Agenda item	**24**
Report no	**EDI 23/17**

HIGHLAND COUNCIL

Committee: Environment, Development and Infrastructure Committee

Date: 8 November 2017

Report Title: Road Structures Annual Report

Report By: Director of Community Services

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 'Structural Road Works - Bridges, Retaining Walls and Culverts' line, of the Community Services' Capital Programme, 2018/19.

2. Recommendations

2.1 Members are invited 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;

iii. approve the 2 year rolling programme for 2018-20 for the £350,000 Bridge Maintenance allocation of the Community Services Capital Programme; and

iv. approve the use of the current inspection regime while assessing the strategy for a move to a more risk-based approach by October 2018.

3. Highland Council Road Structures Information

3.1 The Highland Council has the largest number of road structures out of the 32 Scottish Local Authorities.

3.2 The term 'road structure' is used to describe bridges, culverts and retaining walls. Not all road structures which carry or hold up an adopted road are in the ownership of the Council; for example, Network Rail and Scottish Canals own structures which carry the adopted road.

3.3 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

3.4 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 (2016/17 figures).

Structure Type	**Quantity**
Road Bridges	1,687
Footbridges	24
Unusual Structures	104
Retaining Walls	1,061
Culverts	410
Total	**3,286**

3.5 The Gross Replacement Cost (GRC) of the structures stock calculated for 2016/17 is £634,650,318. This figure fluctuates as data on the stock is refined.

3.6 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.

4. Inspections

4.1 The inspection regime, as detailed in report COM 58/15 Bridges and Road Structures, section 2, has not changed. This is summarised below:

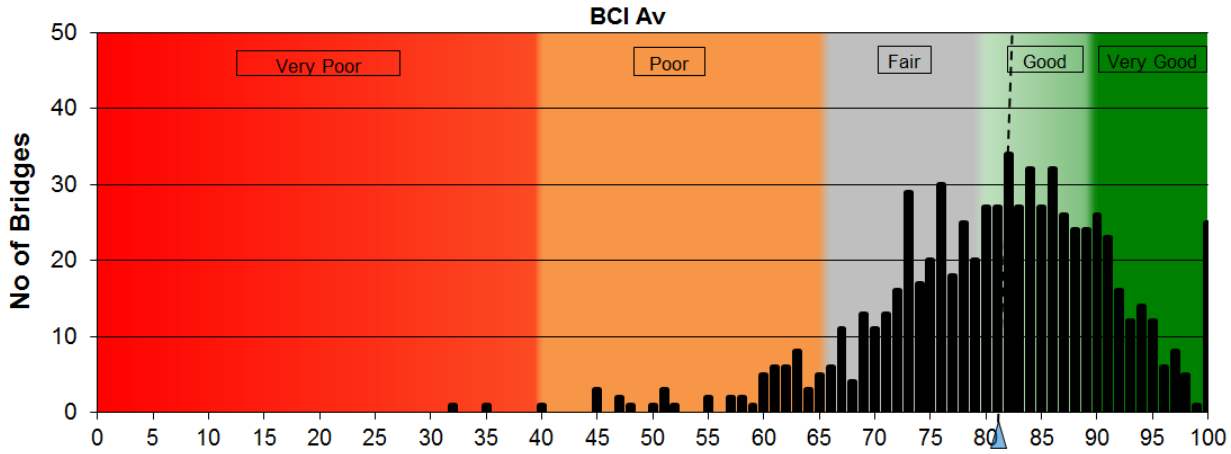
- General Inspections – 3 year intervals
- Principal Inspections – 9 year Intervals

4.2 Principal inspections are only undertaken on bridges with an overall length of 5m or more and on Council-owned road over rail bridges. A limited number of retaining walls are inspected.

4.3 The 'Well-Managed Highway Infrastructure: Code of Practice' was published in October 2016. It recommends using a risk-based approach to inspection frequencies. The Society for Chief Officers of Transportation (SCOTS) has drafted a risk-based approach as part of the Road Asset Management project. Highland is reviewing this along with the Code of Practice and expects to determine a strategy for inspections by the implementation date of October 2018. A further report will be brought back to Committee for consideration by Members when the SCOTS guidance has been published.

5. Bridge Stock Condition

5.1 Principal inspections (on bridges 5m or more in length) generate a condition score for each individual bridge. This is used to calculate the Bridge Stock Condition Index (BSCI). The 2016/17 Highland BSCI average is 81.4 and BSCI critical (where the next stage could mean weight restrictions or closure) is 69.0, compared to the Scotland average figures for 2015/16 of 85.17 and 77.72. The distribution of BCI average values for each bridge which has had a PI are shown in the diagram below. The Highland BCI average is 82.



6. Performance Indicators

6.1 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. It is intended to now publish these results annually as the amendments to the questionnaire have settled down.

6.2 The 2016/17 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 2016/17 results (all 4 years data for Highland).

APSE/ SCOTS PI	2013/14	2014/15	2015/16	Provisional 2016/17 Result
% of Principal Inspections carried out on time	94.85	81.37	85.84	100
% of General Inspections carried out on time	29.49	37.87	24.26	26.0
BSCI average	82.4	82.0	81.0	81.4
BSCI critical	70.1	70.0	68.5	69.0
% of Council owned bridges failing European standards	11.09	10.89	10.82	10.66
% of Council road bridges with unacceptable weight, height or width restriction	0.14	0.27	0.37	0.31

6.3 The table below shows the 2015/16 results for the SCOTS Family Group (Rural), and the Scotland averages. The 2016/17 results have not yet been verified by APSE/ SCOTS at the time of writing this report so are not currently available. Members are reminded that Highland has the largest road structures stock of all of the Scottish Local Authorities.

APSE / SCOTS PI	Family Group Average	Scotland Average
% of Principal Inspections carried out on time	80.47	78.75
% of General Inspections carried out on time	68.35	83.61
BSCI average	82.77	85.17
BSCI critical	77.69	77.72
% of Council owned bridges failing European standards	3.55	3.36
% of Council road bridges with unacceptable weight, height or width restriction	0.8	1.94

6.4 The above figures highlight the staffing pressures that currently exist to undertake the General Inspection (GI) programme. In addition, we are reviewing using a risk-based approach to inspection frequencies which is likely to result in an increase in the number of inspections per annum. This requires to be addressed. As the current resource allocation is not sufficient to deliver the required inspection regime, it is intended that this be reviewed and that resource be allocated to this activity from within the overall roads maintenance budget.

6.5 Principal Inspections are undertaken by the Project Design Unit and paid for from the Roads and Transport revenue budget. General Inspections are normally undertaken by Roads and Transport Area staff along with their other duties. The full time equivalent resource required for GIs is unknown but can be estimated at 3.5 - 5 hours per GI, depending on the size and nature of the structure.

7. Inspections and Resultant Works

7.1 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.

7.2 The 2017/18 Roads Budget Allocation has the following distribution for spend on structures:

- Bridge Maintenance £350k (capital)
- Bridges Structural Maintenance £607k (revenue)
- Principal Inspections £100k (revenue)

7.3 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.

7.4 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.

7.5 The internal audit report 'Inspection of Roads and Bridges' (September 2017) highlighted the need for a consistent approach to reporting works undertaken at Area Committees. This is to be implemented in 2018 as agreed by management.

8. Capital Programme – Bridge Maintenance budget (Roads and Transport)

8.1 As stated in 7.2, £350,000 from the Roads and Transport budget is allocated for capital bridge maintenance. Further capital investment is made from the Development and Infrastructure 'Major Bridges' and 'Lifeline Bridges' budgets. These major capital budgets will not be discussed in this report as the Council's capital programme is under review. An additional capital allocation of £400,000 was made as part of the £23.4 million 9 year programme previously approved by Community Services Committee.

8.2 For 2017/18, the projects being undertaken from the Capital Bridge Maintenance and £400k additional budget are shown in the table below. Not all projects will be completed in the year they start as design work is initially required. Kylesku construction is expected to be complete in 2017/18 and construction for Coronation is expected to start in 2018/19.

Ref.	**Name**	**Brief Description**	**Estimated Total Cost (£000s)**	**Status**
A08310160	Struy	Masonry repairs, scour protection.	100	Construction completed
C11260030	Coronation	Repainting steel beams, re-waterproofing and resurfacing.	130	Design commenced
A08940030	Kylesku	Parapet replacement.	389	Construction ongoing
		Total	**619**	

8.3 It is recommended that a 2 year rolling programme is created to allow for design of works and subsequent construction. The 2018-2020 works programme for Member approval is shown below.

2018/19 Programme				
Ref.	**Name**	**Brief Description**	**Estimated Cost (£000s)**	**Area**
C10870030	An Uillt Bhig	Re-pointing, masonry repairs, replace backfill, rebuild approach wall.	80	Skye
C10430070	Bridgend	Masonry repairs.	40	Ross & Cromarty
B09700200	Nethy	Repointing, crack repairs.	140	Badenoch & Strathspey
A08310040	Polmaily	Waterproofing and surfacing.	80	Inverness
A08320330	Poolewe	Advance investigative work, including Structural Review, to decide scope.	10	Ross & Cromarty
		Total	**350**	

2019/20 Programme				
Ref.	**Name**	**Brief Description**	**Estimated Cost (£000s)**	**Area**
A08320330	Poolewe	Concrete repairs.	140	Ross & Cromarty
A08360180	Vagastie	Scour protection, masonry repairs.	20	Sutherland
A08360220	Inchkinloch	Masonry repairs/ repointing.	30	Sutherland
A08380080	Achfary	Concrete repairs, waterproofing and surfacing.	90	Sutherland
C11540010	Tomlachlan	Waterproofing, surfacing and parapet replacement.	70	Nairn
		Total	**350**	

9. Implications

9.1 Resources: As the inspection regime is not able to be met with the current resource level, it increases the risk of deterioration of structures which could have been identified at an early stage. It is therefore intended that this be reviewed and additional resource allocated to this activity from within the overall roads maintenance budget.

9.2 Legal: Legal implications may include increased claims as a result of not being able to complete inspections timeously.

9.3 Rural: Due to the geographic nature of Highland, many structures are located where remote communities rely on them. This is used as one of the factors taken into account when prioritising schemes.

9.4 Community and Gaelic: There are no other known Climate Change / Carbon Clever, equalities or Gaelic implications arising as a direct result of this report.

Designation: Director of Community Services

Date: 3 November 2017

Author: Tracey Urry, Head of Roads & Transport
Elizabeth Maciver, Senior Engineer (Asset Management)

Background Papers: COM 58/15 Bridges and Road Structures