

TO: Council

MEETING DATE: 18 December 2023

TITLE: Amberley Ave Culvert Replacement

PRESENTED BY: Stuart Cartwright, Chief Engineer, Bryce Hosking, Acting Group Manager Transport & Development

APPROVED BY: Chris Dyhrberg, Chief Infrastructure Officer

It is recommended that this report be considered with the public excluded, as permitted by the Local Government Official Information and Meetings Act 1987 under clause:

s7(2)(i) NEGOTIATIONS: This information needs to be kept confidential to ensure that Council can negotiate effectively, especially in business dealings

RECOMMENDATION FOR PUBLIC RELEASE

The report can be released following the execution of the contract.

RECOMMENDATION(S) TO COUNCIL

1. That Council agree the creation of an additional capital new programme “Amberley Avenue Bridge” in the Roading Activity – Roads Sub-Activity.
2. That Council agree Option 3 to construct a 12m single span bridge on Amberley Avenue.
3. That Council agree \$2,475,000 of capital expenditure in the 2023/24 financial year, to be funded by debt.
4. That Council note commitment to the addition of \$1,125,000 to the new Amberley Avenue Bridge programme in the 2024-34 Long Term Plan to be funded by debt.
5. That Council note Officers are investigating co-funding options with NZTA. If successful, this co-funding will subsidise the works and decrease the level of debt funding required.
6. That Council agree an increase to the operating budget for the Roading Activity – Roads Sub-activity of \$100,000 to fund cost pressures resulting from the bridge/culvert investigation work.
7. That Council agree a sole source procurement process for the engagement of Emmetts Civil Construction Limited as the contractor to deliver the design and construction of the bridge in a timely manner.

8. That Council award Emmetts Civil Construction a design & build contract up to \$2,750,000 excl. GST and give the Chief Executive the delegated authority to enter the contract.
9. That Council give the Chief Executive the delegated authority to vary the contract sum by the maximum amount of 30% of the GST exclusive contract sum (up to \$825,000) within the contingency provisions included in the programme budget if required for the successful delivery of the contract.
10. That the report be released to the public, upon signing of the contract.

SUMMARY OF OPTIONS ANALYSIS FOR

<p>Problem or Opportunity</p>	<p>As part of the programmed bridge remedial works, Council has undertaken a detailed assessment of the multiplate bridge culvert on the Kawau stormwater stream that runs under Amberley Avenue.</p> <p>This detail assessment has identified that there are structural deficiencies with the culvert, and it is showing signs of partial collapse.</p> <p>Immediate action has been taken to minimise the risk of collapse of the culvert by installing traffic management and advising the heavy haulage association of weight restrictions on this section of Amberley Avenue.</p> <p>Initial investigation into the solution indicates that a new bridge, would be the most cost effective and less risky option rather than a replacement culvert. High level costings indicate a new bridge would be in the order of \$3.6M.</p> <p>Council has had a discussion with NZTA regarding additional co-funding to address the works under their emergency funding criteria. However, at the time of this report, this had not been confirmed, so it is not guaranteed that either all or part of the funding requested would be approved for subsidy. This is due to there being no prior Long-Term Plan (LTP) engagement of funding requests for emergency or bridge replacement funding application within the current LTP.</p> <p>It is proposed to engage Emmetts Civil Construction, who are bridge construction specialists, on a design and build contract to deliver the bridge.</p> <p>This report outlines the options for replacement and makes recommendations with regards funding and contractor engagement to resolve this issue.</p>
<p>Community Views</p>	<ul style="list-style-type: none"> • Amberley Avenue is a popular linking route through to Pioneer Highway and Tremaine Avenue and is used by

	<p>both the residents in the area as well as haulage and commercial vehicles. As access across this bridge will be heavily restricted until the works are completed, this will be very disruptive and likely to be viewed negatively by the community.</p> <ul style="list-style-type: none"> • Heavy vehicles and haulage companies will not be able to cross the bridge at all until the issues are resolved. This will be considered very disruptive to their operations. • As this is a reduction in the level of service of Amberley Avenue until construction works are complete, the public will expect Council to get the bridge operational again as soon as possible.
OPTION 1:	Undertake design only within 2023/24 with construction of the replacement bridge being undertaken in 2024/25
Benefits	<ul style="list-style-type: none"> • No immediate increase in budget will be required in 2023/24 as the existing project budget in Programme 1805 will be used to progress designs for the solution. Budget for construction can then be provisioned for in the 2024-34 Long-Term Plan. • Provides time to determine accurate pricing for the construction of the project to ensure the budget in the LTP is well scoped and priced. • Limited access will continue over the existing bridge through traffic management restrictions.
Risks	<ul style="list-style-type: none"> • There is an increased risk of the culvert collapsing and failing further, which may create a safety risk and, if realised, will result in the closing of the bridge entirely. This risk has only somewhat been mitigated through the traffic management and closing the bridge to heavy vehicles. • Redirection of traffic onto other routes places an increased load on those roads, which may result in accelerated and early road pavement asset failures. This risk cannot be mitigated and the likelihood of it being realised increases the longer the bridge is restricted or closed. • Council may be criticised for not remedying the issue in a timely manner. This reputational risk can be mitigated somewhat through continued public communications and updates. • If a storm event occurs prior to the works being completed this may result in failure of the culvert and bridge causing a safety risk, and a Regional Council requirement to remove the bridge culvert from the water.

	This cannot be mitigated.
Financial	<ul style="list-style-type: none"> • No additional funding would be required in 2023/24 as the design of the project can be accommodated within existing budgets. • \$3.6M would need to be included in the proposed Programme 2453 (City-wide – Transport – Bridge Replacements) in Year 1 of the 2024-34 LTP. This would likely be 51% funded from NZTA. • There will be an ongoing operational cost for traffic management. Currently this is estimated to be in the order of \$2,400 per week. Additional funding will be required in 2023/24 in the operating budget for the Rooding Activity – Roads Sub-activity of circa \$100K to fund cost pressures resulting from this.
OPTION 2:	Replace the failed culvert with a new 4x4m concrete box culvert, commencing as soon as practically possible.
Benefits	<ul style="list-style-type: none"> • Will ensure that long-term there is continued access along Amberley Avenue. • This option resets the asset life of the culvert. A concrete box culvert solution is considered a long-term and durable solution for the bridge. • There is potential for additional, unbudgeted NZTA co-funding for the works. This has been applied for as soon as the issue was identified. • The replacement works can commence as soon as practicably possible, estimated to be 5 months for box unit construction, as a contractor would be able to be engaged in a timely manner.
Risks	<ul style="list-style-type: none"> • If a storm event occurs prior to the works being completed, this may result in failure of the culvert and bridge, causing a safety risk and a Regional Council requirement to remove the bridge culvert from the waterway. This cannot be mitigated. • If a storm event occurs during construction, as a likely winter period for construction, there is a risk of a wash out of the site, requiring rework and additional time and cost to complete the works. This is mitigated through the 35% project contingency. • Cost estimate has been undertaken at the concept phase of the design process. Until site investigation, design and contract negotiations are complete, there is a risk the project cost may increase. This option is also

	<p>considered riskier as the construction will be exposed to weather events. This has been mitigated through a 35% contingency and proposing a resolution which allows for a contract to be entered up to a maximum value. These mitigations also assist with ensuring the project can be commenced as soon as practicably possible.</p> <ul style="list-style-type: none"> • The culvert option would require a resource consent as the works would be in the waterway. This creates a risk of increased lead-in time before the works can commence. • This option brings several complexities around having to dam the waterflow whilst the culvert is being installed. • This work could be delayed and be undertaken in the summer construction period. There is a risk of total road closure over the winter months due to high waterflows and the structure being assessed as too risky to be trafficable. • Contractor availability may be a risk, which would mean the culvert replacement may be delayed to November 2024 regardless, if the construction window is missed prior to the winter in 2024. There is also a risk around materials being available. Both these risks can be mitigated through early engagement with contractors and consultants.
Financial	<ul style="list-style-type: none"> • The estimated total project cost to for the 4x4m culvert option, based on concept designs, is \$3.51M • A project contingency of 35% is required due to working in the stream bed and being more exposed to weather events. • There is potential for 51% co-funding to be received from NZTA for the project. This co-funding has been applied for in principle and with urgency, however, at the time of writing this report this had not be approved. • There will be an ongoing operational cost for traffic management. Currently this is estimated to be in the order of \$2,400 per week. Additional funding will be required in 2023/24 in the operating budget for the Roding Activity – Roads Sub-activity of circa \$100K to fund cost pressures resulting from this.
OPTION 3: (Preferred Option)	Replace the culvert with a new 12m single span bridge, commencing as soon as practicably possible.
Benefits	<ul style="list-style-type: none"> • Will ensure that long-term there is continued access along Amberley Avenue. • This option resets the asset life of the bridge. A new bridge

	<p>is considered a long-term and durable solution.</p> <ul style="list-style-type: none"> • There is potential for additional, unbudgeted NZTA co-funding for the works. This was applied for as soon as the issue was identified. • The replacement works can commence as soon as practicably possible, as a contractor would be able to be engaged in a timely manner. Will ensure that there is continued access along Amberley Avenue. • As the bridge will not be directly working in the Kawau stormwater stream, no resource consent will be required other than the removal of the existing structure. • The bridge replacement can be commenced once a contractor is secured as it does not need to be undertaken in the summer construction period. • If a storm event occurs during construction, there is no risk as the bridge culvert would have been previously removed, and the storm event would not affect the bridge construction scope.
Risks	<ul style="list-style-type: none"> • If a storm event occurs prior to the works being completed, this may result in further failure of the culvert and bridge causing a safety risk, and a Regional Council requirement to remove the bridge culvert from the waterway. This cannot be mitigated. • Cost estimate has been undertaken at the concept phase of the design process. Until site investigation, design and contract negotiations are complete, there is a risk the project cost may increase. This has been mitigated through the 30% contingency and proposing a resolution which allows for a contract to be entered up to a maximum value. These mitigations also assist with ensuring the project can be commenced as soon as practicably possible. • The bridge option will only require a resource consent for the removal of the failed bridge culvert. This creates a risk of increased lead-in time before the works can commence. • There is a risk of contractor and materials availability. This is can be mitigated through early engagement with contractors and consultants.
Financial	<ul style="list-style-type: none"> • The estimated total project cost to for the 12m-span bridge option, based on concept designs, is \$3.6M. • A project contingency of 30% is required due to working in the stream bed when removing the pre-existing

	<p>structure and being more exposed to weather events.</p> <ul style="list-style-type: none"> • There is potential for 51% co-funding to be received from NZTA for the project. This co-funding has been applied for in principle and with urgency, however, at the time of writing this report this had not be approved. • There will be an ongoing operational cost for traffic management. Currently this is estimated to be in the order of \$2,400 per week. Additional funding will be required in 2023/24 in the operating budget for the Rooding Activity – Roads Sub-activity of circa \$100K to fund cost pressures resulting from this.
OPTION 4:	<p>Permanently close the Amberley Avenue bridge to vehicles</p> <p>This option has been discounted due to the significant public impact and decrease in connectivity and levels of service in the area.</p>
Benefits	<ul style="list-style-type: none"> • The only benefit to this option is that no additional capital budget will be required.
Risks	<ul style="list-style-type: none"> • On-going maintenance and monitoring budgets will need to be established and added into the 2024-34 Long-Term Plan budgets to ensure the bridge remains safe for pedestrians. • There is a risk that the bridge and culvert will fail anyway, creating safety issues. This risk is somewhat mitigated that vehicle weighs will not be traveling across the bridge which should delay the culvert failure. • Redirection of traffic onto other routes places an increased load on those roads which may result in accelerated and early road pavement asset failures. This risk cannot be mitigated and the likelihood of it being realised increases the longer the bridge is restricted or closed. • Council may be criticised for not remedying the issue in a timely manner. This reputational risk can be mitigated somewhat through continued public communications and updates. • If a storm event occurs prior to the works being completed this may result in failure of the culvert and bridge causing a safety risk and a Regional Council requirement to remove the bridge culvert from the waterway. This cannot be mitigated.
Financial	<ul style="list-style-type: none"> • An additional \$200K each year in operating expenditure will be required to keep the bridge safe.

	<ul style="list-style-type: none"> • Any future replacement of the ridge or culvert will be considerably more expensive in the future. • There may need to be the creation of vehicle turning heads to enable traffic to turn around. No investigation has been undertaken on what would be required and it is likely to be a considerable cost.
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

RATIONALE FOR THE RECOMMENDATIONS

1. OVERVIEW OF THE PROBLEM OR OPPORTUNITY

1.1 Amberley Avenue Culvert is a steel multiplate pipe culvert that is located on Amberley Avenue between Caroline Crescent and Pencarrow Street. The culvert provides access across the highly modified lower reaches of Kawau Stream.



Figure 1. Site Location

1.2 As part of a routine inspection in June 2023, extensive corrosion about 1m above invert level on both sides of the culvert barrel was reported. To address this, the culvert was programmed to have a lining installed across the invert during summer 2023/24 to mitigate corrosion of the steel barrel at the normal waterflow level that was predicted to extend the life of the bridge by 30 years.

- 1.3 While undertaking preparatory inspection work ahead of the planned lining renewal, it was discovered that its structural condition has deteriorated more rapidly than anticipated.
- 1.4 A site visit in November 2023 identified obvious bulging of the right side of the barrel about 3m in from the culvert entrance. Additional “ripples” were also apparent along the length of the right side. This was a significant change from the last inspection in October 2023 when this was not evident.
- 1.5 The sudden appearance of the bulge between the October visit and the November visit indicates that barrel failure has commenced.
- 1.6 Given the rapidly evolving deformation and loss of wall integrity, the proposed lining solution is no longer considered appropriate and replacement options (either box culvert or single span bridge) are now required.



Figure 2. Partial collapse of culvert – bulge in culvert wall

- 1.7 The immediate response taken to address the risk of collapse of the culvert has been to put in place traffic management to reduce the section of Amberley Avenue to a single lane of traffic, along with placing a weight restriction on the section of road.



Figure 3 photo: traffic management in place on Amberley Ave.

- 1.8 Pedestrian access along Amberley Avenue is being maintained on the western side of the road. This is subject to ongoing inspections. The road and footpath will be closed if there is a potential risk to the public.
- 1.9 This report outlines the options for replacement and makes recommendations with regards funding and contractor engagement to resolve the issues.

2. BACKGROUND AND PREVIOUS COUNCIL DECISIONS

- 2.1 There are several council-owned bridges and culverts throughout the roading network. Council undertakes regular assessments of all these structures through the NZTA Maintenance Programme – Network and Asset Management.
- 2.2 The Amberley Avenue culvert is 38m long at invert level and 21m at road level. It is comprised of a 4.5m diameter corrugated steel barrel. Depth of fill over the culvert is approximately 1m. The culvert was constructed around 1970.

3. DESCRIPTION OF OPTIONS

- 3.1 An options assessment has been carried out on the basis that a replacement structure having at least equivalent waterway area to the existing culvert will be acceptable and without requiring hydraulic assessment.

- 3.2 The existing 4.5m diameter culvert has a cross sectional area of 15.8m² with invert buried by approximately 500mm to 1m. This ties in with the drain bed levels upstream and downstream of the culvert.
- 3.3 A 4m x 4m box culvert with buried invert would provide equivalent waterway area. A bridge of 12m span will fit between the upper stop banks and provide an almost unrestricted waterway area between the stop banks of approximately 30m².
- 3.4 In general, options for Council to consider are:
- Undertake design only within 2023/24 with construction of the replacement bridge being undertaken in 2024/25
 - Replace the failed culvert with a new 4x4m concrete box culvert, commencing as soon as practically possible.
 - Replace the culvert with a new 12m single span bridge, commencing as soon as practically possible.
 - Permanently close the Amberley Avenue bridge to vehicles.
- 3.5 As transport bridge construction is a specialist field and there are limited contractors in the lower North Island who can undertake these works, pricing was received by Emmetts Civil Construction (the local bridge specialist recommended by WSP and Fulton Hogan) to help cost the options so budgets can be established.

4. ANALYSIS OF OPTIONS

- 4.1 It is considered that the permanently closing option would have a major detrimental impact on the surrounding area, with the suburb being effectively cut in two and an increase in through traffic volume on the surrounding roading network. Due to the impact of this option, it has not been considered further in this paper.
- 4.2 The options of 4x4 precast culvert versus a 12m single span bridge are summarised below:

	4x4 Precast Culvert	Single Span Bridge
Construction Cost (Prelim Design estimate)	\$2.10M	\$2.25M
Project Risk Contingency	35%	30%
Lead Times	4 months	2-3 months
Extent of excavation	Full excavation and removal of culvert	Can be installed with culvert remaining in place.

Stream Impact during Construction (dewatering)	Major	Minor
Impact of weather events during construction	Major	Minor
Resource Consent Required	Yes – for the removal of the culvert and installation of the new culvert	Yes – for the removal of the existing culvert
Construction window	Summer only	All year
Flood management	No improvement to flood management	Uninterrupted continuation of the stop banks profile
Whole of life expectations	80 - 100 years	100 - 140 years

4x4 Precast Culvert

- 4.3 A 4m x 4 m precast concrete box culvert with buried invert will provide a cross-sectional area equivalent to that provided by the existing 4.5m diameter steel pipe with gravel aggradation in the invert.
- 4.4 An important aspect of the installation of a box culvert is the need to dewater the site to enable work in near dry conditions. Temporary dams will need to be constructed upstream and downstream of the inlet and outlet respectively and either pumping the stream flow over the excavation or extending the width of the excavation enough to allow installation of a smaller diameter temporary diversion pipeline. The dewatering system will remain in place until the stream can be safely diverted to flow through the new culvert.
- 4.5 The dewatering system will need to provide for fish bypass and will only cope with low stream flows. In the event of a moderate weather event that causes any appreciable increase in stream flow, the temporary dams will be overtopped, and the site flooded. This will require reinstatement of the diversion system and cleaning out of the work area following any such event. There is also the likelihood that elevated water levels will cause erosion of the exposed soil in the cutting and undesirable increase in sedimentation to the waterway. It may be possible to mitigate erosion effects by installing erosion protection matting in conjunction with the dewatering system.
- 4.6 Once the site has been dewatered and the existing culvert removed, the stream bed will be excavated a further 1m (i.e. approximately 2m below stream bed level). The bed will be backfilled with a reinforced aggregate pad as a base for the box culvert and this will be topped with a finer bedding layer immediately prior to installing box culvert units. Box units will be tied

together using post-tensioned cables located in the walls of the culvert. Wingwalls will be installed to support the embankment for a short distance beyond the box culvert ends and a reinforced concrete apron and cut-off wall will be constructed between the wingwalls.

- 4.7 The excavation around the culvert will be backfilled with crushed metal aggregate up to pavement level, tying in with the stop banks to reinstate the existing waterway profile. The road, footpaths and fences will be reinstated, and services will be relocated within the fill.
- 4.8 The estimate for the construction of a 22m long precast concrete box culvert is \$2.1M (excluding design, consents, contingency). This assumes a culvert of this length will be sufficient to retain access to the stop banks for maintenance.

Single Span Bridge

- 4.9 The replacement of the culvert with a single 12m span hollow-core beam bridge will be less disruptive than replacement with a culvert structure. By retaining the existing culvert during construction, it is possible to completely isolate construction activities from the waterway, allowing construction during winter months.
- 4.10 Reviewing available geotechnical information from nearby sites (approx. 750m radius) indicates that suitable gravel foundation material is likely to exist within 10m of the top of stop banks. Further investigation is required to provide confirmation of the depth to gravel layers. It will be necessary to engage a drilling rig to drill 2 boreholes to confirm the thickness and strength of the gravels. An item for proof drilling is included in the bridge estimate but this should be done prior to final design if possible.
- 4.11 Foundations for a bridge can be constructed with the existing culvert remaining in place, eliminating the need for expensive dewatering of the site, and permitting construction to continue through the winter period if necessary, without disruption due to higher than normal stream levels. The estimate is based on using permanent steel casing excavated and filled with reinforced concrete to construct piles. Installation of this cylinder-type foundation creates less vibration and noise than driving steel H-piles or timber piles. Cast-in-situ reinforced concrete abutments will be constructed on the piles to support the bridge superstructure.
- 4.12 Ideally the culvert would be removed and the stream banks re-shaped prior to installation of the bridge superstructure. However, the culvert can remain in place until the bridge is completed, but this would make removal more costly due to the restrictions imposed by having to work beneath the bridge. Timing for removal of the culvert may depend on how soon the project can commence and on weather conditions prevailing at the time the foundation and abutments work is completed. Given that the existing culvert barrel is buried by up to 1m of gravel through most of its length, it may be possible to

cut the metal barrel at water level and leave the invert buried beneath the re-shaped batters.

- 4.13 The superstructure has been based on standard precast prestressed concrete hollow core deck units, surfaced with asphaltic concrete. The bridge will be skewed approximately 9 degrees so that abutments run parallel to the stream channel.
- 4.14 The width of the bridge would remain as it is currently. The existing carriageway, including 1.9m wide footpaths and 6.5m traffic lanes, results in a bridge 17m wide. Ducts for services can be incorporated in the units during casting with matching penetrations built into each abutment backwall.
- 4.15 Concrete kerbs and footpaths have been allowed on each side of the bridge to tie in with existing paths along with code-compliant pedestrian handrails. The existing fence and gates at each stop bank can be reinstated to tie in with the bridge handrails.
- 4.16 Based on costs for two recent similar culvert replacement projects on State Highway 43, the construction estimate for replacement with a 12m long bridge is estimated to be in the order of \$2.25M (excluding design, consents, contingency). This is based on the road being fully closed during construction and culvert removal on completion of bridge construction.
- 4.17 A culvert will offer no improvement in waterway area. The intangible benefits of replacing the existing culvert with a bridge are numerous and should be considered against the possibly cheaper cost of a box culvert.

5. PLANNING CONSIDERATIONS

- 5.1 A Planning Assessment is currently in progress, including notification to Rangitāne o Manawatū that significant work is necessary to replace the existing culvert.
- 5.2 Consents would be required for either the bridge or culvert option. However, there are key differences between the options.

4x4 Precast Culvert

- 5.3 A new culvert will require consents under both the One Plan and the National Environmental Standards for Freshwater (the Standard).
- 5.4 If winter works are proposed due to timing (to minimise disruption to the roading network and ongoing risk to the stormwater network), more restrictive consent conditions are likely.
- 5.5 A detailed fish passage assessment would be required for the culvert option to address policy requirements in both the One Plan and the Standard. It is unlikely to be able to meet the permitted activity standards under the Standard.

- 5.6 New regulatory requirements are such that a term limit would be imposed on a culvert (but not a bridge).

Single Span Bridge

- 5.7 The bridge option can be largely constructed out of the stream channel. This reduces the risk of restrictive conditions such as timing of works or additional Erosion and Sediment Control Plan (ESCP) requirements.
- 5.8 Methodology and timing for removal of the existing culvert should be confirmed, as suitable mitigation may need to be developed.
- 5.9 The potential instream effects would need to be understood so that suitable consent conditions can be developed. There are available options, and this is not considered an overall impediment to consent being granted.
- 5.10 The bridge option will not require additional consent requirements under the Standard.
- 5.11 The information requirements to support consent applications for both options would be similar, but the complexity of hydrology and ESCP would be expected to be simpler for the bridge option.
- 5.12 On balance, it is likely that the bridge option is more favourable from a consenting perspective.
- 5.13 It is understood that the options and any application would be discussed with representatives of Rangitāne o Manawatū. The outcome of this consultation should be included in any consent application.

6. FINANCIAL IMPLICATIONS

- 6.1 There is currently no programme for funding of replacement bridges on the roading network in the Annual Budget.
- 6.2 The operational costs that have been incurred, including the establishment and ongoing traffic management, is in the order of \$100K and is currently being funded from NZTA Maintenance Programme – Network and Asset Management. The \$100K includes provision for Traffic management, Investigations and VMS board.
- 6.3 Council has had an initial discussion with NZTA regarding joint funding to address this issue under their emergency funding criteria. However, it is not guaranteed that either all or part of the funding requested would be approved for co-funding, and at the time of writing this report the co-funding had not been confirmed.
- 6.4 The high-level costs to construct the 4x4m box culvert and the 12m single span bridge are as follows:

	Scope Item – Operating	4x4m culvert	12m-spand bridge
1	Operation Costs to date resulting in a cost pressure to be funded in the Roads Sub-activity MSL	\$100,000	\$100,000
	Scope Item – Capital	4x4m culvert	12m-spand bridge
2	Project costs to date and to complete (design, consultation, consents, delivery management, safety audits and TMP)	\$500,000	\$500,000
3	Construction Contract	\$2,100,000	\$2,250,000
	Subtotal	\$2,600,000	\$2,750,000
4	Project Contingency <ul style="list-style-type: none"> • Culvert Option – contingency 35% • Bridge Option – contingency 30% 	\$910,000	\$825,000
	Project Costs	\$3,510,000	\$3,575,000

- 6.5 At this stage of the design process, it is recommended that a contingency of 30% is allocated to the project. It is expected that the project risks are resolved as much as possible through the design process however, there is still a high risk of uncertainty.
- 6.6 Based on the expected delivery timeframe (refer Section 9) it is recommended to spread the expenditure over the 2023/24 and 2024/25 financial years. Based on the 12m-span bridge being the preferred option of Officers, it is recommended that a budget split of \$2.475M in 2023/24 and \$1.125M in 2024/25 would be appropriate. Noting that this budget split includes contingency.
- 6.7 Officers have reviewed other works in the Transport and wider infrastructure capital portfolio planned to be implemented in the current financial year and confirm that there are no available programmes that can contribute financially to this work as all budgets are currently fully committed in existing work.
- 6.8 The loan funding for this investment will be for Council's maximum loan period of 30 years. Based on an indicative capital spend of \$3.6M, a 5.5% interest rate and a 30-year term, annual repayments will be approximately \$248K. These repayments will be made up of \$120K principal and \$128K interest. These repayments and interest costs will be subject to interest rate changes.

7. PROCUREMENT

- 7.1 Council's Procurement Policy 2023 provides for the standard procurement process to be varied, especially when there is urgency of works. The Policy states:

In an emergency, Palmerston North City Council will need to react quickly and effectively, meaning it might not be possible to satisfy all the requirements of this policy when carrying out emergency procurement. Emergencies means an event:

- a. that is unforeseen and causes major damage to Council or other property; and*
 - b. for which there is a need for remedial action to be taken without delay; and*
 - c. it is impracticable to convene a meeting of Council or Strategy & Finance Committee to approve the proposed expenditure, but which is not a declared state of local or national emergency under the Civil Defence Emergency Management Act 2002.*
- 7.2 Officers have considered that this is applicable in this situation given the urgency of the works. A procurement protocol exemption form has also been completed to formalise our reasons for the direct source procurement.
- 7.3 In addition, transport bridge construction is a specialist field and there are limited contractors in the lower North Island who can undertake these works. It is almost certain that the same specialist contractor, Emmetts Civil Construction Limited (based in Whanganui), would be sub-contracted to undertake the project.
- 7.4 The project presents a high level of risk, regardless of the option, and is best delivered through a design and build contract. The need for a specialist contractor is paramount to ensure the project is successfully delivered. There is also an urgency to the work to mitigate as much of the future safety risk as possible.
- 7.5 As such, to enable timely construction of the bridge (Option 3) and to avoid any additional margin being applied to the works through a sub-contractor situation, Officers have determined a direct sole source procurement to Emmetts Civil Construction is the most appropriate way to proceed and will deliver the best outcomes for the project.
- 7.6 Due to the limited specialist in the area, the pricing informing this report is from Emmetts Civil Construction which further supports the limited contractor pool. Officers have checked their availability for the project, and they have confirmed they are available.
- 7.7 The Council's procurement policy requires procurement of contracts of this value to be an open tender process. By undertaking a sole source procurement process, it is likely to reduce the project period by 2-3 months

and enables works to commence sooner and reduces the risk of bridge collapse.

7.8 Emmetts have undertaken works with council in the past. They have demonstrated their ability to successfully:

- Delivering civil construction builds in a roading corridor.
- Manage the day-to-day health and safety of construction sites that they control.
- Manage multiple subcontractors – traffic management, pipework and drainage, road construction/rehabilitation.
- Manage change/disruption/access for residents on the road and provided clear communication; and
- Manage environmental factors such as stormwater run-off and dust into neighbouring properties/watercourse when undertaking civil construction.

7.9 A significant advantage of the recommended early contractor engagement is that it will allow the contractor to provide input into the design process confirming buildability, construction methodology and reduction of lead times for the required material elements.

7.10 Obtaining an engineer's estimate at the completion of the Detail Design for price comparison will give Council confidence on value for money.

8. INDICATIVE PROJECT TIMELINE

8.1 An indicative project timeline has been developed based on the recommended option of the 12-metre span bridge and sole source procurement.

Activity	Date
Council Approval of Budget & Procurement	18 Dec 23
Complete contract development negotiations and sign contract	Mid Feb 24
Complete Contract (22 weeks)	Late Jul 24

9. CONCLUSION

9.1 During a routine inspection of the Amberley Avenue Culvert over the Kawau Stream, structural deformation was identified. This has led to a weight restriction being placed on the culvert and the installation of a single lane traffic management.

- 9.2 The level of deformation has meant that the culvert must be replaced. Initial scoping work has identified 2 options for the replacement: a new 4x4m culvert and a 12m single span bridge (17m wide).
- 9.3 Even though the 12m single span bridge is slightly more expensive, this option can be delivered in a timelier manner with less impact on the stream environment and the local community.
- 9.4 Given the specialist nature of the works and the urgency required to get the works completed and the bridge made safe again, a direct source procurement to Emmetts Civil Construction Limited is the most appropriate way to proceed to ensure the project is delivered successfully.

10. NEXT ACTIONS

- 10.1 Design and investigation work for the recommended option will commence and Officers will engage with Emmett Construction Limited for a design and build contract.

11. OUTLINE OF COMMUNITY ENGAGEMENT PROCESS

- 11.1 Early engagement has been undertaken as part of the installation of the traffic management. This engagement included conversations with the Heavy Haulage industry advising on the limitations of the existing culvert.
- 11.2 A communications plan has been developed for the construction and will be implemented subject to approval of the recommendations in this report.

COMPLIANCE AND ADMINISTRATION

Does the Council have delegated authority to decide?	Yes
Are the decisions significant?	No
If they are significant do, they affect land or a body of water?	No
Can this decision only be made through a 10 Year Plan?	No
Does this decision require consultation through the Special Consultative procedure?	No
Is there funding in the current Annual Plan for these actions?	No
Are the recommendations inconsistent with any of Council's policies or plans?	No
A procurement protocol exemption form has been completed to formalise our reasons for the direct source procurement.	
The recommendations contribute to Goal 3: A Connected and Safe Community	
The recommendations contribute to the achievement of action/actions in Transport	
The action is: Develop, maintain, operate, and renew the transport network to deliver on the Council goals, the purpose of this plan, and the Government Policy	

Statement on Transport that an:	
<ul style="list-style-type: none"> • Maintenance and renewal interventions minimise whole of life costs for transport assets. • Roads are designed to minimise long-term financial liabilities. 	
Contribution to strategic direction and to social, economic, environmental, and cultural well-being	Maintaining safe two-way traffic flow access promotes social and economic wellbeing of road users, while considering ongoing environmental impact and interaction.

ATTACHMENTS

1. Amberley Ave 12m span bridge 17m wide proposal