

Merthyr Tydfil  
County Borough Council

Internal Audit Final Report

Bridge Maintenance 2019/20

***MANAGEMENT IN CONFIDENCE***

<b>Date of Audit:</b>	2019/20
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<b>Report Distribution:</b>	Chief Officer Planning and Neighbourhood Services Engineering and Traffic Manager
<b>Date of Issue:</b>	15/01/2020

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## **1.0 Introduction**

- 1.1 As part of the audit plan for 2019/20 a review was undertaken of Bridge Maintenance.
- 1.2 The system was examined using a matrices developed by the Internal Audit Service to test the controls that should be in place within the Authority.
- 1.3 Sample testing was conducted for the 2018/19 and 2019/20 financial year.
- 1.4 Acknowledgement is given to the staff concerned for their help and assistance during the course of the audit.
- 1.5 Copies of this report have been sent to the Engineering and Traffic Manager and the Chief Officer Planning and Neighbourhood Services. A copy will also be passed to the Audit Committee for them to monitor/comment upon recommendations made and accepted.
- 1.6 The report is addressed to appropriate Councillors and Officers and may contain confidential and/or privileged material. Any review, reproduction, external distribution, dissemination or other use of, or taking of any action in reliance upon, this information by persons or entities other than the Authority is prohibited.

## **2.0 Background**

- 2.1 As per the Well-Managed Highway Infrastructure Code of Practice, "authorities should adopt a risk-based approach and a risk management regime for all aspects of highway maintenance. The Code also states that "authorities should determine frequencies of inspection through a risk-based approach that reflects the characteristics of the particular asset or asset group". The risk based approach was introduced in October 2016 which replaced the previous requirement for authorities to complete inspections of all its structures within a 2 year cycle.

### **3.0 Scope and Objectives**

3.1 The objective of the audit was to evaluate the system of internal control with a view to delivering reasonable assurance to the Authority over the adequacy of the internal control environment. This is defined as the whole system of controls, established by management, which help to ensure the achievement of objectives, economy and efficiency, compliance with policies and procedures, safeguarding of assets and the integrity and reliability of information.

3.2 The system has been evaluated against the following control objectives:

- Inspection processes and inventory exist.
- Inspection results are documented.
- A schedule of inspections is maintained centrally.
- A budget has been established for the provision of bridge maintenance.

### **4.0 Methodology**

4.1 The audit was undertaken using a risk-based auditing methodology. Actual controls were evaluated against the expected controls within each control objective. A risk assessment of the individual controls under each control objective was undertaken and the level of testing decided upon. The system evaluation and the results of compliance testing were then used as the basis on which to draw conclusions and to form an opinion on the overall effectiveness and adequacy of the internal control environment.

### **5.0 Findings**

5.1 The detailed findings of the audit are included as Appendix A.

### **6.0 Conclusion**

#### **System of Internal Control**

6.1 The system of internal control applied has been graded **"B" – Good**. There is a sound system of internal control designed to achieve the system/Authority or establishment objective(s).

## **Testing Opinion**

- 6.2 The assessment of compliance with established controls has been graded **“C” – Satisfactory**. There is evidence that the level of non-compliance with some of the controls may put some of the system's objectives at risk/may leave the Authority or establishment open to risk.

## **Overall Opinion on Internal Control Environment**

- 6.3 The overall conclusion is that the internal control environment is graded **“C” – Satisfactory**. Details of the evaluation of each objective are listed in Appendix B

## **7.0 Recommendations**

- 7.1 Details of the recommendations are shown in the action plan attached as Appendix D.

### **Summary of Recommendations**

- 7.2 The review made five recommendations that are categorised on the following basis:

<b>Priority</b>	<b>Category</b>	<b>Definition</b>	<b>No. Of Recs</b>
1	Mandatory - Urgent	Action is imperative to ensure that the objectives for the area under review are met.	
2	Mandatory - Less Urgent	Requires action to avoid exposure to significant risks in achieving the objectives for the area under review.	4
3	Best Practice / Other Recommendations	Action is advised to enhance control or improve operational efficiency.	1

Risk may be viewed as the chance, or probability, of one or more of the Authority's objectives not being met. It refers both to unwanted outcomes that may arise, and to the potential failure to realise desired results.

Management agreed to the implementation of all recommendations.

REF	EXPECTED CONTROL	RISK	Actual Control	IS CONTROL ADEQUATE ?		TEST RESULTS			Rec No	Recommendation	Priority	
				Y	N	Comments	Findings	Is Control Being Applied				
								Y				N
<b>1</b>	<b>Inspection processes and inventory exist.</b>											
1.1	The Highways and Engineering Service complies with appropriate legislation and established codes of practices.	Non compliance resulting in professional sanctions or financial loss.	<p>Under the 'Highways Act 1980', the Local Authority has a duty to maintain structures, and in particular, Section 41 of the Act imposes a duty to maintain highways that are maintainable at public expense. There is also a Code of Practice that must be adhered to which is the 'Well-Managed Highway Infrastructure: A Code of Practice' published in October 2016.</p> <p>Staff within the Highways and Engineering Service are familiar with the legislative requirements and codes of practices listed above, and know how to access these documents. Copies of said documents are saved electronically within the Highways O Drive which is accessible to relevant staff.</p>	Y		<p>There are established codes of practices in place that staff within the Highways and Engineering Service are familiar with and adhere to. Copies of the established codes of practices are accessible to relevant staff via the Highways O Drive.</p> <p>The control is assessed as very good.</p>	<p>It was confirmed by the Engineering and Traffic Manager that only he and the Structures Engineer are trained to carry out bridge inspections; however, a Civil Engineering Technician Apprentice was appointed in March 2019 and will be trained on how to carry out inspections at some point in future. A questionnaire was devised and sent out to the 3 staff members mentioned above. The completed questionnaires confirmed that:</p> <ul style="list-style-type: none"> <li>• All 3 of the above mentioned staff are aware of their responsibilities under the Highways Act 1980</li> <li>• The 3 members of staff are aware of the Well-Managed Highway Infrastructure: New Code of Practice; and</li> <li>• All 3 members of staff know where a copy of the above mentioned legislation and codes of practices can be accessed</li> </ul> <p>Test results have been assessed as very good.</p>	Y				
1.2	Appropriate procedures have been developed by the Highways and Engineering Service for undertaking inspections of bridges.	Bridges are not inspected on a consistent basis.	<p>Inspections require the presence of two trained members of staff. At present, it is only the Engineering and Traffic Manager and the Structures Engineer that are trained to carry out bridge inspections. However, a Civil Engineering Technician Apprentice was appointed in March 2019 on a permanent basis, and will be trained on how to carry out inspections at some point in the future.</p> <p>In-house procedures have not been developed by the Highways and Engineering Service for undertaking inspections of bridges. However, there is a standardised inspection checklist that is used by the Engineers when conducting bridge inspections which has been extracted from the 'Inspection Manual for Highways Structures - Reference Manual (May 2007)'. This manual is supported, endorsed and recommended by a number of bodies/ commissioners including the Highways Agency, County Surveyors Society, UK Bridges Board, Transport Scotland and Welsh Assembly Government. The inspection proforma contains a detailed checklist of information and data to be completed when undertaking inspections.</p>	Y		<p>There is a standardised inspection proforma that is used by the Engineers when conducting bridge inspections which has been extracted from the 'Inspection Manual for Highways Structures - Reference Manual (May 2007)'. This is a national guide which has been supported, endorsed and recommended by a number of bodies/ commissioners.</p> <p>The control is assessed as good.</p>	<p>It was confirmed through enquiry with the Engineering and Traffic Manager that in-house procedures have not been developed for undertaking inspections of bridges. The Engineers use the checklist proforma contained within the Inspection Manual for Highways Structures. This manual has been supported, endorsed and recommended by a number of bodies/ commissioners. The inspection proforma contains a detailed checklist of procedures to follow when undertaking inspections.</p> <p>A sample of 10 inspection checklists completed by the Engineers was obtained. The completed checklists were cross-referenced to the checklist from the manual, and it was confirmed that they are identical. Additionally, a copy of a Principal Inspection Report completed by Capita was obtained and examined. The Bridge Inspection Proforma completed by Capita was also identical to the proforma utilised by the Engineers.</p> <p>Test results have been assessed as good.</p>	Y				



REF	EXPECTED CONTROL	RISK	Actual Control	IS CONTROL ADEQUATE ?		TEST RESULTS			Rec No	Recommendation	Priority	
				Y	N	Comments	Findings	Is Control Being Applied				
								Y				N
1.4	An annual programme of work is in place covering all bridges.	Bridge deterioration is not identified due to a lack of robust monitoring and recording of inspections of structures.	<p>As per the Well-Managed Highway Infrastructure Code of Practice, "authorities should adopt a risk-based approach and a risk management regime for all aspects of highway maintenance". The Code also states that "authorities should determine frequencies of inspection through a risk-based approach that reflects the characteristics of the particular asset or asset group, e.g. carriageway, footway, structures, lighting, etc., and their position in the hierarchy".</p> <p>The risk based approach was introduced in October 2016 which replaced the previous requirement for authorities to complete inspections of all its structures within a 2 year cycle. The Highways and Engineering Service have followed the risk based approach in terms of how they prioritise inspections based on the risk element involved with each structure. This information is recorded in the '6STR Risk Based Structures Inspection v1' spreadsheet which is updated and monitored by the Engineering and Traffic Manager.</p> <p>A 'Structure Inspection Programme' is also in place which records dates of when structures were inspected. However, the service still adheres to the 2 year inspection cycle of all its structures as they have the capacity to do so.</p>	Y		<p>The Highways and Engineering service have adopted a risk based approach in terms of prioritising inspections of its structures. However, the service still adheres to the 2 year inspection work cycle as they have the capacity to do so.</p> <p>The control is assessed as very good.</p>	<p>It was confirmed through enquiry with the Engineering and Traffic Manager that the service still has sufficient resource and capacity to undertake inspections of all its structures within a 2 year period. By continuing to operate under this regime, the service is exceeding the expected frequency of inspections as per the risk-based approach recommended within the Code of Practice.</p> <p>A risk-based structures inspection spreadsheet has been developed which is updated and monitored by the Engineering and Traffic Manager. This document records information pertaining to the risk element of each structure, and contains titles that indicate risk levels for 'Collision', 'Salt Corrosion' and 'Defects'. There are 4 different category outcomes of risk which are 'None', 'Low', 'Medium' or 'High', and there is an explanation against each risk outcome to illustrate the risk level.</p> <p>There is also a structures inspection programme to support this document which records dates of when structures have been inspected, and this is used as the forward work programme for carrying out inspections.</p> <p>Test results are assessed as very good.</p>	Y				



REF	EXPECTED CONTROL	RISK	Actual Control	IS CONTROL ADEQUATE ?		TEST RESULTS			Rec No	Recommendation	Priority	
				Y	N	Comments	Findings	Is Control Being Applied				
								Y				N
2	Inspection results are documented.											
2.1	Standard proforma templates have been developed to record the inspection of bridges to ensure they are inspected on consistent criteria.	Bridges are not inspected against a consistent criteria.	<p>A standard proforma is used for conducting bridge inspections. The proforma has been extracted from the Inspection Manual for Highways Structures - Reference Manual (May 2007). This is a national guide which has been supported, endorsed and recommended by a number of public bodies/ commissioners. The inspection proforma contains a number of fields that require completion including the bridge name, date of inspection and the name of the inspector along with their comments, and suggested remedial work (if any). The proforma also contains a scoring mechanism for the following subjects:</p> <ul style="list-style-type: none"> <li>• Deck elements</li> <li>• Load-bearing substructure</li> <li>• Durability elements</li> <li>• Safety elements</li> <li>• Other bridge elements; and</li> <li>• Ancillary elements</li> </ul>	Y		<p>A standard proforma template is used for conducting bridge inspections. All inspection results are recorded on this proforma template which has been extracted from the Inspection Manual for Highways Structures - Reference Manual (May 2007). This is a national guide that is supported, endorsed and recommended by a number of public bodies/ commissioners.</p> <p>The control is assessed as good.</p>	<p>It was confirmed through enquiry with the Engineering and Traffic Manager that a standard proforma template is consistently used for undertaking inspections of all its existing structures. The template that is being used to undertake bridge inspections has been extracted from the Inspection Manual for Highways Structures - Reference Manual (May 2007). This manual is referred to by many other public bodies/ commissioners, and acts as a national guide in how to successfully carry out bridge inspections using the standardised proforma.</p> <p>A sample was obtained of 10 completed inspection proforma. From examination of the templates it was confirmed that they are identical to the inspection proforma contained within the Inspection Manual for Highways Structures. A copy of a Principal Inspection Report completed by Capita was also obtained and examined. The Bridge Inspection Proforma completed by Capita was also identical to the proforma utilised by the Engineers.</p> <p>The control is assessed as good.</p>	Y				
2.2	Each proforma is fully completed during each inspection.	Information is incorrectly written up if it is not properly recorded at the time of inspection.	<p>Bridge inspections are to be carried out by two trained members of staff due to the risk element involved. At present, it is only the Engineering and Traffic Manager and the Structures Engineer that are trained to carry out bridge inspections. However, a Civil Engineering Technician Apprentice was appointed in March 2019 on a permanent basis, and will be trained on how to carry out inspections in the future.</p> <p>A standard proforma is in place which is fully completed during each inspection by either of the trained Engineers. The 'Inspectors Comments' and the 'Engineers Comments' fields are then both completed and signed by the Engineer who carried out the inspection. The Engineer will also detail any works required if identified.</p>	Y		<p>Each proforma is fully completed and signed by the Engineer during inspection.</p> <p>The control is assessed as good.</p>	<p>A sample of 10 inspection proforma was selected at random to establish whether they had been fully completed at the time of inspection.</p> <p>It was confirmed by the Engineering and Traffic Manager that the inspection proforma is completed during each inspection.</p> <p>From the sample selected, it was confirmed that the bridge reference had not been recorded for 2 out of the 10 selected, however, the bridge name was present on each of the completed inspections. The element description sections had been populated by the Engineer with comments recorded for all 10 completed inspections.</p>		N	3	Each proforma must be fully completed and signed by the Engineers undertaking the inspection. Where no works are required, this should be recorded and reflected on the completed inspection proforma and signed off to confirm this.	2

REF	EXPECTED CONTROL	RISK	Actual Control	IS CONTROL ADEQUATE ?		TEST RESULTS			Rec No	Recommendation	Priority	
				Y	N	Comments	Findings	Is Control Being Applied				
								Y				N
							<p>The proforma contains fields for 'Inspectors Comments', 'Engineers Comments' and 'Work Required' all of which contain a section for the Engineer to sign. Testing identified that 3 out of the 10 completed inspections had not been signed off by an Engineer. It was also identified that where no works are required, no comments are recorded against this section to confirm this, and subsequently, in circumstances where the Engineer has concluded that no works are required, this section is not signed off by an Engineer.</p> <p>Test results are assessed as unsatisfactory.</p>					
							<p>The Bridge Condition Index (BCI) spreadsheet was obtained and cross-referenced to the completed inspections. The purpose of the BCI spreadsheet is to update the document with the data gathered from the completed inspections to calculate the Bridge Condition Index. Through cross examination of said documents it was confirmed that a number of the completed inspections for 2019 had not been updated in the BCI spreadsheet to reflect the most up to date results. This was corroborated by the Engineering and Traffic Manager who confirmed that this information will be updated to reflect the most recently completed data results recorded in the completed inspections. Examination of the BCI spreadsheet also confirmed there is no field to record the date that the spreadsheet was updated against each structure. However, this information is recorded in the Structures Inspection Programme.</p> <p>Additionally, through cross-examination of the BCI spreadsheet and the sample of completed inspections, it was confirmed that elements 35-42 which are recorded on the inspection proforma are not included on the BCI spreadsheet. This was queried with the Engineering and Traffic Manager who confirmed that the BCI spreadsheet was developed by a consultancy firm called Atkins years ago, and was provided to all local authorities, and therefore, the format of the spreadsheet is historic. The Engineering and Traffic Manager is of the mindset that elements 35-42 have been omitted from the BCI spreadsheet as they are not structurally related defects.</p> <p>Test results are assessed as unsatisfactory.</p>	N	4	<p>The BCI spreadsheet should be reviewed and checked for accuracy to ensure that the information contained within the document is consistent with the completed inspections. Consideration should also be given to adding a date field to the spreadsheet to indicate when the results have been updated for each structure.</p> <p>The Engineering and Traffic Manager should investigate the reasons for elements 35-42 being omitted from the BCI spreadsheet, and make an informed decision as to whether these elements should be included. The implications and potential risks of these elements being omitted from the BCI calculation needs to be clarified.</p>	2	2

REF	EXPECTED CONTROL	RISK	Actual Control	IS CONTROL ADEQUATE ?		TEST RESULTS			Rec No	Recommendation	Priority	
				Y	N	Comments	Findings	Is Control Being Applied				
								Y				N
3	A schedule of inspections is maintained centrally.											
3.1	A central record is collated and maintained of all inspections undertaken.	It is not know what inspections have been undertaken during the year.	<p>There is a Structures Inspection Programme in place which is used as a forward work programme for undertaking inspection of structures. The document contains the dates of completed inspections along with the date that the BCI spreadsheet was updated. Completed inspections are highlighted to illustrate the outstanding structures that require inspection.</p> <p>A Bridge Condition Index document is also in place which records the results of each inspection. The spreadsheet is periodically updated following the completion of inspections by either the Engineering and Traffic Manager or the Structures Engineer.</p>	Y		<p>A Structures Inspection Programme exists which is used as a forward work programme to ensure that all structures have been identified for inspection.</p> <p>A central record is also kept to record data results following the completion of inspections.</p> <p>The control is assessed as good.</p>	<p>It was confirmed through enquiry with the Engineering and Traffic Manager that a Structures Inspection Programme is maintained which is used as a work plan to identify which structures have been inspected. This is supported by the BCI spreadsheet which contains further detail and data results from the completed inspections.</p> <p>A copy of the BCI spreadsheet was obtained. The spreadsheet was examined and checked back to a sample of completed inspections. Cross checks of these documents confirmed that some of the data contained within the completed inspections is not reflected in the BCI spreadsheet. This was queried with the Engineering and Traffic Manager who confirmed that this information will be updated to reflect the most recent data results recorded in the completed inspections.</p> <p>It was also queried with the Engineering and Traffic Manager whether there is a segregation of duties between the completion of the inspections proforma and updating the BCI spreadsheet. The inspections proforma is completed by either the Engineering and Traffic Manager or the Structures Engineer. The Engineering and Traffic Manager confirmed that responsibility for updating the BCI spreadsheet has been delegated to the Structures Engineer. It was confirmed by the Engineering and Traffic Manager that the BCI spreadsheet is not checked by a second member of staff to determine whether the data entered corroborates the results identified in the completed inspections proforma.</p> <p>Test results have been assessed as unsatisfactory.</p>		N	See recommendation 4.		

REF	EXPECTED CONTROL	RISK	Actual Control	IS CONTROL ADEQUATE ?		TEST RESULTS				Rec No	Recommendation	Priority
				Y	N	Comments	Findings	Is Control Being Applied				
								Y	N			
3.2	Remedial work required is centrally recorded and prioritised.	Actions are not taken to rectify identified defects.	<p>A central record of risk based structures is maintained to indicate the risk level surrounding 'Collision', 'Salt Corrosion' and 'Defects'. The risk levels are categorised as either 'none', 'low', 'medium' or 'high'. This document is updated following the completion of general inspections to calculate the Bridge Condition Index. Where defects have been identified during inspections, and works required have been documented, repair works will be prioritised based on the nature of the works required and the risk element involved.</p> <p>Records of work required and undertaken in respect of contract documents, drawings, invoices, photographs, etc. are all stored within each bridge folder which is located on the Highways O Drive.</p>	Y		<p>Remedial works required are recorded on the inspections proforma.</p> <p>Records of work required and undertaken are recorded within the individual bridge folders on the Highway O Drive.</p> <p>The control is assessed as satisfactory.</p>	<p>It was confirmed through enquiry with the Engineering and Traffic Manager that a record of risk based structures is maintained. This document is used to establish the levels of risk surrounding 'Collision', 'Salt Corrosion' and 'Defects'. This is supported by the BCI spreadsheet which is used to calculate the Bridge Condition Index. However, it was identified during testing that the BCI spreadsheet is not up to date and reflective of results from recent inspections. Additionally, the document does not contain all elements that are included in the inspections proforma.</p> <p>It was confirmed by the Engineering and Traffic Manager and through observations of the Highways O Drive that records of remedial work required and undertaken are kept within the individual bridge folders.</p> <p>Test results are assessed as unsatisfactory.</p>		N		See recommendations 4 and 5.	

Bridge Maintenance 2019/20 - Previous Report Recommendations

Recommendations from the previous audit (2008/2009) were examined and the following has been determined:

Number of Recommendations Made:	3
Number of Recommendations Implemented:	1
Number of Recommendations Partly Implemented:	0
Number of Recommendations Not Implemented:	0
Number of Recommendations No Longer Applicable (N/A):	2

Priority	Previous Rec No.	Recommendation	Agreed/Disagreed	Audit Opinion	Audit Comment On Opinion	Action Plan No.
3	1	Procedures should be developed to assist in providing consistency of bridge structures inspections regardless of which member of staff performs the inspection.	Consistency is now dependant on following the bridge management codes introduced in 2007. The new codes are very comprehensive and the simple proforma used to record the inspection results is very much a stage in a triage process. Inspections using the new codes began in 2008 and the first cycle of inspections is expected to be complete by September 2009.	No Longer Applicable.	There is a standardised inspection proforma that is used by the Engineers when conducting bridge inspections which has been extracted from the 'Inspection Manual for Highways Structures - Reference Manual (May 2007)'. This is a national guide which has been supported, endorsed and recommended by a number of bodies/ commissioners.	
2	2	Each proforma must be fully completed to ensure that all observations are accurately and fully recorded.	To satisfy practicality and resource considerations, completion of the Inspector's offsite related portions of the proformas will be undertaken as soon as reasonably practicable after the date of the inspection and the Engineer's review will be carried out periodically as recommended in the new codes of practice. This would include all of the reverse face of the proforma.	Implemented	Bridge inspections are to be carried out by two trained members of staff due to the risk element involved. At present, it is only the Engineering and Traffic Manager and the Structures Engineer that are trained to carry out bridge inspections.  A standard proforma is in place which is fully completed during each inspection by either of the trained Engineers. The 'Inspectors Comments' and the 'Engineers Comments' fields are then both completed and signed by the Engineer who carried out the inspection. The Engineer will also detail any works required if identified.	

Bridge Maintenance 2019/20 - Previous Report Recommendations

Priority	Previous Rec No.	Recommendation	Agreed/Disagreed	Audit Opinion	Audit Comment On Opinion	Action Plan No.
2	3	It should be ensured the planned programme of work is completed within the two year cycle.	Normal practice has been to achieve a two year cycle of inspections even prior to the code being developed but the department's resources are limited and in 2007 had to be diverted to other matters including tip inspections and research on large planning applications. The year (2007) coincided with the introduction of new bridge management codes which also consumed staff time in familiarisation. The two year cycle of inspection is being restored and will be complete later this year.	No Longer Applicable.	The Highways and Engineering service have adopted a risk based approach in terms of prioritising inspections of its structures. This is in conjunction with the 'Well-Managed Highway Infrastructure Code of Practice. However, the service still adheres to the 2 year inspection work cycle as they have the capacity to do so.	

Audit conclusions are graded using the following grading structure:

LEVEL OF CONTROL	GRADE	EVALUATION OF SYSTEM OF INTERNAL CONTROL OPINION	GRADE	TESTING OPINION
VERY GOOD	A	There is a sound system of internal control designed to achieve the Authority's strategic aims.	A	The controls are being consistently applied with no errors identified.
GOOD	B	There is a sound system of internal control designed to achieve the system/Authority or establishment objective(s).	B	The controls are being consistently applied with a small number of minor errors identified.
SATISFACTORY	C	While there is basically a sound system of control, there are weaknesses, which put some of the System's/Authority's or establishment objectives at risk.	C	There is evidence that the level of non-compliance with some of the controls may put some of the system's objectives at risk/may leave the Authority or establishment open to risk.
UNSATISFACTORY	D	Weaknesses in the system of controls are such as to put the System's/Authority's or establishment objectives at risk.	D	The level of non-compliance puts the system's objectives/Authority or establishment at risk.
POOR	E	Control is generally weak leaving the System/Authority or establishment open to significant risks.	E	Significant non-compliance with basic controls leaves the System/Authority or establishment open to error or abuse.
Risk may be viewed as chance, or probability, of one or more of the Authority's objectives not being met. It refers to both unwanted outcomes that may arise, and to the potential failure to realise desired results.				

**OVERALL OPINION ON THE INTERNAL CONTROL ENVIRONMENT**

On completion of the audit the auditor will need to provide an evaluation opinion and a testing opinion, both these opinions will then be used to formulate an overall opinion of the system/establishment/area etc. audited. The overall opinion will be formulated and arrived at by using the lower of either the evaluation opinion or testing opinion.

**Conclusion for Bridge Maintenance 2019/20: Overall Evaluation**

The system of internal control applied has been graded as good. There is a sound system of internal control designed to achieve the system/Authority or establishment objective(s).

The assessment of compliance with established controls has been graded as satisfactory. There is evidence that the level of non-compliance with some of the controls may put some of the system's objectives at risk/may leave the Authority or establishment open to risk.

**Therefore the overall conclusion is that the internal control environment is graded SATISFACTORY.**

	AREA OF AUDIT	CONTROL GRADE	TEST GRADE	OVERALL GRADE	REASONS
<b>1</b>	Inspection processes and inventory exist.	B	B	<b>B</b>	<p>The Highways and Engineering service have adopted a risk based approach in terms of prioritising inspections of its structures. This is in conjunction with the Well-Managed Highway Infrastructure Code of Practice which was introduced in October 2016. However, the service still adheres to the 2 year inspection work cycle as they have the capacity to do so.</p> <p>There is a standardised inspection proforma that is used by the Engineers when conducting bridge inspections which has been extracted from the 'Inspection Manual for Highways Structures - Reference Manual (May 2007)'. This is a national guide which has been supported, endorsed and recommended by a number of bodies/ commissioners.</p> <p>An inventory has been produced of all structures that fall under the statutory framework for inspection. Not all of the suggested fields for inclusion as per the Well-Managed Highway Infrastructure Code of Practice have been recorded in the inventory. However, there are supporting documents in place, and the inspection proforma that does contain this detail.</p>
<b>2</b>	Inspection results are documented.	B	D	<b>C</b>	<p>A standard proforma template is used for conducting bridge inspections. All inspection results are recorded on this proforma template which has been extracted from the Inspection Manual for Highways Structures - Reference Manual (May 2007). This is a national guide that is supported, endorsed and recommended by a number of public bodies/ commissioners.</p> <p>However, it was identified during testing that not all of the fields on the inspection proforma had been fully completed, and not all of the inspections had been signed off by an Engineer. Additionally, it was identified through testing that the data contained within the BCI spreadsheet is not reflective of the data recorded in the completed inspections.</p>



Bridge Maintenance 2019/20 - Control Evaluation

	AREA OF AUDIT	CONTROL GRADE	TEST GRADE	OVERALL GRADE	REASONS
3	A schedule of inspections is maintained centrally.	C	D	D	<p>A Structures Inspection Programme exists which is used as a forward work programme to ensure that all structures have been identified for inspection.</p> <p>A central record is also kept to record data results following the completion of inspections.</p> <p>This is supported by the BCI spreadsheet which is used to calculate the Bridge Condition Index. However, it was identified during testing that the BCI spreadsheet is not up to date and reflective of results from recent inspections. Additionally, the document does not contain all elements that are included in the inspections proforma.</p>
4	A budget has been established for the provision of bridge maintenance.	B	B	B	There is an established revenue budget in place for the provision of bridge maintenance which is used to fund external inspections, and is also used for minor repair works. Any significant structural works required are funded through the Capital Programme.
	Previous Report Recommendations		A	A	<p>The previous audit (2008/09) made the following recommendations:</p> <ul style="list-style-type: none"> <li>• 2 priority 2; and</li> <li>• 1 priority 3.</li> </ul> <p>Our work identified the following:</p> <ul style="list-style-type: none"> <li>• 1 recommendation had been implemented (priority 2);</li> <li>• 2 recommendations were deemed no longer applicable (1 priority 2 and 1 priority 3).</li> </ul>
	<b>OVERALL OPINION</b>	<b>B</b>	<b>C</b>	<b>C</b>	<b>SATISFACTORY</b>

Recommendations are categorised on the following basis:

Priority / Key	Category	Definition
1	Mandatory - Urgent	Action is imperative to ensure that the objectives for the area under review are met.
2	Mandatory - Less Urgent	Requires action to avoid exposure to significant risks in achieving the objectives for the area under review.
3	Best Practice / Other Recommendations	Action is advised to enhance control or improve efficiency.

Key	Rec No.	Recommendation /Action	Inspection Agency and Inspection/Audit Report Title	Start Date	End Date	Lead Officer
		<b>Title</b>	<b>Bridge Maintenance 2019/20</b>			
2	1	Recommendation	The inventory of structures should be reviewed to ensure that all of the relevant fields have been fully completed.	01-Feb-20	01-Dec-20	Engineering and Traffic Manager
		Action	Agreed - this will be reviewed and updated.			
3	2	Recommendation	Consideration should be given to amending the inventory to include all of the suggested fields highlighted in the Well-Managed Highway Infrastructure Code of Practice.	01-Feb-20	01-Dec-20	Engineering and Traffic Manager
		Action	Agreed - this will be looked into and updated if necessary.			

Bridge Maintenance 2019/20 - Audit Action Plan

Key	Rec No.	Recommendation /Action	Inspection Agency and Inspection/Audit Report Title	Start Date	End Date	Lead Officer
2	3	Recommendation	Each proforma must be fully completed and signed by the Engineers undertaking the inspection. Where no works are required, this should be recorded and reflected on the completed inspection proforma and signed off to confirm this.	01-Feb-20	01-Dec-20	Engineering and Traffic Manager
		Action	Agreed - past insepciton forms will be checked and signed off. All future forms will be signed.			
2	4	Recommendation	The BCI spreadsheet should be reviewed and checked for accuracy to ensure that the information contained within the document is consistent with the completed inspections. Consideration should also be given to adding a date field to the spreadsheet to indicate when the results have been updated for each structure.	01-Feb-20	01-Dec-20	Engineering and Traffic Manager
			Agreed - this will be reviewed and updated.			
2	5	Recommendation	The Engineering and Traffic Manager should investigate the reasons for elements 35-42 being omitted from the BCI spreadsheet, and make an informed decision as to whether these elements should be included. The implications and potential risks of these elements being omitted from the BCI calculation needs to be clarified.	01-Feb-20	01-Dec-20	Engineering and Traffic Manager
		Action	Agreed - this will be investigated.			