Agenda Item	9
Report No	CIA/30/20

HIGHLAND COUNCIL

Committee: **City of Inverness Area**

Date: 19 November 2020

Report Title: **Area Structures Report 2019/20**

Report By: Executive Chief Officer Infrastructure and Environment

1 Purpose/Executive Summary

1.1 This report provides an Area update on the inspection regime and the work undertaken as part of the Structures Programme for the 2019/20 financial year.

1.2 The Report also provides an update on the Infirmary Bridge. A Members briefing will be held in the near future to provide further details on this issue.

2 Recommendations

2.1 Members are asked to:

1. Note the general contents of the Structures Report; and

2. Note the recent deterioration of the infirmary Bridge and the implications of the deterioration and consequential maintenance work urgently required

3. Implications

3.1 Resource – The total backlog of work is currently unknown, but the rolling programme will be added to annually as inspections are completed.

In respect of the urgent works identified in relation to the Infirmary Bridge as advised in section 11, a plan is currently been worked upon as advised in this report to secure funding for the necessary repairs.

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 - 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 Structures Assets

4.1 This report applies only to structures which are considered to be part of the adopted road network under the Roads (Scotland) Act 1984 and are the responsibility of the Council. It does not include structures that are the responsibility of other Council Services or those owned by other parties which are part of the adopted road network.

4.2 The term 'road structure' is used to describe bridges, culverts, retaining walls and cattle grids. A breakdown of Council owned/maintained road structure numbers per Inverness Area is shown in **Table 1** below (as at 20/08/20). It is important to note that footbridges which are part of the adopted road are also included.

Table 1: Adopted Road Structures Inverness Area

Area	Bridges (5.0m plus)	Bridges (under 5.0m)	Minor Culverts	Retaining Walls	Cattle Grids
Inverness	112	131	79	160	44

5 Finance

5.1 A decision was made for 2017/18 to remove the costs for Principal Inspections (PIs) from Area revenue budgets. This removes the annual fluctuation in the Bridges Structural Maintenance budget for each Area which was dependent on the number of Principal Inspections that required to be completed.

5.2 The replacement and maintenance of structures is funded from either Capital or Revenue budgets. As would be expected, Area revenue budgets (Bridges Structural Maintenance) are used to effect relatively small repairs, maintenance or minor replacements, in comparison to Capital works. **Table 2** below shows the revenue budget and actual spend figures for the Area.

Table 2: Inverness Area Budget Figures

For 2019/20	Budget	Actual Spend	%age of Budget
Bridges Structural Maintenance	£64,000	£50,000	78

6 Structures Inspection Programme

6.1 There are several types of inspections undertaken on structures. These include General and Principal Inspections (GIs and PIs). Currently, PIs are undertaken by the Structures Section of the Project Design Unit on bridges with an overall length of 5m or more. PIs are a more detailed inspection, compared to a GI. The Area Structures Technicians, along with other Area staff when necessary, will undertake the majority of GIs. Some GIs on the larger structures (20m length or more) will be completed by the Structures Section. The Area Structures Technicians will assist the Structures Section in completing inspections whenever possible.

6.2 Members approved the 'Structures Inspections' policy at EDI 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.

7 2019/20 General Inspection Programme Update

7.1 For 2019/20 - 22 bridges were programmed for General Inspections by the area structural technician. All 22 programmed bridges have been inspected representing a 100% a completion rate.

The programme for 20/21 contains 21 inspections.

7.2 There is also a historical backlog of inspections due for a further 122 bridges. 54 of these backlog inspections were completed in 2019/20. This leaves 68 inspections to be carried forward to 2020/21. Eventually all bridges will have an up to date inspection and the numbers in the allocated annual programme will increase, with no backlog, to spread the bridges more evenly over a three-year inspection period.

The bridges inspected in 2019/20 are listed in **Appendix A**.

Note: The structural technician also covers inspections for Nairn and Badenoch & Strathspey Council areas.

8 2019/20 Principal Inspection Programme Update

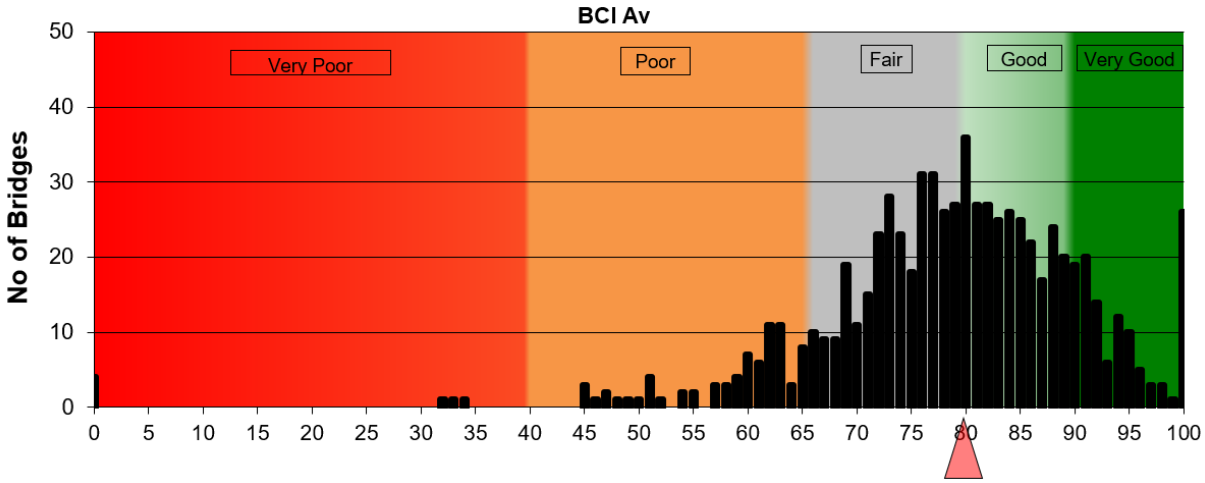
8.1 For 2019/20, 20 bridges were programmed for Principal Inspections. Members are reminded that the PDU Structures Section undertakes these inspections.

8.2 At the end of March 2020, 20 bridges had been inspected. This is a completion rate of 100%. The bridges inspected are listed in **Appendix B**.

9 Bridge Stock Condition

9.1 As inspections are completed, information gathered is used to calculate the Bridge Stock Condition Index (BSCI). Currently, principal inspection results are used as they generate a condition score for each bridge. 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.

Note: This diagram is for the whole Highland Council area and is to show how the collected data is interpreted into a simple format.



10 2019/20 Area Bridge Maintenance Programme

10.1 The following repairs were undertaken in 2019/20:-

Convinth Bridge

- Replacement of drainage pipe in road-side verge and through retaining headwall after major water leakage with risk of wall collapse;
- Concrete was laid in areas of scour and undermining beneath concrete foundation aprons; and
- Mortar scrape out and repointing for large areas of masonry arch.

Darris Bridge

- Concrete was used to replace loss of washed away masonry at base of arch;
- Concrete was laid to repair areas of scour;
- Mortar scrape out and repointing to parapet walls and masonry arch; and
- Removal of vegetation on parapet and spandrel walls.

Findhorn 2 Bridge

- Concrete repairs at both ends of structure. There was water ingress to side of concrete watercourse pipe that was washing out surrounding material with possibility of embankment collapse.

Cantray Bridge

- Cleaning of carriageway edges, clearance of vegetation from masonry and pillar repairs to internal safety barriers after vehicle strike.

Chapel Bridge

- Clearance of vegetation and detritus build up to concrete verge/footpath areas and minor parapet repairs.

Torness Bridge

- Clearance of vegetation and detritus build up to concrete verge/footpath areas.

Nairnside Bridge

- Clearance of vegetation and debris from footpaths and central bridge pier.

Erchite Cattlegrid

- Clean out of soil and vegetation from sump and repairs to concrete and steelwork.

Clachnaharry Seawall

- Major repairs along sections of wall with rebuild including block work reinforcing core and masonry reface, reseating of masonry and mortar replacement.

Note: Other works were planned, quoted and agreed with contractors for March 2020 but were stopped due to Coronavirus lockdown. Works will commence and be completed under the 20/21 budget.

10.2 Under the Roads and Transport Capital Budget, Elrig Bridge at East Croachy was replaced with a Mabey quick bridge as part of a Strategic Timber Transport Scheme. A visual inspection of the bridge following a parapet railing vehicle strike revealed major structural failure of original concrete beams. This inspection by the structural technician has led to further inspections throughout the Highland Council area where similar bridges have been identified for future works and ongoing monitoring.

11 Infirmary Bridge

11.1 Background

Infirmary Bridge is a suspension footbridge located in the City of Inverness, crossing the River Ness between Ness Walk and Ness Bank. It has a span of 83 metres and consists of a wrought iron truss supported by steel hangers and steel cables. Each pier comprises of two wrought iron latticework towers. The deck of the bridge is timber with non-slip surfacing. The bridge was built in 1876 and is a Category B Listed Structure in the Inverness Riverside Conservation Area. Substantial repairs were undertaken in 1977 and 1994.

11.2 Required Works

Members are asked to be aware of the deterioration of the bridge and the likely costs of works to ensure its continued use. Currently no capital budget is allocated to this asset. Recent deterioration of the bridge timber decking has focused the urgent requirement to carry out minimum repairs of up to £550k to the bridge. Failure to carry out these repairs could result in the closure of the bridge in the near future on the grounds of health and safety. The rate of deterioration of the bridge is being closely monitored and further inspections will continue to be undertaken which will inform any decision on the timing of the closure.

Minimum Required Repairs:-

- Replace timber deck and timber cross bracing;
- Improve drainage;
- Replace all loose/sheared connections;
- Steel plating to strengthen connections and areas of corrosion; and
- Partially repaint the bridge to prevent further corrosion

11.3 A plan is currently being developed to secure funding for the necessary repairs as the resources required are in excess of the Area Bridge Maintenance Budget of £64,000. There are a number of potential funding sources which have been identified, including:

- An allocation from the recently allocated Roads Investment Fund, which will be considered by ECI Committee in February and the CIA Committee in February.

- Efforts to secure partial match funding from external sources such as Historic Environment Scotland, Sustrans or Scottish Government.

- For the longer term repairs, consideration within the long list of projects to be included within the Council's Capital Programme review process.

Clearly there are pressures on all funding sources at this time with many competing projects and prioritising repairs to this bridge will be challenging.

11.4 A Members briefing will be held in the near future to provide a further updated on this issue.

Designation:	Executive Chief Officer Infrastructure and Environment
Date:	9 November 2020
Author:	John Taylor, Road Operations Manager – Inverness Tracey Urry, Head of Roads and Transport
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

APPENDIX A

2019/20 General Inspection Programme/Backlog - Inverness

Structure Ref	Name
(Undertaken by Structures Section)	
A08310100	COMAR
A08620090	LOVAT
A80820020	HOLM MILLS
B08510030	ABERARDER
C11060010	BLACK BRIDGE KILMORACK
U11690010	CANTRAY
U11770010	LOWER FOYERS
(Undertaken by Area Structural Technician)	
B08610020C04	Slackbuie Burn
U11240010	Screton burn
U50430010	Milton of Leys Underpass
U50430010C01	Mill Burn
U47030010	Mill Burn
C10170011	Mid Coul Culvert
C10440011	Lochardil Burn
U14720000C09	Druid Burn
U12330010	Dalroy
U41020010	Allt Na Skiach
C1017020C64	Airport Runway Ditch
C11180000C45	General Booth Road
C11180000C22	General Booth Road
U11440020	Milton of Culloden
A08620060C76	Unnamed (Lentran)
A08620030C33	Unnamed (Bunchrew)
A08620040	Kirkton
C10880010	Clava
A08620110	Bridgend
B91540030	Meallmore
B91540020C19	Unnamed
U28480010	Moy
B91540000C79	Unnamed
U27860000C95	Invereen
C10800030	Allt Na Goire 2
B08510030C23	Blarachar
B08510030C36	Milton of Aberarder

U27860010C95	Ruthven Farm
U10840000C16	Darris
U10040000C40	Balnagarline
B08620069	Holm Burn
F00000360	Raigmore Footbridge
U11400009	Braenock
U10920010	Loch Mhor
B08520000C73	Boleskin House
B08520000C72	Boleskin Graveyard
U40230020	Mill Burn
A80820010	Mill Burn
A80820010C06	Park Burn
A80820030	Queens Park Underpass 1
U44100010	Mill Burn
U46840010	Mill Burn
B90390040	Treeton
B08620020	Reidhean
U16630000C27	Jenkins Park
U16630019	Allt na Fearna
U16710000C34	Balantoul
U16710000C27	Bunoich
U16630000C02	Balantoul
U12210010	Gourag
U11160000C42	Farr
U11160010	Allt Beag
U28290050	Inverbrough
B08510069	Whitemill New
U16440010	Dalriach
A08330040	Dalnamein
A80820010C30	Allt Na Skiach
B90060020C32	Easter Muckovie
U16590030	Tomcrasky
U16590020	Balnacarn
U16590010	Balintombie
U28560040	Findhorn
U28560030	Findhorn Flood Relief
U28290080	Findhorn 2
U28560020	Allt Cosach
U10920020	Aberchalder

U16670010	Ardachy (Tarff)
C10760020	Dunlichity
C10680010	Bunachton
U11160030	Kyllachy Burn
U11120010	Elrig
A08310170	Erchless
A08310050	Balnain Smithy
A08310060	Kilmartin House
A08310070	Kilmartin Farm
A08310080	Millness East

APPENDIX B

2019/20 Principal Inspection Programme - Inverness

Structure Ref	Name
A08620060	LENTRAN
B08510010	DUNMAGLASS LODGE
B08530010	CULCABOCK ROAD
C10170020	AIRPORT RAILWAY
C10360010	CULLODEN RAILWAY
C10400010	TORBRECK ROAD
C10720020	BELLADRUM
C10800020	ALLT NA GOIRE
C11100010	FASNAKYLE
C11120040	BLAR NA GAMHNA
C11120050	COIRE BEITHE
C11120070	ALLT NA H IMRICH
U10960009	ALLT MOR
U14230010	ALLT CURRACHAN
U15680010	REELIG
U27860010	RUTHVEN
U28560010	RAIGBEG RAILWAY
U46200010	WATERLOO
U46840010	MILL BURN
U47140010	INSHES FOOTBRIDGE