

Agenda Item	17
Report No	ECI/38/20

THE HIGHLAND COUNCIL

Committee: Economy and Infrastructure

Date: 4 November 2020

Report Title: Road Structures Annual Report

Report By: Executive Chief Officer Infrastructure and Environment

1. Purpose/Executive Summary

- 1.1 This report provides an outline of the Council's bridge stock, its condition, the bridge inspection regime, and the works associated with maintaining road structures.
- 1.2 It provides recommendations for projects to be included in the "Bridges, Retaining Walls and Culverts" line, of the Roads and Transport Capital Programme.

2. Recommendations

- 2.1 Members are asked to:
 - i. note the position of the Bridge Stock Condition Indicators in Highland; and
 - ii. note the current position in Highland in relation to the number of structures inspections undertaken.

3. Implications

- 3.1 Resource: Full Council has still to confirm final budgets for 2020/21. The estimated cost of projects in the rolling programme is nearly £7million. The total backlog is currently unknown but the rolling programme will be added to annually as inspections are completed.
- 3.2 Legal: The Council has a duty to maintain structures to a reasonable standard and to manage risk effectively.
- 3.3 Community (Equality, Poverty, Rural and Island): Due to the geographic nature of Highland, many structures are located in remote areas where failure may result in communities being cut off or having to travel significant distances via alternative routes.

- 3.4 Climate Change / Carbon Clever: There are no known Climate Change / Carbon Clever, implications arising as a direct result of this report. Although improving road structures is unlikely to have a significant effect on carbon emissions, keeping the road network in a condition which allows the free flow of traffic will assist in reducing them.
- 3.5 Risk: The risk of not completing all of the programmed structures inspections has been mitigated by prioritising structures with lower bridge condition indicator scores. Although not specifically mentioned in CR10 Condition of our Roads, structures are a vital part of the road network and require active management.
- 3.6 Gaelic: There are no known Gaelic implications arising as a direct result of this report.

4. Highland Council Road Structures Information

- 4.1 The Roads (Scotland) Act 1984 states that a local roads authority shall manage and maintain roads within their area that are included in the list of public roads, more commonly known as ‘adopted roads’. As Members will already know, Trunk Roads are maintained by the Scottish Ministers through various contracts across Scotland.
- 4.2 Structures are part of the road asset. The term ‘road structure’ is used to describe bridges, culverts and retaining walls. Cattle grids are also included. Not all road structures which carry or hold up an adopted road are in the ownership of the Council.
- 4.3 The information provided in the road asset management plan was correct at the time it was produced. A table showing the numbers and types of road structures the Council is responsible for is shown below (2019/20 figures from asset valuation calculations).

Structure Type	Quantity
Road Bridges	1,695
Footbridges	32
Unusual Structures	102
Retaining Walls	1,076
Culverts	430
Cattle Grids	588
Total	3,923

(Note: the majority of ‘Unusual Structures’ are listed bridges with 3 being post tensioned bridges.)

- 4.4 The Gross Replacement Cost (GRC) of the structures stock calculated for 2019/20 is £643,920,862. This figure fluctuates as data on the stock is refined.
- 4.5 Additionally, cattle grids are structures on roads which the council also have a responsibility for. Traditionally, they have not been included in the structures budget but have been replaced using revenue money from the roads budget. There are currently 588 listed in the asset management database. Cattle grids are not included in the structures GRC figure above as they are accounted for separately due to the way Whole of Government Accounts requires it to be recorded. The 2019/20 GRC for grids is £6,468,000.
- 4.6 The figures contained in this report do not include other bridges the Council may be responsible for, only those considered to be ‘adopted’ under the Roads (Scotland) Act 1984. Other bodies may own or be responsible for structures which carry the public road.

Network Rail and Scottish Canals are examples of organisations responsible for some bridges on the adopted road network.

5. Inspections

5.1 Members approved the 'Structures Inspections' policy at committee in August 2019 to move towards a risk based approach to inspections. Inspections are generally undertaken within a calendar, rather than financial, year. This is to allow for programming.

5.2 As inspections are undertaken with limited amounts of personnel (including individuals as per the lone working policy), they have continued through the current Covid-19 situation. There may be delays in completing the entire Principal Inspection (PI) programme for 2020 so they have been prioritised based on their current BCI scores. The use of the underbridge vehicle which is based in the North East of England has been delayed. However, bridges requiring this vehicle are being inspected from ground level without it. This will be reviewed later in the year if circumstances change. Similarly, structures requiring inspection by boat have also been delayed which will, again, be reviewed if circumstances change.

5.3 The four additional Structures Technician posts have resulted in an increase in the number of General Inspections (GIs) completed since their appointments. The GI figures below will include inspections of structures not programmed for this year, as the technicians address the backlog. See the performance figures in 7.2 of this report where the General Inspections completed have increased significantly.

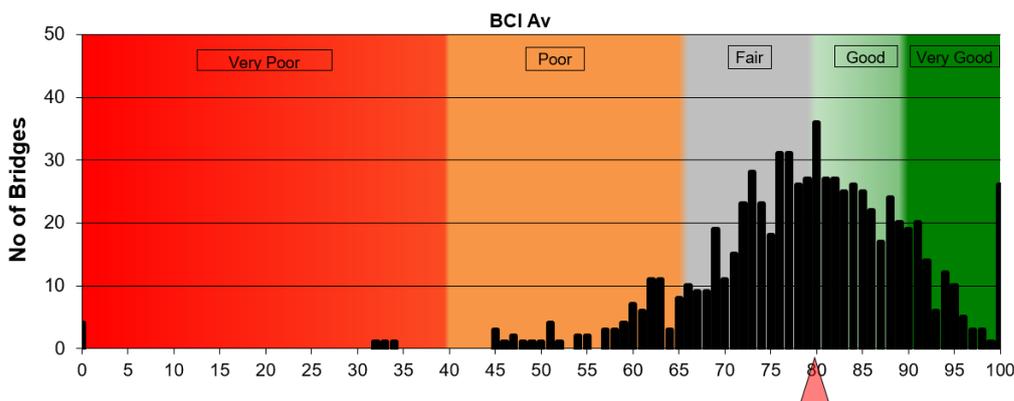
5.4

Bridges, Culverts and Retaining Walls		
Inspections	Due in 2020	Inspected (as at 24/09/20)
PI	112	65
GI	696	152
Totals	808	217

5.5 Additionally, 98 inspections on cattle grids have been completed as at 24 September 2020.

6. Bridge Stock Condition

6.1 Principal inspections (on bridges 5m or more in length pre 2018/19) generate a condition score for each individual bridge. This is used to calculate the Bridge Stock Condition Index (BSCI). The 2019/20 Highland BSCI average is 79.0 and BSCI critical is 64.0. The distribution of BCI average values for each bridge which has had a PI are shown in the diagram below.



7. Performance Indicators

7.1 Highland completes and returns an APSE / SCOTS performance questionnaire annually. This questionnaire has evolved over the years and has been partly developed through the SCOTS Road Asset Management project.

7.2 The 2019/20 Highland results have been submitted to APSE / SCOTS but not yet verified by them. Therefore, the previous 3 years data for some of the performance indicators relating to structures is shown in the table below, along with the provisional 2019/20 results (all 4 years data for Highland).

APSE / SCOTS PI	2016/17	2017/18	2018/19	Provisional 2019/20 Result
% of Principal Inspections carried out on time	100.0	98.8	100.0	100.0
% of General Inspections carried out on time	26.0	38.0	88.7	100.0
BSCI average	81.4	80.9	79.6	79.0
BSCI critical	69.0	67.9	65.3	64.0
% of Council owned bridges failing European standards	10.7	10.0	10.0	10.0
% of Council road bridges with unacceptable weight, height or width restriction	0.3	0.3	0.3	0.2

7.3 The table below shows the 2018/19 results for the SCOTS Family Group (Rural), and the Scotland averages. The 2019/20 results have not yet been verified by APSE/ SCOTS at the time of writing this report so are not currently available. The other rural family group members are Aberdeenshire, Angus, Argyll and Bute, Scottish Borders, Dumfries and Galloway, Moray and Perth and Kinross.

APSE/ SCOTS PI	Family Group Average	Scotland Average
% of Principal Inspections carried out on time	64.5	79.7
% of General Inspections carried out on time	87.5	86.7
BSCI average	83.4	85.9
BSCI critical	75.6	78.3
% of Council owned bridges failing European standards	3.4	3.3
% of Council road bridges with unacceptable weight, height or width restriction	0.5	1.7

Notes re the Performance Indicator results:

- % of PIs on time: a higher percentage is a better result
- % of GIs on time: a higher percentage is a better result
- BSCIave: a higher value is better (this is not a percentage but a score out of 100)
- BSCItcrit: a higher value is better (this is not a percentage but a score out of 100)
- % failing Euro standards: a lower percentage is better
- % unacceptable restrictions: a lower percentage is better

8. Works Programmes

- 8.1 Principal and General Inspections create recommendations and works for the structures stock. These works are prioritised either in the Capital programme or by the Roads and Transport Area offices for the revenue budget.
- 8.2 Due to the current circumstances surrounding Covid-19, some projects have been delayed. However, design work has continued for the capital schemes and some urgent revenue works have also been undertaken. The overall road maintenance budgets are discussed further in the Scottish Road Maintenance Condition Survey Results 2019-20 report at this committee.
- 8.3 Members agreed at the November 2019 Environment, Development and Infrastructure Committee to have an extended rolling programme of works for the Roads and Transport capital budget allocation (£350k). The extended list will allow Members to see potential schemes which may be included in future years. The actual schemes to be completed each year will be amended to reflect the budgets available. Not all projects will be completed in the year they start as design work is initially required. Schemes will be added to the list as inspections progress and they are prioritised. See Appendix A. Works on Bonar Bridge have been added this year after an inspection which detailed some repair work required. With an annual capital allocation of £350,000, the projects in **Appendix 1** would take 9.6 years to complete. Currently, there are nearly 100 other schemes at an estimated cost of over £4 million which will be prioritised and added into the rolling programme. At £350k per year, this additional work would take 11.4 years. It is also worth noting that the amount of works identified will only increase as inspections are completed.
- 8.4 Additionally, Highland is being proactive in securing external funding for structures replacements. The Strategic Timber Transport Fund 2020/21 Projects reported to this committee on 2 September provided details of two schemes where grant funding secured bridge replacement or repair.

Designation: Executive Chief Officer Infrastructure and Environment

Date: 22 September 2020

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Background Papers: TEC 77/13 Cattle and Deer Grids Policy
 COM 58/15 Bridges and Road Structures
 EDI 23/17 Road Structures Annual Report
 EDI 81/18 Road Structures Annual Report
 EDI 61/19 Risk Based Approach to Structures Inspections
 EDI 83/19 Road Structures Annual Report
 ECI 18/20 Strategic Timber Transport Scheme 2020/21

Appendix 1

PROJECT			TOTAL ESTIMATED PROJECT COST £000	SCOPE of WORKS
0	A08360090	Bonar Bridge	30	Bolt replacement and parapet repair.
1	C10400010	Torbreck Weir	100	Repair to weir to protect Torbreck Bridge from collapse
2	A08350270	Ledmore	275	Parapet replacement, concrete investigation
3	A08350250	Knockan	350	Parapet replacement, concrete investigation
4	B08610010	Ness	350	Assessment and Post-tensioned Special Investigation as a precursor to major works
5	A08360360	Halladale	85	Parapet replacement
6	C10870030	An Uillt Bhig	80	Strengthening and refurbishment
7	A08360220	Inchkinloch	30	Partial repointing
8	A08380220	Kyle of Tongue	50	Movement joint replacement
9	A08360180	Vagastie	20	Minor works
10	A08610340	Camuschork	40	Masonry repairs
11	A08610350	Ceol na Mara	50	Masonry repairs
12	A08620090	Lovat	125	Masonry repair and scour protection
13	U32670010	Achvaich	306	Scour risk and weak parapets
14	A08320330	Poolewe	150	Concrete investigation and repair
15	U19070010	Dublin	306	Masonry arch major refurbishment
16	A08320090	Grudie	15	Investigation to determine scope of repairs
17	A08380080	Achfary	90	Waterproofing and resurfacing, concrete repairs
18	A08610230	Gour	150	Repainting, waterproofing and surfacing, parapet replacement
19	A08630140	Caroy	100	Waterproofing and resurfacing, parapet replacement
20	A08550010	Leasgary	400	Edge strengthening, parapet replacement and general refurbishment
21	B09700200	Nethy	140	Repointing
22	A08390010	Pittentrail	125	Refurbishment
Estimated Total of Projects			3,367	