

Agenda Item	<b>21</b>
Report No	<b>EDI/83/19</b>

## HIGHLAND COUNCIL

**Committee:** Environment, Development and Infrastructure

**Date:** 7 November 2019

**Report Title:** Road Structures Annual Report

**Report By:** Executive Chief Officer Customer and Communities

### 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 budgets 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 Community Services' Capital Programme.

### 2. Recommendations

- 2.1 Members are asked to:
  - i. note the position of the Bridge Stock Condition Indicators in Highland;
  - ii. note the current position in Highland in relation to the number of structures inspections undertaken; and
  - iii. approve the use of a continuous rolling programme for an extended list of schemes for the "Bridges, Retaining Walls and Culverts" allocation of the Community Services Capital Programme.

### 3. Implications

- 3.1 Resources: Not all defects can be addressed given capital and revenue budget constraints; however, repairs and improvements to structures can be prioritised in a more effective manner with a risk-based approach to inspections. The current revenue and capital budget total for 2019/20 is £1.155m. The estimated cost of projects in the rolling programme is nearly £7m. The total backlog is currently not quantified 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 and Rural): 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 move to a risk-based approach reduces the Council's exposure to risk, as well as the travelling public. 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 Highland Council has the largest number of road structures out of the 32 Scottish Local Authorities.
- 4.2 The term 'road structure' is used to describe bridges, culverts and retaining walls. Not all road structures which support an adopted road are in the ownership of the Council.
- 4.3 More detail on road structures is given in the Road Asset Management Plan (RAMP) 2016-2019, available through the link below.  
[https://www.highland.gov.uk/info/20005/roads\\_and\\_pavements/99/roads\\_information/4](https://www.highland.gov.uk/info/20005/roads_and_pavements/99/roads_information/4)
- 4.4 The information provided in the RAMP 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 (2018/19 figures from asset valuation calculations).

<b>Structure Type</b>	<b>Quantity</b>
Road Bridges	1,677
Footbridges	31
Unusual Structures	104
Retaining Walls	1,056
Culverts	423
<b>Total</b>	<b>3,291</b>

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

- 4.5 The Gross Replacement Cost (GRC) of the structures stock calculated for 2018/19 is £646,292,310. This figure fluctuates as data on the stock is refined.
- 4.6 Additionally, cattle grids are structures on roads which the Council also has 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 580 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 2018/19 GRC for grids is £6,380,000. They have a much shorter working life than other road structures. The Cattle and Deer Grids policy was approved by committee on 7 November 2013:  
<https://highland.gov.uk/download/meetings/id/23743/item5tec7713pdf>

4.7 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 The ‘Well-Managed Highway Infrastructure: Code of Practice’ was published in October 2016. It recommends using a risk-based approach for managing all aspects of the road network which includes inspection and repair. The Society of Chief Officers of Transportation (SCOTS) drafted a risk-based approach for inspections as part of the Road Asset Management project. The Highland Council Structures Group of officers reviewed this approach and agreed it should be adopted. A report was subsequently brought to this committee in August 2019 and Members approved the proposed ‘Structures Inspection’ policy.

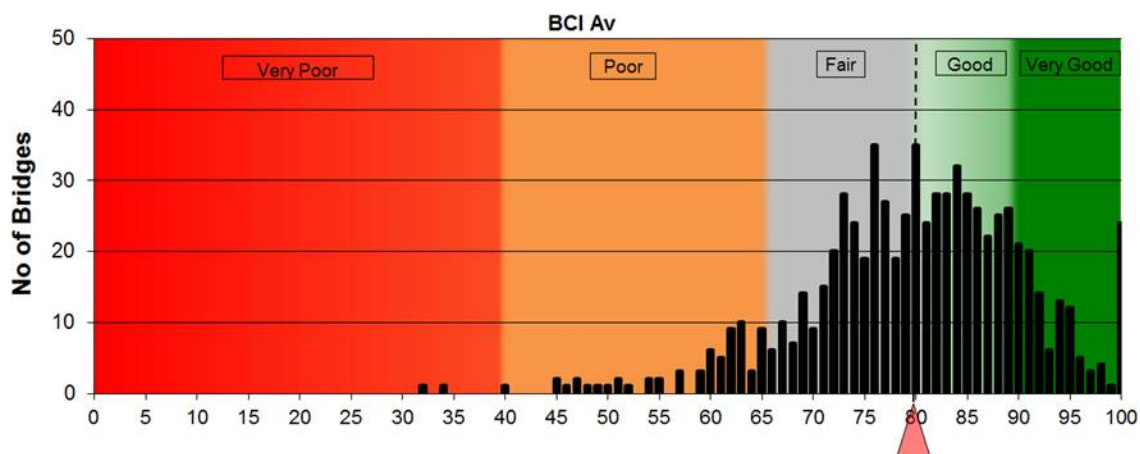
5.2 Inspections are generally undertaken within a calendar, rather than financial, year. This is to allow for programming. Undertaking inspections can be weather dependent and there can be delays in completing inspections due to high water levels or obtaining permissions to gain access.

5.3 The four additional Structures Technician posts, which are now filled, have resulted in an increase in the number of General Inspections (GIs) completed so far in 2019. The GI figure below will include inspections of structures not programmed for this year, as the technicians address the backlog.

Bridges, Culverts and Retaining Walls		
2019 Inspections	Due in 2019	Inspected (as at 08/10/19)
PI	118	67
GI	216	248
<b>Totals</b>	<b>334</b>	<b>315</b>

## 6. Bridge Stock Condition

6.1 Principal Inspections, PIs, (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 2018/19 Highland BSCI average is 79.6 and BSCI critical is 65.3. 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 2018/19 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 2018/19 results (all 4 years data for Highland).

<b>APSE/ SCOTS PI</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>Provisional 2018/19 Result</b>
% of Principal Inspections carried out on time	85.8	100.0	98.8	100.0
% of General Inspections carried out on time	24.3	26.0	38.0	88.7
BSCI average	81.0	81.4	80.9	79.6
BSCI critical	68.5	69.0	67.9	65.3
% of Council owned bridges failing European standards	10.8	10.7	10.0	10.0
% of Council road bridges with unacceptable weight, height or width restriction	0.4	0.3	0.3	0.3

- 7.3 The table below shows the 2017/18 results for the SCOTS Family Group (Rural), and the Scotland averages. The 2018/19 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.

<b>APSE/ SCOTS PI</b>	<b>Family Group Average</b>	<b>Scotland Average</b>
% of Principal Inspections carried out on time	70.0	78.5
% of General Inspections carried out on time	79.6	88.7
BSCI average	84.6	86.3
BSCI critical	77.4	78.2
% of Council owned bridges failing European standards	3.6	3.8
% of Council road bridges with unacceptable weight, height or width restriction	0.4	1.6

## 8. Inspections and Resultant Works

- 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 The 2019/20 Roads Budget Allocation has the following distribution for spend on structures:
- Roads Bridge Maintenance: £350k
  - Cattle/ Deer Grids: £125k (£80k revenue, £45k capital)
  - Bridges Structural Maintenance: £480k (revenue)
  - Principal Inspections and Assessments: £200k (revenue)
- 8.3 A decision was made for 2017/18 to split out the costs for Principal Inspections as

these were being paid from various Area revenue budgets. This removes the annual fluctuation in the Bridges Structural Maintenance for each Area which was dependent on the number of Principal Inspections that required to be completed.

- 8.4 As reported at the 5 November 2015 Community Services Committee (report COM 58/15 Bridges and Road Structures), the maintenance work required on structures exceeds the funding available. As stated in the Road Asset Management Plan version 4 (2016 – 2019), the annualised depreciation for structures is £3,160,000. Annualised depreciation is the cost of an asset in one year of its expected life. Realistically, budgets will not be available to address this. However, Principal Inspections can also highlight and recommend the need for a further assessment on a structure and these should be added to a rolling programme. Any assessments required currently need to be paid for from the Area revenue budget, reducing the funding available for maintenance works. This has resulted in a decline in the number of assessments undertaken so that maintenance works can be completed. Assessments will be reviewed on a case by case basis and potentially paid for from the £200k Principal Inspection budget.

## **9. Capital Programme – Bridge Maintenance budget (Roads and Transport)**

- 9.1 The Roads and Transport capital budget has funding allocated for maintenance on structures with further capital investment from the Development and Infrastructure capital budget for larger strengthening and replacement projects.
- 9.2 In Report EDI 23/17, it was recommended that a 2 year rolling programme for bridge maintenance was created to allow for design of works and subsequent construction. Members agreed this at committee. It is now proposed that this is developed into an extended rolling programme to align with recommended asset management practices. 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. 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.
- 9.3 A Strategic Timber Transport Scheme (STTS) for the C1121 Glenmazeran Public Road Improvements includes the substantial replacement of the Corrievorrie Bridge timber deck. At the time of writing this report, final confirmation of funding for the scheme is still to be received from Scottish Forestry.
- 9.4 Cattle and deer grids will be allocated funding on an annual basis by bids submitted to Roads HQ. At the time of writing this report, bids were being compiled by the Areas for 2020/21. A rolling list will be kept if more bids than funding available are submitted.

Designation: Executive Chief Officer Customer and Communities

Date: 6 October 2019

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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

## Appendix A

PROJECT			TOTAL ESTIMATED PROJECT COST £000	SCOPE of WORKS
1	A08360180	Vagastie*	20	Minor works
2	A08360220	Inchkinloch*	30	Partial repointing
3	A08350270	Ledmore	275	Parapet replacement
4	A08550010	Leasgary	400	Edge strengthening, parapet replacement and general refurbishment
5	C10870030	An Uillt Bhig	80	Strengthening and refurbishment
6	A08320090	Grudie	15	Investigation to determine scope of repairs
7	U32670010	Achvaich	306	Scour risk and weak parapets, preferred solution to be identified
8	A08380220	Kyle of Tongue West joint replacement	50	Movement joint replacement
9	A08620090	Lovat	125	Masonry repair and scour protection
10	B08610010	Ness	350	Assessment and Post-tensioned Special Investigation as a precursor to major works
11	A08320330	Poolewe	150	Concrete investigation and repair
12	A08610350	Ceol na Mara	50	Masonry repairs
13	A08630140	Caroy	100	Waterproofing and resurfacing, parapet replacement
14	B09700200	Nethy	140	Repointing
15	A08610230	Gour	150	Repainting, waterproofing and surfacing, parapet replacement
16	A08390010	Pittentrail	125	Refurbishment
17	A08380080	Achfary	90	Waterproofing and resurfacing, concrete repairs
18	U19070010	Dublin	306	Masonry arch major refurbishment
19	A08610340	Camuschork	40	Masonry repairs
<b>Estimated Total of Projects</b>			<b>2,803</b>	

Note: \*Combined scheme, design work completed pending construction.