5.11. OLD MOWBRAY RIVER BRIDGE REMOVAL

REPORT AUTHOR(S):	Scott Hahne, Project Engineer
GENERAL MANAGER:	Paul Hoye, General Manager Operations
DEPARTMENT:	Infrastructure Services

RECOMMENDATION

That Council resolves to:

1. **note the reasons for the immediate removal of the Mowbray River Fishing Jetty;**

2. **note that assessment of the structural condition of the piers is to be commissioned as soon as practicable; and**

3. **undertake a thorough community consultation process to determine options for the replacement of the jetty as soon as all necessary technical information is available.**

EXECUTIVE SUMMARY

Council undertakes regular formal inspections of its bridge assets. Previous inspections indicated structural issues relating to the Mowbray River Fishing Jetty in June 2015. A further formal inspection by a qualified engineer / bridge inspector on 1st February 2016 determined that the structural issues had deteriorated further and that immediate removal of the superstructure was recommended due to the potential for catastrophic failure and the risk of personal injury.

Council took interim safety measures to exclude the public from the fishing jetty until arrangements could be made to remove the superstructure which occurred on 15th and 16th February 2016.

Council is now formally advised of this action at the first available Council meeting after receipt of the expert advice.

BACKGROUND

Council undertakes regular inspections of its bridges and major culvert structures. This is done in accordance with the recognised approach within Queensland, by utilizing the Department of Transport and Main Roads Bridge Inspection Manual - Second Edition - June 2004.

As this is a specialist area of engineering and Council does not currently have the expertise or resources on staff to complete inspections in accordance with the Manual, engineering consultants have been engaged to undertake inspections and reporting.

A consultant provided a report into the condition rating of the Mowbray River Fishing Jetty in June 2015 which it was assessed as “Fair”. It was noted in this report that in particular, one girder had cracked and the crack was “considerable in nature”.

In accordance with Council's adopted 2015-2016 Operational Plan, the Infrastructure Services Branch implemented Council's direction to undertake a Level 2 visual condition rating of the Douglas Shire Council Bridge network (reference IS1).

Council had installed barriers and signage at the Fishing Jetty prior to the June 2015 report however members of the public continued to ignore the warnings and continued to fish from the jetty, exposing themselves and consequently Council, to the risk or injury and public liability.

A specialist engineering consultant was engaged to undertake a Level 2 assessment of the entire Shires bridge and major culverts and this included the Fishing Jetty. Inspections took place in conjunction with Council Officers to provide field crews with an exact understanding of maintenance issues and/ or locations.

It was determined in this latest inspection that the Mowbray River fishing jetty was in very poor condition and that the cracked girder had fallen into the river. Additionally, the remaining girders were in the worst state possible.

The draft expert report (refer attachment) noted that “The structure should be closed immediately to all pedestrian traffic due to the possibility of catastrophic failure and the potential for personal injury”. In addition it notes that “The superstructure should be removed so that it cannot fall onto members of the public.”

As Council had already undertaken measures to close the fishing jetty to pedestrians some 6+ months earlier with little success, it was determined that elimination of the hazard (unsafe superstructure) was the only option available. In fact previous safety measures such as barriers and handrails had been interfered with by the public and were not effective.

Additional barricades were installed to restrict access whilst arrangements for the superstructure removal were made. Removal of the superstructure was undertaken on 15th and 16th February 2016.

Authority to remove the superstructure

Council’s power under section 60 of the Local Government Act 2009 to, amongst other matters, construct, maintain and improve roads (which term, via section 59, includes bridges) has been legally and formally delegated to the CEO. There can be no doubt that, as a consequence of this delegation, the CEO has the power to direct that certain work be done to the bridge to render it safe from, as stated in the engineer’s report, "the possibility of catastrophic failure and the potential for personal injury".

Whilst on most occasions a CEO should use his or her best endeavours to keep all councillors informed of any Council activity that might be the source of particular public interest, there can be circumstances, such as this Mowbray Bridge fishing jetty decision, where the overriding imperative must be to take immediate action to ensure that a source of real and immediate danger to the community is rendered safe, without delay.

Once in possession of the information that the condition of the bridge had deteriorated to the point of possible catastrophic failure, Council had an immediate duty to act on that information. In the event there was a fatality or injury and Council had failed to act, the consequences for both Council and the community would be significant. Risk management and the protection of the safety of the community is the first priority.

Investigation of the substructure

At this time the condition of the substructure (piles and piers) has not yet been fully assessed. Again a qualified engineer/bridge inspector will be appointed to undertake this work. Once the condition of the substructure is known (including the condition below the waterline) and an estimate of repair costs can be made, a report will be brought to Council. Initially this will indicate whether the substructure can in fact be re-used.

Community consultation

It is well recognised that this popular fishing and viewing spot is loved by the community, and now that the safety issues have been substantially addressed, and at the direction of Council, officers can plan to comprehensively consult the community with regard to desirable options for replacement, redesign or alternative locations for this facility. To assist Council and the community in these discussions, some broad options and costs need to be available. This report proposes the establishment of community consultation as soon as practicable.

Opportunities for reinstatement will be considered in conjunction with the expectations of the community. This will include fishing amenity, picnic facilities, lighting, parking, traffic management, tourism opportunities, costs and overall suitability of the location.

Shire-wide bridge inspections and timing

The final Level 2 bridge inspection report is expected in the coming weeks and indications are that some Level 3 inspections (testing) will need to be undertaken at some locations.

This will require a qualified engineer/bridge inspector to complete the various level 3 tests and include the fishing platform.

The most sensible option will be to properly assess the Shire-wide bridges report and then engage the consultant to undertake a specific scope of works. The expected timing to undertake the Level 3 inspections is early April.

FINANCIAL/RESOURCE IMPLICATIONS

Costs are still being compiled for the removal of the superstructure works, but it is expected to be less than $10,000. Costs for the assessment of the substructure have not yet been determined. Future capital costs will depend on a number of factors: options preferred by the community for the fishing jetty and other priority bridge works as a result of the Level 2 inspections. It will be up to the new Council to provide direction.

RISK MANAGEMENT IMPLICATIONS

The risk management implications were severe including potential for personal injury and/or fatality and significant costs/legal liability if an incident had occurred.

SUSTAINABILITY IMPLICATIONS

Economic: Nil

Environmental: Nil

Social: The Fishing Jetty provides a free opportunity for river fishing and viewing whilst removing the public from the dangers of crocodiles. Opportunities for reinstatement will be considered in conjunction with the expectations of the community. This will include fishing amenity, picnic facilities, lighting, parking, traffic management, tourism opportunities, costs and overall suitability of the location.

CORPORATE/OPERATIONAL PLAN, POLICY REFERENCE

This report has been prepared in accordance with the following:

Corporate Plan 2014-2019 Initiatives:

Theme 5 - Governance

5.1.2 - Implement a robust enterprise risk management culture to identify and manage potential risks.

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

5.3.4 - Develop practices and skill levels to ensure safety and wellbeing in the workplace.

Operational Plan 2015-2016 Actions:

IS1 - Level 2 visual condition rating of Douglas Shire Council Bridge network
a. Last comprehensive Level 3 inspection done on Douglas Shire Bridges May 2007
b. Contract level 2 structural inspection on bridges with strategies and actions.
c. Improve and update bridge asset management register
d. Implement a 5 and 10 year bridge maintenance and replacement strategy.

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.

OPERATIONAL CONSULTATION

Internal: Civil Works Coordinator;
Project Engineer;
Acting Manager Infrastructure;
General Manager Operations;
Chief Executive Officer;

External: Notification of public via website, media release and social media.

ATTACHMENTS

Attachment 1 - DRAFT- Level Two Structure Inspection Report (part) – Mowbray River Fishing Jetty

Level Two Structure Inspection Report

B2/1

Structure ID:	188013	Bridge Name:	Mowbray River Fishing Jetty - 2 Span ti
Crossing:	Mowbray River	Road Number:	
Structure Type:	Jetty	Road Name:	Captain Cook Highway
Construction Type:	Girder	Owner:	Douglas Shire Council
Construction Material:	Timber	District:	Mowbray
Inspector:	Mark de Hayr	Local Authority:	DSC
Latitude:	-16.552986	Longitude:	145.481806
Inspection Date:	1/02/2016	Max Height (M)	3
Next Inspection Date:	1/02/2017	Width (M)	5.8
Total Length (M)	16.8	Bearing - AP1-AP2	West
Carriageway		Load Limit	
Footway		Status	Decommissioned
Chainage (Km)		From	To

Inspection Level 2 ☑ Level 3 ☐ Programmed ☑ Exceptional ☐ Underwater ☐

Inspection Comments:

The Structure is the remnants of the original State Highway Bridge over the Mowbray River on the Captain Cook Highway at Mowbray. Approach One is deemed to be the Eastern side. Information provided to the inspection team advised that the State handed the bridge structure over to the Douglas Shire Council at some point in the distant past. The structure was closed to vehicular traffic and the western most superstructure sections were removed. The Structure has since been utilised as a local fishing jetty. The structure is currently comprised of a timber deck and girders in Spans One and Two. Abutment One and the Piers are cast in situ Pier Walls. The age of the structure is not known, however the construction style is consistent with DTMR practices of pre 1960.

Overall Condition State

ModificationName	CS 1	CS 2	CS 3	CS 4	Comments
Original	☐	☐	☐	☑	Structure is in Poor Condition

Defect Comments:

The Structure is in overall very poor condition. At the time of the inspection the structure was fenced off to restrict access. The deck was in very poor condition with some sections having collapsed into the river. The remainder of the deck shows signs of extreme rot and decay. There are Five Girders in each span. Four of the girders in Span One are in condition state Four due to extreme rot and decay. In Span Two, Girder Two has collapsed into the river and the remaining girders are in Condition State Four. Pier One and Two are comprised of cast in-situ Concrete Pier Walls. The Pier Walls have extensive spalling and sections of exposed reinforcement. The exposed reinforcement is severely corroded.

Recommendations: The structure should be closed immediately to all pedestrian traffic due to the possibility of catastrophic failure and the potential for personal injury. The superstructure should be removed so that it cannot fall onto members of the public. A Level Three inspection of this structure should be undertaken to determine if rectification of this structure is possible and/or cost effective.

Suggestions: Due to the degradation of the superstructure components (Deck Planks and Timber Girders) and the state of the Substructure Components (Pier Walls etc.). Rehabilitation of the structure in its current form would not be considered a cost effective option. If a Level Three investigation of the Substructure Components determined that they could be repaired in a cost effective manner. Then the option for replacing the existing superstructure with a alternative light weight construction may be possible.

Inventory Report

B2/2

Modification	Group	Component	Standard Number	Exposure Class	Quantity	Unit	CS 1	CS 2	CS 3	CS 4	Mtce Required	Comments
O	AP1	AP	70O	4	1	Each	0	1	0	0	☐	Bitumen Wearing Surface in Approach is in Fair Condition. Approach also consists of concrete bollards to restrict vehicular access and a pedestrian barrier across the front of the jetty to restrict Pedestrian Access [See Photo] - DSCN4193.JPG
O	A1	H	54T	4	1	Each	0	0	0	1	☐	Timber Headstock is in very poor condition with severe splitting and surface rot.
O	A1	PRO	53O	4	50	m2	0	50	0	0	☐	Concrete Grouted Rock Batter Protection is in Fair Condition.
O	A1	A	50C	4	1	Each	0	0	0	0	☐	Cast in Situ Abutment is buried and not able to be inspected [See Photo] - DSCN4201.JPG
O	S1	D	29T	4	49	m2	0	0	30	19	☐	100mm x 200mm hardwood deck planks are in poor condition with severe splitting and rotting [See Photo] - DSCN4194.JPG
O	S1	BR	2S	4	16.8	Lin m	0	13.8	3	0	☐	Steel Tube Post with Two Rail Pedestrian Barrier is in Fair Condition. The first section on the RHS has been removed allowing free access onto the structure past the barrier across the front of the structure. This type of barrier is ineffective over water as it does not restrict small children or infants. [See Photo] - DSCN4198.JPG
O	S1	G	22T	4	5	Each	0	0	1	4	☐	Locally sourced round timber girders. Girders 1,3,4&5 are in CS4 due to extreme surface rot and loss of section. Girder 2 has been classified as CS3. [See Photo] - DSCN4202.JPG
O	P1	PW	58C	4	25	m2	0	0	0	25	☐	Cast in Situ Pier Walls are in Poor condition. There are numerus patches of severe spalling and exposed sections of reinforcement. The exposed reinforcement has severe sections of scaly rust and corrosion and complete loss of section in some instances. It is not known if there are Piles in addition beneath the pier wall. [See Photo] - DSCN4197.JPG, DSCN4203.JPG, DSCN4204.JPG, DSCN4205.JPG
O	S2	D	29T	4	49	m2	0	0	20	29	☐	100mm x 200mm hardwood deck planks are in poor condition with severe splitting and rotting Some planks have already fallen into the river and the deck is currently unsafe for pedestrian traffic. [See Photo] - DSCN4195.JPG
O	S2	BR	2S	4	22.6	Lin m	0	22.6		0	☐	Steel Tube Post with Two Rail Pedestrian Barrier is in Fair Condition. This type of barrier is ineffective over water as it does not restrict small children or infants.

O	S2	G	22T	4	5	Each	0	0	1	4	☐	Locally sourced round timber girders. Girders 1,3,4&5 are in CS4 due to extreme surface rot and loss of section. Girder 2 has been classified as CS3.
O	P2	PW	58C	4	25	m2	0	0	0	25	☐	Cast in Situ Pier Walls are in Poor condition. There are numerus patches of severe spalling and exposed sections of reinforcement. The exposed reinforcement has severe sections of scaly rust and corrosion and complete loss of section in some instances. It is not known if there are Piles in addition beneath the pier wall. [See Photo] - DSCN4196.JPG, DSCN4206.JPG

Defective Components Report

B2/3

Modification	Group	Component	Standard Number	Exposure Class	Condition State 3	Condition State 4	Defect Description	Monitor	Level 3 Inspection	Other
O	A1	H	54T	4	0	1	L3 Inspection of Cost Benefit Analysis required	☐	☑	☐
O	S1	D	29T	4	30	19	L3 Inspection of Cost Benefit Analysis required	☐	☑	☐
O	S1	BR	2S	4	3	0	Replace missing fence section	☐	☐	☑
O	S1	G	22T	4	1	4	L3 Inspection of Cost Benefit Analysis required	☐	☑	☐
O	P1	PW	58C	4	0	25	L3 Inspection of Cost Benefit Analysis required	☐	☑	☐
O	S2	D	29T	4	20	29	L3 Inspection of Cost Benefit Analysis required	☐	☑	☐
O	S2	G	22T	4	1	4	L3 Inspection of Cost Benefit Analysis required	☐	☑	☐
O	P2	PW	58C	4	0	25	L3 Inspection of Cost Benefit Analysis required	☐	☑	☐

Standard Procedure Exceptions Report

B2/4

Modification	Group	Component	Standard Number	Exposure Class	Undefined Component	Component Not Inspected	Less than 25% Comp Inspected	Other	Comments *Description *Photographic reference *Reason component not inspected *Any other exceptions
O	A1	A	50C	4	☐	☐	☐	☐	Element is Buried and not able to be inspected.

Photographs and Sketches Record List

B2/6

Reference	Modification	Group	Component	Description *Deck Surface (full width and alignment) *Side View (waterway, spans, piers, etc) *Underside (deck and pier construction) *Deficient Component and Major Defects *Undefined Elements
DSCN4193.JP	O	AP1	AP	Approach one
DSCN4201.JP	O	A1	A	Abutment One
DSCN4194.JP	O	S1	D	Detail of hole in deck in span One
DSCN4198.JP	O	S1	BR	RHS View
DSCN4202.JP	O	S1	G	Detail of severe rot in Span One Girders
DSCN4205.JP	O	P1	PW	Detail of Severe Spalling and exposed reinforcement in Pier One Face One
DSCN4204.JP	O	P1	PW	Detail of Severe Spalling and exposed reinforcement in Pier One Face One
DSCN4203.JP	O	P1	PW	Pier One Face One
DSCN4197.JP	O	P1	PW	Detail of Severe Spalling and exposed reinforcement in Pier One face Two RHS
DSCN4195.JP	O	S2	D	General View of Deck from Approach one
DSCN4206.JP	O	P2	PW	Detail of Severe Spalling and exposed reinforcement in Pier Two Face One
DSCN4196.JP	O	P2	PW	Detail of Severe Spalling and exposed reinforcement in Pier Two

Photographs and Sketches Record

B2/6

Modification:	Group:	Standard Number:	Component:
O	AP1	70O	AP
ID: DSCN4193.JPG		Inspection Date	1/02/2016

Description:

Approach one

Reference:	Sketch:

Modification:	Group:	Standard Number:	Component:
O	A1	50C	A
ID: DSCN4201.JPG		Inspection Date	1/02/2016

Description:

Abutment One

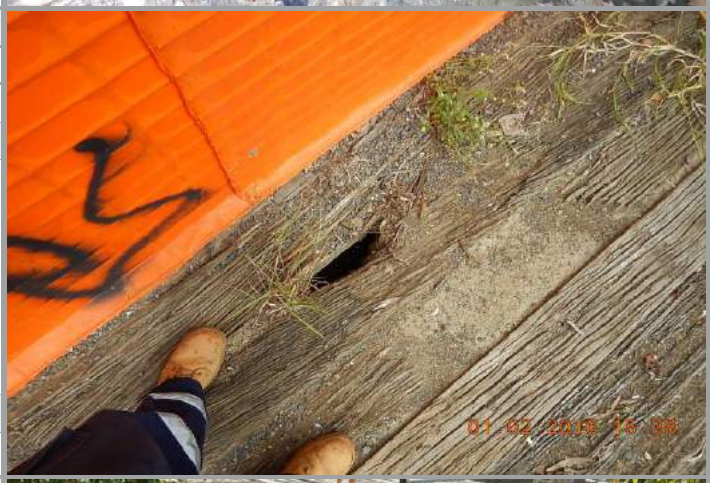
Reference:	Sketch:

Modification:	Group:	Standard Number:	Component:
O	S1	29T	D
ID: DSCN4194.JPG		Inspection Date	1/02/2016

Description:

Detail of hole in deck in span One

Reference:	Sketch:



Modification:	Group:	Standard Number:	Component:
O	S1	2S	BR
ID: DSCN4198.JPG		Inspection Date	1/02/2016

Description:

RHS View

Reference:	Sketch:

Modification:	Group:	Standard Number:	Component:
O	S1	22T	G
ID: DSCN4202.JPG		Inspection Date	1/02/2016
Description:			
Detail of severe rot in Span One Girders			
Reference:		Sketch:	

Modification:	Group:	Standard Number:	Component:
O	P1	58C	PW
ID: DSCN4205.JPG		Inspection Date	1/02/2016
Description:			
Detail of Severe Spalling and exposed reinforcement in Pier One Face One			
Reference:		Sketch:	

Modification:	Group:	Standard Number:	Component:
O	P1	58C	PW
ID: DSCN4204.JPG		Inspection Date	1/02/2016
Description:			
Detail of Severe Spalling and exposed reinforcement in Pier One Face One			
Reference:		Sketch:	

Modification:	Group:	Standard Number:	Component:
O	P1	58C	PW
ID: DSCN4203.JPG		Inspection Date	1/02/2016
Description:			
Pier One Face One			
Reference:		Sketch:	

Modification:	Group:	Standard Number:	Component:
O	P1	58C	PW
ID: DSCN4197.JPG		Inspection Date	1/02/2016

Description:

Detail of Severe Spalling and exposed reinforcement in Pier One face Two RHS

Reference:	Sketch:

Modification:	Group:	Standard Number:	Component:
O	S2	29T	D
ID: DSCN4195.JPG		Inspection Date	1/02/2016

Description:

General View of Deck from Approach one

Reference:	Sketch:

Modification:	Group:	Standard Number:	Component:
O	P2	58C	PW
ID: DSCN4206.JPG		Inspection Date	1/02/2016

Description:

Detail of Severe Spalling and exposed reinforcement in Pier Two Face One

Reference:	Sketch:

Modification:	Group:	Standard Number:	Component:
O	P2	58C	PW
ID: DSCN4196.JPG		Inspection Date	1/02/2016

Description:

Detail of Severe Spalling and exposed reinforcement in Pier Two

Reference:	Sketch: