

Agenda Item	10
Report No	ECI/31/26

The Highland Council

Committee: Economy and Infrastructure

Date: 20 August 2026

Report Title: Balnaan Bridge – Options Report

Report By: Assistant Chief Executive - Place

1 Purpose/Executive Summary

- 1.1 Balnaan Bridge is a reinforced concrete bridge across the River Dulnain to the east of Carrbridge on the C1119 road. A structural assessment showed that the bridge was at risk of sudden collapse due to the presence of substandard half joints. The bridge was closed to vehicular traffic in December 2025. It remains open for pedestrians and cyclists. A relatively short diversion route is available and only a small number of households and businesses (less than 25) are severely affected by the closure.
- 1.2 A feasibility study has been carried out to determine the available options for the bridge. The options are as follows:-
 - **Do minimum** – the bridge remains closed and bridge inspections will continue to observe the condition of the bridge. Demolition may be required in the future. There are no immediate cost requirements.
 - **Overbridging** – install a new proprietary modular bridge on top of the existing structure. The cost would be £2.0m and could be installed in 6-9 months as detailed in section 9.4.
 - **Replacement** – demolish the old bridge and build a new replacement structure on the existing line of the road. The cost would be £9.3m and would take 3.5 to 4 years to design and construct as detailed in section 9.5.
- 1.3 Balnaan Bridge is not a high priority structure (number 118 in the list of priority works in Highlands for Major Bridges as identified in the background paper). There is no current capital funding identified for works to this bridge.

2 Recommendations

2.1 Members are asked to:-

- i. **Note** the available options for Balnaan Bridge; and
- ii. **Approve** the do minimum option

3 Implications

3.1 Resource – For the Do Minimum option we will need to continue to inspect the bridge. This is covered under the existing bridge inspection programme.

The Overbridging or Replacement option will require resources to manage the project which will delay other bridge schemes in the Capital Programme. Regardless of whether it is designed in house or by an external consultant, internal resources will be required to manage the project.

3.2 Legal – Depending on the actions the council, the Temporary Traffic Regulation Order closing the road will need to be renewed or changed to a permanent Traffic Regulation Order.

3.3 Risk – For the Do Minimum option, there is a slight reputational risk to the council of not addressing a closed bridge. For the overbridging and replacement options, project and design related risk will be captured and addressed during the design process using the normal risk assessment procedures.

3.4 Health and Safety (risks arising from changes to plant, equipment, process, or people) – The health and safety risks arising from the substandard elements of the bridge will continue to be monitored by the Structures Team.

3.5 Gaelic – No Gaelic implications.

4 Impacts

4.1 In Highland, all policies, strategies or service changes are subject to an integrated screening for impact for Equalities, Poverty and Human Rights, Children's Rights and Wellbeing, Climate Change, Islands and Mainland Rural Communities, and Data Protection. Where identified as required, a full impact assessment will be undertaken.

4.2 Considering impacts is a core part of the decision-making process and needs to inform the decision-making process. When taking any decision, Members must give due regard to the findings of any assessment.

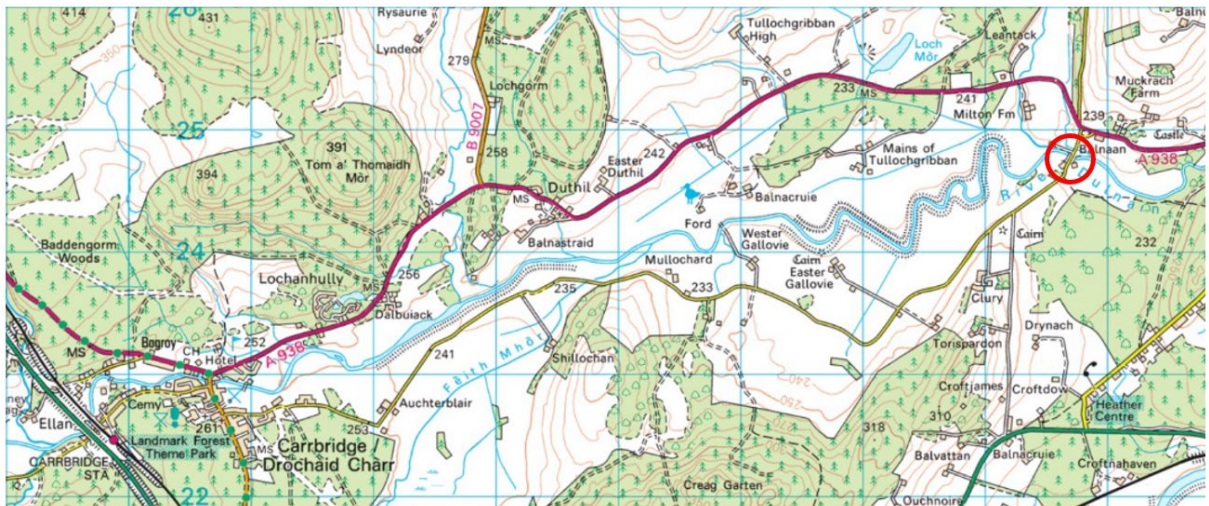
4.3 This is a monitoring and update report and therefore an impact assessment is not required, it is noted that there is a viable alternative route and therefore impacts of the closure are limited to a small number of households.

5 Background

5.1



Balnaan Bridge (reference C11190010) is a reinforced concrete bridge located in Badenoch and Strathspey and carries a C Class road across the River Dulnain. The location is shown below, indicated by the red circle. It is a three span bridge and is of cantilever and suspended span construction. The suspended span is supported by half joints.



Location Plan

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5.2 The bridge was built in 1938. The bridge is owned by the Council. A refurbishment of the bridge was undertaken in c. 1989.

The 1999 Principal Inspection report noted that the bridge was in “poor condition. Given that a major refurbishment was completed only 10 years ago, the condition of the bridge is very disappointing. Water seepage, leaching, rust staining, spalling, frost damage and deck joint failure are all evident.”

The latest Principal Inspection (February 2025) report concludes that the bridge remains in a poor condition, with critical elements in a very poor condition, noting “severe spalling and deterioration of the concrete, particularly around the half-joints and along the right (downstream) edge and upstand of the deck.”.



Condition of half joint (February 2025)

6 Half Joints

- 6.1 The suspended span is supported on half joints. Half joints are details that are considered high risk and cannot be used on new structures. The Design Manual for Roads and Bridges (DMRB) document CS466 *Risk management and structural assessment of concrete half-joint deck structures* provides guidance for bridge owners to manage and assess half joints on existing structures.
- 6.2 Half joints are at risk of sudden and catastrophic failure. Previous examples are the 2006 De La Concorde overpass collapse in Canada that killed 5 people and the 2016 Annone Brianza Bridge collapse in Italy that killed 2 people.

Both these examples were of road over road bridges. Balnaan bridge is road over river, and therefore it is unlikely anyone will be underneath the bridge. However, the collapse would be most likely caused by a vehicle crossing the bridge and therefore still have potentially fatal consequences.

7 Structural Assessment

- 7.1 A bridge assessment was carried out in 2023 and concluded that the half joints were unsuitable for carrying the dead load of the structure.
- 7.2 At the time of the assessment, a decision was taken by the Structures team not to immediately close the bridge whilst the assessment report was reviewed and options considered.

- 7.3 A review of the management of the bridge in autumn 2025 in accordance with the Council's Management of Substandard Structures [Policy](#) concluded that the risk the bridge posed to members of the public was unacceptable and the bridge should be closed.

8 Bridge closure

- 8.1 The bridge was closed to traffic on Monday 15 December 2025. The bridge remains open to pedestrians and cyclists.
- 8.2 The consequences of closure vary depending on the type of traffic. The general public is not greatly inconvenienced as the A938 to the north of the River Dulnain provides a diversion route. Those who live on the C1119 have a diversion of up to 12 miles if they wish to travel to the other side of the bridge.

The Corporate Address Gazetteer shows 20 residential properties and one commercial property based along this road (from the outer edge of Carrbridge to Balnaan Bridge).

A traffic survey undertaken before the bridge was closed, counted a maximum of 30 vehicles per day. This survey was done in autumn; traffic numbers will likely be higher at other times of year, but not significantly so.

Agriculture is most affected in the cases where farmers land is split between each side of the bridge. Vehicles needing to make multiple trips across the bridge in a day will need to make the diversion instead, likely tallying up significant extra mileage and time for what used to be fairly short journeys.

Following the bridge closure an agreement was reached with a local farmer to allow him to take a small all-terrain vehicle and trailer across the bridge.

9 Options appraisal

- 9.1 There are no plans to reopen the bridge without addressing the risks of the half joints. There are no safe ways to carry out investigations into the joint to better determine the rebar present. Similarly, there are no realistic options for strengthening or removing the half joint.
- 9.2 Three options are available for the future of the bridge:-
1. Do minimum;
 2. Overbridge; or
 3. New replacement bridge

9.3 Do minimum

The bridge will remain closed to vehicular traffic. The bridge condition will be monitored and reviewed as part of the bridge inspection programme. At some point in the future the bridge may need to be fully closed to all users. This will depend on the rate of deterioration of the bridge. When the bridge becomes of imminent risk of collapse then demolition works will need to be considered.

The lack of vehicle traffic on the bridge will slow the rate of deterioration somewhat and reduces the risk of structural collapse due to overloading. It is anticipated that the need to fully close the bridge will not need to be considered for many years.

Costs

No immediate cost implication. Regular inspection costs are included in the Council's inspection programme. There will be future costs associated with demolition.

9.4 Overbridging Option

The structure will be overbridged using a modular bridge system. This would require new piled foundations sitting behind each abutment. The modular bridge would either be a single span between the new abutments or could be supported above the existing piers (as was done at Inverscaddle Overflow bridge in Lochaber). The approaches would need to be regraded to the height of the new bridge.



Inverscaddle Overflow bridge (Lochaber)

The existing structure would be retained and would remain a maintenance liability for the Council. It would continue to be inspected and may require future works or demolition in the future, which would be complicated by the presence of the overbridge. The cost below includes an estimate for removing the suspended span as this would remove the half joints and reduce the future maintenance requirements.

Programme

It would take an estimated 9 months to construct this option from the time of a funding decision, including design, procurement and construction. Environmental constraints have not yet been identified and may result in a longer duration.

Cost

The required budget for this option is £2.0m. This includes design, supervision, construction, demolition of the suspended span, land, optimism bias. The cost includes an estimate for inflation assuming the work is carried out in 2027.

9.5 Replacement Bridge

The existing bridge would be demolished and a new bridge built in its place. The bridge would be closed to all traffic for the duration of the works.

The new bridge would be similar to the existing structure, comprising 3 spans totalling around 45m between abutments. A precast beam bridge is likely most suitable in this location.

This would provide a robust new bridge that would guarantee the security of the crossing for the foreseeable future.

Programme

It would require a 2-year design phase to carry out the detailed design, flood and environmental studies, along with obtaining any required consents (planning, SEPA licences etc.) and to tender the works. The construction phase would last 18 months giving an overall programme of 3.5 to 4 years. This timescale is based on recent major bridge replacements in the Highlands at Invercoe and Naver.

Cost

The required budget for this option is £9.3m. This includes design, supervision, construction, demolition of the existing bridge, land, optimism bias. The cost is based on 2027 prices (with an estimate for inflation to then).

10 **Highland Wide Context**

- 10.1 Balnaan Bridge currently sits at number 118 in the prioritisation list for bridge works. Its position is based on a calculated Priority Score that includes the Likelihood of collapse and the Consequence of collapse. The Likelihood score is high due to the poor condition and sudden nature of a failure. The Consequence score is low as the diversion length is relatively short, and the traffic numbers on the bridge were also very low.

The list of bridges on the bridges programme presented in the 2025 Roads Structures Annual Report (see Background Papers) shows that the work required to the top 10 structures would cost around £55m. The top 24 bridges would require over £100 million to repair. This report is an annual report that includes the progress on the bridge replacement programme and future intentions and priorities. This report is presented to Economy and Infrastructure Committee in November every year.

The current capital budget for bridges is £9.6m (from the Highland Investment Plan Update Report – see Background Papers) over the next 5 years. £2m of this is committed to Naver Bridge and Infirmary Bridge, leaving £7.6m for the other structures in the top 10.

The top 10 bridges include essential repairs to Ness Bridge (one of the busiest bridges in the Highlands), repairs or refurbishment of Strathcarron Bridge (which has the longest diversion in the Highlands), repairs to Kinlochleven Viaduct (an essential link to the town of Kinlochleven) and repainting Bonar Bridge (a strategically important bridge, one of three bridges that connect Caithness and Sutherland to the rest of the country). These cost of work to these four bridges alone exceeds the £7.6m allocated over the next 5 years.

In this context it is very difficult to justify spending money on either overbridging or replacing Balnaan bridge. The number of households and businesses affected are very small in number, the traffic numbers were very low and there is a diversion route that is convenient for most road users.

11 Conclusion

- 11.1 Balnaan Bridge is no longer considered suitable to carry vehicular traffic. It was closed to vehicles on Monday 15 December 2025.

The available options are:-

1. Do minimum – bridge remains closed (no immediate cost implications);
2. Overbridge (£2.0m); or
3. Replace (£9.3m)

The bridge sits at number 118 in the prioritisation for works. In the context of the current level of capital funding for bridges it cannot be justified to carry out either the overbridging or replacement option.

It is therefore recommended that the do minimum option is followed.

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Background Papers:	Road Structures Annual Report 2025 Highland Investment Plan Update Report
Appendices:	None