIRECTION

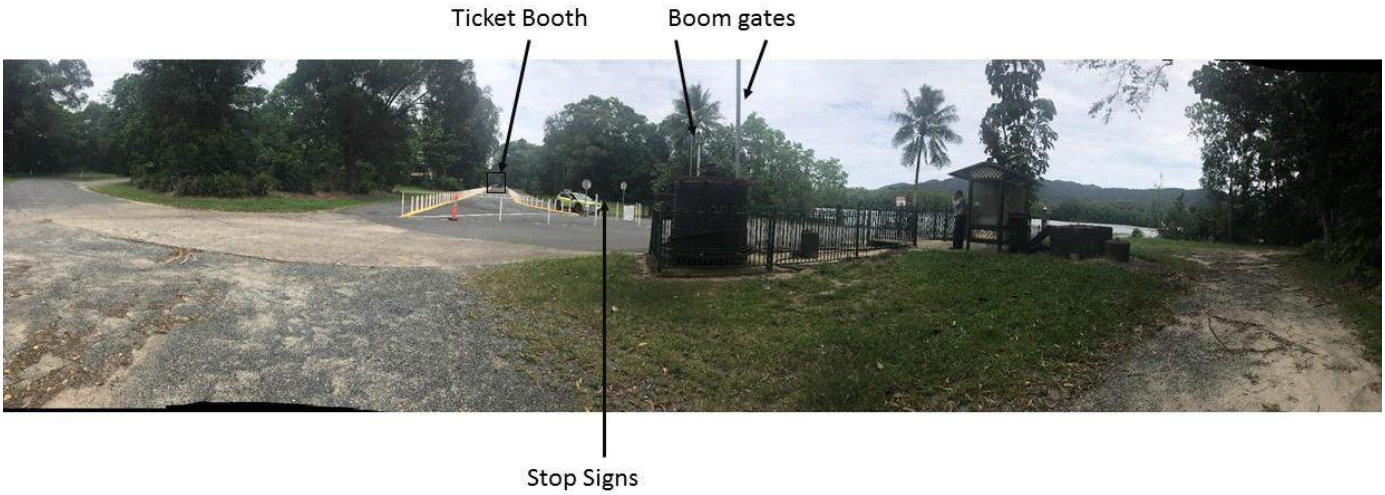
Annex B to DSC Risk Assessment Report

Daintree River Ferry dated 10 April 2017

10 ANNEX B – ISSUES INCREASING RISK EXPOSURE

The following diagrams and discussion of issues increasing risk have been developed to provide the reader (particularly those with limited knowledge of the site) with a fundamental understanding of current infrastructure safety risks in simple language that is easily understood in simple terms. A detailed risk assessment associated with the boom gate operation supporting the recommendations detailed in Section 6 Executive Summary is included at ANNEX C.

Infrastructure Southern Bank



RISK ASSSESSMENT REPORT

Daintree Ferry Precinct – Douglas Shire Council

Boom gate located on the Western Side of road on Southern Bank

Issues increasing Risk Exposure

- Pool Type fencing surrounding Boom gate and Cable Storage is a significantly poor state of repair (gaps, sharp edges, rusty)
- Fence is not effective in controlling unplanned human (passenger/tourist/other) interaction with either the Boom gate or the Cable Storage
- Uneven unkept ground within fenced area

Boom gate located on the Eastern Side of road on Southern Bank

Issues increasing Risk Exposure

- Pool Type fencing surrounding Boom gate and Cable Storage is a significantly poor state of repair (gaps, sharp edges, rusty)
- Fence is not effective in controlling unplanned human (passenger/tourist/other) interaction with either the Boom gate or the Cable Storage
- Large gaps in fence with temporary measures such as ramps across the gaps
- No Controls/Barriers preventing people walking on the roadway (as shown in picture)

Issues increasing Risk Exposure

- Stop Sign is only administrative measure there is no physical control (barrier or boom gate) to control traffic movement prior to the arrival of the Ferry
- No controls in place to stop Human and Vehicle interaction
- No Staff present in this location to ensure compliance of vehicles.

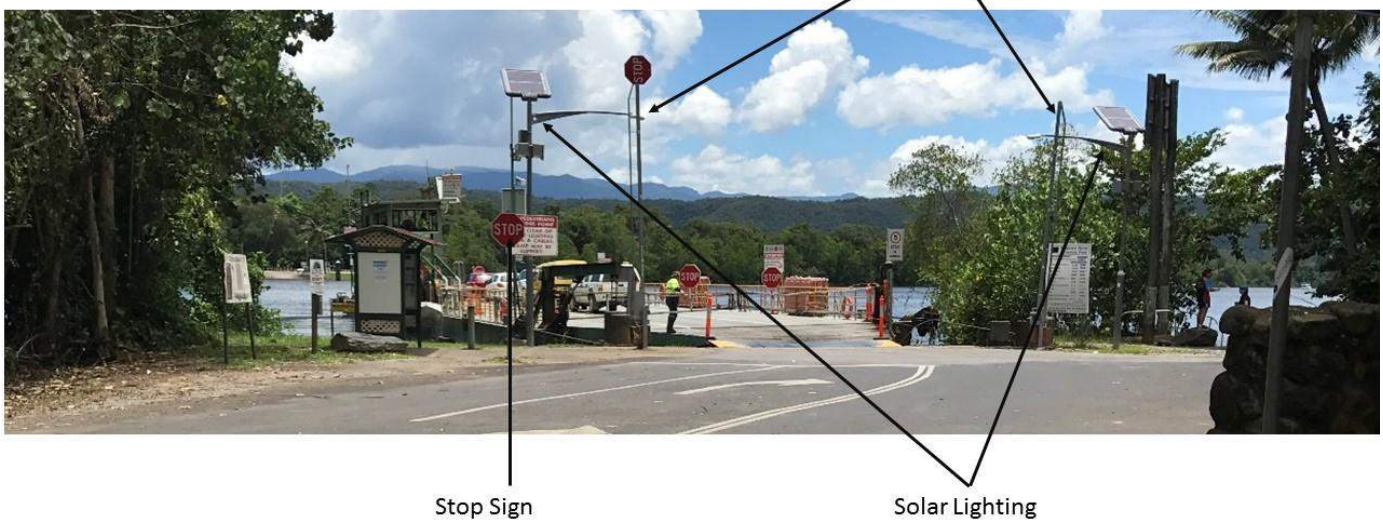
Looking from the stop sign on Southern Bank up the entry road to the ticket booth

(Design allows operator to adjust configuration in times of high demand – lane on the left hand side is a pass through lane and allows access to car parking on eastern side of southern bank)

Issues increasing Risk Exposure

- No physical footpath for pedestrians to walk alongside road

Infrastructure Northern Bank



Boom gate located on the Eastern Side of road on Northern Bank

Issues increasing Risk Exposure

- No Physical controls preventing unplanned interaction with Boom gate
- No fencing or separation of humans and vehicles
- No controls preventing human interaction with cable
- No Controls prevent humans falling into water

Boom gate located on the Western Side of road on Northern Bank

(photo taken from Ferry when unloading)

Issues increasing Risk Exposure

- No Physical controls preventing unplanned interaction with Boom gate
- No fencing or separation of humans and vehicles
- No controls preventing human interaction with cable
- No Controls prevent humans falling into water

RISK ASSSESSMENT REPORT

Daintree Ferry Precinct – Douglas Shire Council

Roadway North to Cape Tribulation taken from Northern Bank

Issues increasing Risk Exposure

- No Physical controls preventing unplanned interaction between humans and vehicles
- At times of heavy congestions there is no verge for vehicles to get off road – meaning passengers in vehicle getting out of cars during waiting period are alighting onto a road (risk increases as the waiting line gets longer and extends around corners leaving blind spots for vehicles coming from the opposite direction.

Looking South from the Northern Bank

Single Stop Sign

Issues increasing Risk Exposure

- Stop sign is the only control measure to control traffic
- Signage to the left of the stop sign is the only control for pedestrians

- No fencing or separation of humans and vehicles
- No Controls prevent humans falling into water

Annex C to DSC Risk Assessment Report

11 ANNEX C – BOOM GATE RISK ASSESSMENT

11.1 References

A. Douglas Shire Council, Enterprise Risk Management Framework and Guidelines
B. Douglas Shire Council Enterprise Risk Management Policy
C. ISO 31000:2009 – Risk Management Standard
D. How to Manage Work Health and Safety Risk Code of Practice 2011
E. Work Health and Safety Act, Queensland, 2011
F. Work Health and Safety Regulations, Queensland, 2011

11.2 Scope of Risk Assessment

The scope of this risk assessment is to determine whether the land based boom gates should be lowered after the ferry is loaded for each trip and before it disembarks from the land approach.

11.3 Addition Risks

The following have been included as a result of risk that may arise from the use of the land based boom gates in circumstances where a decision is made to utilise them during hours of ferry operation:

- Risk arising from the requirement of a person to approach the land based boom gates in order to operate them and thereby possibly interact with vehicles in motion
- Risk arising from the manual operation of the land based boom gates
- Risk arising from vehicle interaction with a lowered boom gate
- Risk arising from the boom gates being operated at a time not consistent with the requirements of the ferry operation i.e. too early, too late
- Risk arising from a boom gate lowering onto a stationary vehicle or pedestrian.

11.4 Assessment Methodology

The assessment methodology used for this assessment is in accordance with References A and conforms to the requirements of References B – F inclusive.

Reference A prescribes the use of a *Risk Assessment Matrix*. This assessment has determined the risk scenarios as *'low probability, high consequence'* events. In that regard, the use of a risk matrix may not always be suitable given residual risk levels will generally be described at the more severe end of any scale. Further comment on this is made on this matter in this assessment. Furthermore, conclusions in this assessment about risk levels arising from the use of the *Risk Assessment Matrix* should be treated with caution given the limits on quantifiable information and data to use as inputs when considering *'consequence'* and *'likelihood'*. QSolutions Group are fully conscious that readers of this assessment may disagree with the conclusions about risk levels. However, QSolutions Group are also of the view that any debate about risk levels is essentially a distraction from determining '*real action'* associated with the application of known '*good practice'* in eliminating or reducing risk to an acceptable level. This supports Reference D that implies that where '*good practice'* is known and can be applied, a full risk assessment may not be required.

In this report, '*good practice*' is a work methodology that may set a standard expected by the courts in determining compliance obligations in the health and safety context.

11.5 Risk Assessment Context

This risk assessment is undertaken in the context of:

- The organisation's compliance obligations to work health and safety of its workforce, its service providers and others such as users of its facilities
- In particular, the meaning of *'reasonably practicable'* and its nexus with applying *'good practice'* in eliminating or controlling risk
- The organisations own standards associated with risk appetite
- The fact that land based boom gates already exist in location and are lowered during the hours of 2400 to 0600 when the ferry is not in operation.
- The assumption that despite their existence, the land based boom gates are not currently used during ferry operating hours for a reason (this reason may have been lost as a result of the passage of time)
- At least one fatality has occurred at the Daintree River Service Crossing as a result of an occupied vehicle entering the Daintree River
- The risk subject to this assessment may not be wholly owned by the Douglas Shire Council, but even if shared with another entity is owned to some degree
- Pedestrians have been observed in areas beyond the STOP signs contrary to the directions promulgated on signage.

11.6 Risk Scenarios

Risk arising from a failure to lower the land based boom gates after the ferry is loaded for each trip and before it disembarks from the land approach may include:

1. A vehicle moving beyond the current STOP signs and road marking (unbroken white line) resulting in an unplanned interaction with the ferry at such time when it is not in a state of preparedness to receive a vehicle occasioning in death or injury to the vehicle occupants and or persons operating or located on the ferry, and or damage to the vehicle, ferry and its auxiliary equipment and or ferry land based infrastructure.
2. A vehicle moving beyond the current temporary STOP sign and road marking (unbroken white line) and striking a pedestrian who has not complied with the signage associated with pedestrian movement beyond the STOP sign resulting in the death or injury of the pedestrian and possible psychological trauma to the vehicle operator.
3. A vehicle moving beyond the current STOP signs and road marking (unbroken white line) and entering the Daintree River resulting in the death or injury of the vehicle's occupants.

11.7 Analysis of the Intrinsic Risk

Current risk controls are administrative only and include the use of STOP signs and road markings (unbroken white line) and other signage designed to restrict vehicles from entering certain areas associated with ferry operations at certain times i.e. when not under control of a competent traffic controller.

The risk scenarios may arise because the current STOP sign and road marking (unbroken white line) and other signage do not provide adequate control to prevent the unauthorised movement of a vehicle beyond that point. The vehicle

operator's less than adequate compliance with the STOP sign and road marking (unbroken white line) and other signage may in itself arise due to:

- Unintended error due to, for example, not being familiar with the environment, being under the influence of alcohol or drugs, not understanding what the STOP sign and road marking (unbroken white line) mean or attending to other matters such as the excitement associated with being a tourist and failing to perceive their existence. Note: the psychology associated with the unintended human error including the limitations of human perception is complex and there is no attempt to explain it in this report. However, human fallibility has been considered in determining the probability of the risk manifesting into an actual event.
- Despite supplementary signage offering warnings and instructions on what should or should not be done, complying with the STOP sign and road marking (unbroken white line) in the context of what is required in the Queensland Transport Operations (Road Use Management – Road Rules) Regulations 2009 which implies that after bringing a vehicle to a complete stop and giving way, the vehicle may proceed.
- A predisposed tendency to break rules i.e. moving beyond the STOP sign and road marking (unbroken white line) without authority. Note: the psychology of intentional rule breaking is complex and there is no attempt to explain it in this report. However, such a tendency has been considered in determining the probability of the risk manifesting into an actual event.
- The absence of a physical barrier to prevent the unauthorised movement of a vehicle beyond the STOP sign and road marking (unbroken white line).

The risk scenarios detailed in the previous Section describe a range of consequences that may result given the movement of a vehicle beyond the STOP sign and road marking (unbroken white line) at a time that is unauthorised and or unintended. It is important to note however, that consequence is often a matter of chance and a further scenario may involve a vehicle moving beyond the STOP sign and road marking (unbroken white line) without adverse consequences (near hit / miss or other defined event).

Final consequences arising from an adverse event are influenced by those actions undertaken post incident. Given the context in which the risk scenarios may manifest into an actual event, i.e. the remoteness of the location, the current limited ability to provide immediate and or sustained emergency care to an injured person and or the aptitude of individuals to enter waters in which crocodile reside to assist occupants of a vehicle that has entered the Daintree River without compounding the magnitude of the consequences associated with the event has been considered when determining the risk levels.

11.8 Risk Scenarios 1 and 2

Given risk scenarios 1 – 2 may or do involve the unplanned interaction of a vehicle with a human being, the speed of the vehicle at the time of interaction has a direct effect on the consequences for the person being struck. It is noted that the speed limit is signposted at 40 kmph up to the point where the STOP sign and road marking (unbroken white line) is located. At this point, the speed limit is signposted at 5 kmph. For the purposes of analysis and in particular determining consequence should the risk event manifest, 40 kmph has been taken as the maximum speed a vehicle would be travelling at the time of interaction with the person. For the purposes of analysis, a signpost displaying a particular speed limit (5 kmph for example) is not taken as a presumption that the operator of a vehicle complies with it (comment associated with the psychology of unintended error or intentional rule breaking has been made previously in this assessment).

To that end, the following applies given the current intrinsic risk controls:

- The most likely consequence associated with a person being struck by a vehicle travelling at between 20kmph and 40 kmph is *'CATASTROPHIC'* (fatal or significant irreversible disability)
- The most likely consequence associated with a person being struck by a vehicle travelling below 20kmph but greater than 5 kmph is *'MAJOR'* (extensive injuries)
- The most likely consequence associated with a person being struck by a vehicle travelling at 5 kmph or less is *'MODERATE'* (medical treatment)
- The likelihood of the risk scenario manifesting to the described conclusion (actual interaction of a motor vehicle with a human being in a location beyond the STOP sign and road marking) is considered '*POSSIBLE*' (may happen once every 2 – 5 years).
- The intrinsic risk level is determined to be '*HIGH'*.

Note: The consequences of a vehicle striking a human being are determined by many factors; the speed of the vehicle is just one. This assessment has used published data associated with the likelihood (in percentage terms) of particular consequences to a pedestrian being struck by a vehicle at various speeds. Other factors, such as the age of the person being struck by the vehicle or the type of vehicle involved, have not been considered given they are largely outside the control of the organisation.

11.9 Risk Scenario 3

The following applies to risk scenario 3 given the current intrinsic risk controls:

- The most likely consequence associated with an occupied vehicle entering the Daintree River is considered '*CATASTROPHIC*' (fatal)
- The likelihood of the risk scenario manifesting to the described conclusion (an occupied vehicle actually entering the water body) is considered '*POSSIBLE'* (may happen once every 2 - 5 years).
- The intrinsic risk level is determined to be '*HIGH'*.

11.10 Important Note

Whilst the likelihood of all three risk scenarios manifesting to the described conclusions (resulting in some form of undesirable consequence) is considered '*POSSIBLE'* (may happen once every 2 - 5 years), the likelihood of a vehicle moving beyond the STOP sign and road marking (unbroken white line) at a time that is not authorised by a competent traffic controller, is considered much higher; '*ALMOST CERTAIN*' (may happen within one year). Given that consequence is often a matter of chance, it may only be by *'chance'* that undesirable consequences only eventuate once in every 2 - 5 years and may not necessarily be due to *'good management'*. This type of thinking implies that, worst case, movement of a vehicle beyond the STOP sign when not authorised by a competent traffic controller will result in the death or serious disability of a person.

11.11 Evaluation of Intrinsic Risk

In accordance with Reference A, an intrinsic risk level of *'HIGH'* requires that *'existing good controls should be maintained and any additional risk actions required should be defined and implemented'*.

Assuming the community need for this particular operation to continue and the existence of compliance obligations associated with that operation (particularly in the work health and safety context), risk treatment options may limit the organisation's ability to transfer the risk (at least in whole) or avoid it.

Given the relationship between compliance obligations including doing what is *'reasonably practicable'* and implementing '*good practice'*, this assessment must consider whether lowering the land based boom gates after the ferry is loaded for each trip and before it disembark would be defined as part of *'good practice'* in restricting vehicular entry into the location beyond the STOP sign when a competent traffic control operator is not in attendance. In this regard, the land based booms gates are currently lowered (or at least are designed to be lowered) during the hours of 2400 to 0600 each night when the ferry is not operational. There is a presumption this practice is undertaken to reduce the risk associated with vehicular movement beyond the STOP sign during those hours. If the presumption is correct, the question arises as to whether the risk is any different during operational hours whilst the movement of traffic is not controlled by a competent traffic controller. If the answer is no, the risk of not using the boom gates during operational hours may be deemed unacceptable.

A considerable amount of research has determined that boom and other types of gates are used at similar types of operations to the Daintree River Ferry Crossing operation. Whilst this is not always the case, it would seem that the use of boom and other types of gates are often used in the following circumstances that may be common to the Daintree River Ferry Crossing operation:

- The volume of traffic is (if only periodically) other than a small number of *'local'* vehicles
- The vehicles are operated by persons other than persons familiar with the environment (tourist operations)
- The vehicles using the crossing are typically (although not exclusively) something other than four wheel drives
- The approach to the water is steep.

Given:

- The current intrinsic risk level is *'HIGH'*
- What is established as *'good practice'*
- The absence of other risk controls other than administrative controls,

the organisation may currently be operating outside of its own appetite to accept the risk (including not be complying with its work health and safety obligations and duties of care).

11.12 Analysis of Residual Risk

This analysis is undertaken in the context that lowering the land based boom gates after the ferry is loaded for each trip and before it disembarks is the only additional risk control implemented. In that regard, consequences associated with the adverse event will remain unchanged. Other risk controls such as an increase in the ability to offer substantial post incident care to an injured person that may reduce final consequence have not been considered.

Whilst a boom gate in the lowered position and meeting the relevant contemporary standards associated with the engineering design, manufacture and colouring may not in the strictest sense provide a physical barrier that would, in all circumstances, prevent a motor vehicle moving beyond its location, it offers something more visually apparent to the operator of a vehicle (even when they fail to perceive or understand the signage) and a deterrent from interacting with it due to the damage that interaction may cause the vehicle.

A lowered boom gate may or may not be perceived or act as a deterrent to a person under the influence of alcohol or drugs depending on the level of impairment.

The following applies:

- The likelihood of the risk scenario manifesting to the described conclusion (actual unintended interaction of a motor vehicle with a human being in a location beyond the STOP sign and road marking (unbroken white line) or an occupied vehicle entering the Daintree River is considered *'RARE'* (may occur every 10 years).
- The residual risk level for risk scenarios 1 and 2 is determined to be *'MODERATE'*.
- The residual risk level for risk scenario 3 is determined to remain as *'HIGH'*.

11.13 Evaluation of Residual Risk

In accordance with Reference A, an intrinsic risk level of *'MODERATE'* requires *'risk to be periodically monitored in conjunction with a review of existing control procedures'.* This may imply that the operation is undertaken within an acceptable risk envelope.

A residual risk level of *'HIGH'* requires that *'existing good controls should be maintained and any additional risk actions required should be defined and implemented'*. This may imply that the organisation will still operate outside of its own appetite to accept the risk but does so knowing it has done everything (within the scope of this assessment) it knows how given what is reasonably practicable to reduce risk to an acceptable level. Furthermore, and as previously noted in this assessment, the risk scenario may be described as a *'low probability but high consequence event'*. This accounts for the '*HIGH*' risk level (a consequence of using a risk matrix when assessing this type of risk) and actions taken arising from this assessment, including decisions about risk acceptability, should be made in that context.

11.14 Additional Risks

The following is a summary of assessments pertaining to risks that may arise from the use of the land based boom gates should a decision be made to utilise them:

Risk	Risk Control
Risk arising from the requirement of a person to approach the land based boom gates in order to operate them and thereby possibly interact with vehicles in motion	Use of automated boom gates that are operated from a location isolated from vehicles in motion
Risk arising from the manual operation of the land based boom gates	Use of automated boom gates
Risk arising from vehicle interaction with a lowered boom gate	Installation of traffic calming devices prior to the location of the lowered boom gate Installation of signage complying with relevant standards including colour

RISK ASSSESSMENT REPORT

Daintree Ferry Precinct – Douglas Shire Council

Risk	Risk Control
	Boom gates complying with contemporary standards of engineer design, construction and colour
Risk arising from a boom gate lowering onto a stationary vehicle or pedestrian	Installation of signage complying with relevant standards including colour Automated boom gates complying with contemporary standards of engineer design, construction and colour with sensors that limit movement in circumstances where a person interacts with the gate
Risk arising from the boom gates being operated at a time not consistent with the requirements of the ferry operation i.e. too early, too late	Use of automated boom gates controlled by the operator of the ferry

Annex D to DSC Costing

Daintree River Ferry dated 10 April 2017

12 ANNEX D – ASSET COSTS

Description	Construction Value	Replacement Value	Minor Flood Damage	Moderate Flood Damage	Major Flood Damage
4 bedroom masonry block 2 storey home	$564,768	$565,000	$50,000	$400,000	$500,000
Carport	$15,000	$15,000		$15,000	$15,000
Driveways fencing etc.	$20,000	$20,000	$1,000	$10,000	$10,000
Total	**$599,768**		**$51,000**	**$425,000**	**$525,000**
South Side Facilities					
Bus Shelter	$3,000	$3,000	$2,000	$3,000	$3,000
Protection Fence	$14,152	$14,000	$14,000	$14,000	$14,000
Lighting	$5,000	$5,000		$2,000	$5,000
Boom Gate	$2,000	$2,000		$2,000	$2,000
Cable racks	$2,000	$2,000			
Anchorage arrangements	$20,000	$20,000		$5,000	$10,000
Mooring	$363,215	$363,215	$60,000	$320,000	$363,500
Toilet Block at boat ramp	$200,000	$200,000	$5,000	$50,000	$100,000
Boat Ramp carpark	$450,000	$450,000	$5,000	$20,000	$200,000
Demolition		$10,000	$5,000	$10,000	$30,000
North Side Facilities					
Bus Shelter	$4,500	$4,500	$3,000	$4,500	$4,500
Protection Fence	$0				
Lighting	$5,000	$5,000		$3,000	$5,000
Boom Gate	$3,000	$3,000		$2,000	$3,000
Cable racks					
Anchorage arrangements	$5,000	$5,000		$2,000	$3,000
Mooring	$5,000	$5,000			$5,000
Toilet Facilities	$5,000	$5,000	$5,000	$5,000	$5,000
Demolition		$10,000	$5,000	$10,000	$10,000
Ticketing Booth	$35,000	$50,000	$5,000	$50,000	$50,000

Road	$2,224,800	$2,225,000		$200,000	$500,000
Carpark	$240,000	$240,000		$10,000	$100,000
Bollarding	$22,500	$22,500	$22,500	$22,500	$22,500
Total			**$131,500**	**$735,000**	**$1,435,500**
Total for Facility			**$182,500**	**$1,160,000**	**$1,960,500**
New Works North Side					
Protection Fences	$10,000		$7,500	$10,000	$10,000
Boom Gate Solar	$27,000		$7,000	$27,000	$27,000
Addittional Lighting	$5,000			$2,000	$5,000
Toilet Block	$100,000		$5,000	$100,000	$100,000
New Works South Side					
Improved Ticketting	$100,000		$10,000	$50,000	$100,000
Revision of road and bollards	$25,000		$500	$500	$500
Boom Gate	$25,000		$5,000	$25,000	$25,000
CCTV	$150,000				$100,000
Protection Fence replacement	$20,000		$14,000	$20,000	$20,000
Carpark and Facilities					
Carpark	$450,000		$20,000	$200,000	$200,000
Total			**$69,000**	**$434,500**	**$587,500**
TOTAL			**$251,500**	**$1,594,500**	**$2,548,000**

Annex E to DSC Ferry Costing

Daintree River Ferry dated 10 April 2017

13 ANNEX E – FERRY COSTS

Client	Douglas Shire Council							
							Date	20.2.2017
TUG	BARGE							
Norman River	SSB 1803							
	STEAMING				LOADING/DISCHARGE			
Port	Port	Days Steaming	Daily Rate	Total	Port	Days	Daily Rate	Total
	Mossman	4	$15,000	$60,000	Mossman	30	$15,000	$450,000
Mossman		4	$15,000	$60,000	Mossman	1	$15,000	$15,000
				$0				$0
Crew		8	$4,500	$36,000		31	$4,500	$139,500
				$0				$0
				$0				$0
				$0				$0
				$0				$0
				$0				$0
		16		$156,000		2		$0
								$604,500
							Total	**$760,500.00**

DOUGLAS SHIRE COUNCIL

DAINTREE FERRY REVENUE GENERAL POLICY

Intent The intent of this policy is to establish clear and precise practice regarding the contribution and application of funds for the Daintree Ferry operations.

Scope The revenue obtained from ferry operations will be used to fund operational costs and ongoing capital works associated with the provision of ferry services on the Daintree River.

PROVISIONS

Objectives

The objectives of this policy are to:

- ensure that the income generated from ferry operations is sufficient to fund whole of life cycle costs to sustain the required level of service;
- establish an internally constrained reserve to allow accumulation of sufficient funds to cover future capital works expenditure and unforeseen events.

Costs of Providing the Ferry Service

Operational, maintenance, renewal and upgrade costs are incurred to provide and sustain a ferry service to the required level of service. These include but are not limited to:

- all commitments and obligations detailed in the Ferry Services Contract;
- capital works specifically relating to the functional operation of the Daintree River Ferry Service (e.g. traffic management, construction and maintenance of flood moorings);
- repairs, maintenance and capital works (renewals and upgrades) to the western precinct, ferry approaches and queuing areas, the ticket booths, signage and access ramps on both sides of the river;
- expenditure related to progress of initiatives detailed in the Daintree Gateway Master Plan;
- repairs, maintenance and upkeep to the Caretaker's residence;
- provision of public facilities immediately adjacent to and on both sides of the river; and
- annual dredging programs (including licences, disposal of spoil) to remove sand build ups, debris and other material which could prohibit the operation of the ferry.

Whilst operational costs are relatively constant over an annual cycle, maintenance, renewal, upgrade and capital costs will generally vary on a yearly basis.

Management of the Reserve

Revenue derived from the Daintree Ferry operations that is surplus to annual operating expenditure shall be constrained for the purposes of funding whole of life costs required to sustain this essential service. The maximum level of funds constrained in this reserve will be four million dollars. At the end of each financial year the required transfers, to and from, the reserve will be made. Cash representing this reserve will be held in Council's operating bank account or authorised investments.

Related Policies and Plans

Some significant and related documents include:

- Ferry Services Contract
- Risk Assessment Report – Daintree Ferry Precinct - March 2017
- Daintree Gateway Master Plan
- Dredging Contract
- Reserves General Policy
- Council Fees and Charges

This policy is to remain in force until otherwise determined by Council.

General Manager responsible for review **Corporate Services**

ORIGINALLY ADOPTED: 15/04/2009
COMMENCEMENT DATE: 01/07/2009
REVIEW DATE: 26/04/2017
DUE FOR REVISION: 30/06/2021
REVOKED/SUPERSEDED: