

THE MORAY COUNCIL  
ROADS ASSET MANAGEMENT PLAN  
STRUCTURES LIFECYCLE PLAN

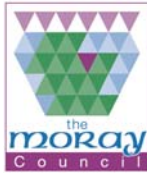
# LIFECYCLE PLAN

## STRUCTURES

**Version 1.1**

**February 2012**

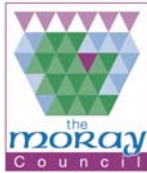
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## **1. Introduction**

### **1.1 Scope**

The Scope of the Structures Asset comprises

- Road bridges over roads, rivers, canals and burns
- Road bridges over live and disused railways
- Road bridges over footpaths, cycleways and other obstacles
- Footbridges
- Retaining Walls

1.1.1 Bridges are defined as having a span of 1.5m or more. Structures with a span less than this are defined as structures / drainage which is included elsewhere in the Roads Asset Management Plan. A similar situation exists for retaining walls less than 1.5m in height.

1.1.2 The Structures Asset is defined as council owned road structures and includes boundary structures with adjacent councils where shared ownership, inspection and maintenance are involved.

1.1.3 The Structures Asset Management Plan also makes reference to road related structures which are privately owned e.g. Network Rail, British Railways Board (Residuary) Ltd, Scottish Government, private developers and the like. Such private structures currently number 136 and although management and maintenance issues impact on the roads network private structures are not included within the Structures Asset considered in this Plan.

### **1.2 Current Issues**

1.2.1 Impact of the current and future cuts in local authority spending on investment and maintenance of the structures asset.

1.2.2 Impact of the Structural Eurocodes which replaced the current British Standards design standards in March 2010.

1.2.3 Implementation of the Code of Practice for Management of Highway Structures.

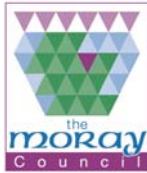
1.2.5 Incomplete asset inventory data from the structures management system (mainly retaining walls)



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**1.3 Current Asset Management Strategies**

- 1.3.1 Use of a structures database (Structures Management System (SMS), by WDM Ltd) to hold inventory and inspection information and records.
- 1.3.2 Use of WDM works instruction module to monitor budgets.
- 1.3.4 Inspection and reporting in accordance with the Bridge Condition Indicator regime developed by the County Surveyors Society (CSS).
- 1.3.5 Load assessment of bridges that carry Council roads
- 1.3.6 Strengthening and replacement of weak or worn-out structures, through a Capital Programme
- 1.3.7 Repair and maintenance of damaged and deteriorated structures
- 1.3.8 Working towards a full Road Asset Management Plan, through the ongoing Society of Chief Officers in Scotland (SCOTS) roads asset management project.



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**2. The Asset**

**2.1 Inventory Asset Type and Ownership**

2.1.1 The Moray Council owns and maintains 376 bridges which are associated with the roads network. These bridges are administered by the Consultancy Section of Direct Services – a sub division of Environmental Services.

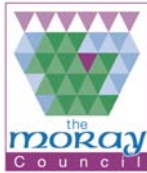
2.1.2 There are also 16 footbridges and 10 road bridges owned jointly with either Aberdeenshire Council (9) or Highland Council (1).

There is insufficient data on retaining walls to give an accurate number.

2.1.3 These structures are maintained from the Roads Maintenance Revenue budget with major works (replacement or strengthening) funded from the Capital budget.

2.1.4 Bridges not owned by The Moray Council are as follows:

<b>Owner</b>	<b>Number</b>
Transport Scotland (trunk roads)	58
Network Rail	33
Keith Dufftown Railway Association	32
BRB (Residuary) Ltd	5
Other privately owned bridges	9



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2.1.5 The Structures Asset within The Moray Council comprises:

<b>Table 2.1 Moray Council Road Structures Inventory</b>		
<b>Type of Structure</b>	<b>Construction Material (primary structural element)</b>	<b>Number of Structures</b>
Special / Listed Bridges	Cast iron with brick arch side spans	1
Bridges carry Road over Rail	Masonry	2
	Steel Composite (concrete or timber)	0
	Reinforced Concrete	0
	Prestressed Concrete	1
Bridges carry Road over Water	Masonry	227
	Steel Composite (concrete or timber)	81
	Reinforced Concrete	111
	Prestressed Concrete	36
	Timber	0
Footbridges	All	16
Retaining Walls	All	unknown
Total Road Structures		475

Note these figures relate to structures not bridges. This reflects the fact that a bridge can have more than one type of construction and can have more than one span.

The figures have been derived from database records for road bridges only, updated by inspection surveys, and are considered to be of good reliability, with approximately 90% of the records of bridges and culverts considered accurate.

No data on bridges remote from the roads network is included in Table 2.1 – ie those administered by the Lands and Parks Section.

Retaining structures data is particularly poor and is the subject of an Improvement Action.



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## **2.2 Asset Register**

The definitive record of the road structures asset is held in the computer based Structures Management System (SMS) database, provided by “WDM Ltd”

The information held in SMS comprises:

- Structure – name, identification number, reference, type, owner, maintaining agent, asset carried, obstacle crossed, status, last inspection and next inspection
- Location – grid reference
- Description – narrative description of structure, heritage type and access difficulties
- Construction – structural form, primary material and secondary material
- Superstructure – construction, end widths, waterproofing, parapet, end expansion joints, length, span count, end skew, manufacturer, largest square span, carriageway width, deck area, parapet height and date installed
- Substructure – bearings, end support, end material, intermediate support, intermediate material
- Inspection Schedule – date last inspected and date next inspection due

It is essential that SMS is kept updated with all additions, removals, renewals, inspections and works undertaken.

SMS has the capability of producing works orders and recording works carried out. This functionality is currently being used. The system has been configured to suit work flow for maintenance and the SMS module is integrated into a larger asset management software package. This includes a customer services module as well as modules for roads management (RMS) and street lighting (LMS). The system is in its third year of use and is being developed to suit the requirements of the Roads Asset Management Plan.

The WDM system has a document management system that is linked to the asset database. It is envisaged that eventually all documents relating to a bridge (drawings, photographs, certificates, reports, test results etc) will be accessed via this link.

## **2.3 Asset Growth**

Over the course of time, the magnitude of the road structures asset is expected to change. . This will mainly be as a result of retaining walls being included in the inventory for the first time. The number of bridges will remain static.



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### **3 Service Expectations**

#### **3.1 Customer Perceptions**

- 3.1.1 Although The Moray Council undertakes performance surveys on all of its services, it does not specifically gather customer perceptions on road structures.
- 3.1.2 WDM has a customer services module whereby customers (members of the public, Moray Council staff etc) can report defects in structures including location, customer details and response time. These reports are processed through the system to an eventual outcome. There is generally no feedback to the originator of the defect unless specifically requested by the customer.
- 3.1.3 For larger specific schemes (eg Reiket Lane Bridge) customer relations are dealt with by liaison with local groups, community councillors, etc. Smaller schemes may need a local 'letter drop'.
- 3.1.4 No specific customer satisfaction surveys have been done to date. Feedback – good and adverse – is on an ad-hoc basis.

#### **3.2 Council Goals and Objectives**

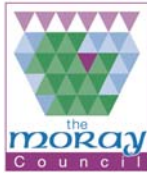
- 3.2.1 The Moray Council has stated a number of goals and objectives. These are identified in the " Moray Local Transport Strategy 2011 (available on [www.moray.gov.uk](http://www.moray.gov.uk)). The Strategic Objectives relevant to the Structures asset are:-
- K3 Maintain and improve the existing transport infrastructure to enable an effective and reliable transport network
  - K4: to improve accessibility to jobs, services and facilities

There specific actions relating to structures in the LTS document which reflect those in this document. See Moray LTS Appendix 2 Part 1

#### **3.3 Use**

- 3.3.1 The Local Transport Strategy contains a full description of the use of the roads system in Moray. It is not the purpose of this document to repeat the arguments in the LTS, but it is important to note that although traffic growth is not an issue in Moray there is, however, a major reliance on the road system for commerce and for personal transport.





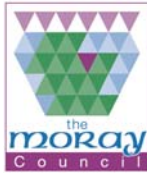
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**3.4 Safety Considerations**

- 3.4.1 Safety of road structures is a major aspect of their management and maintenance. Load assessments and regular inspections of structures can highlight problems that require rectification or provision of safety measures, such as the implementation and enforcement of weight or lane restrictions. Structural assessments have been completed on 80% of the Authority's bridges with appropriate safety measures implemented where required. At present there are nine bridges with weight restrictions (excluding environmental restrictions) and two bridges where additional inspections (over and above the normal inspection regime) are required because of exceptional corrosion problems that may affect their load carrying capacity.
- 3.4.2 Many of the older bridges in Moray have sub-standard parapets which do not comply with current standards. These can be difficult to upgrade easily. Following risk assessment (accident statistics, apparent risk to users etc) concrete barriers have been positioned in front of the parapet (eg B9014 Keith Dufftown road over KDRA railway). This is seen as an interim solution pending funds for parapet replacement to modern standards.
- 3.4.3 A result of the public enquiry following the rail incursion incident at Little Heck Rail Bridge, near Selby (2001) was a call for improved safety at bridges. A vehicle came off the M62 motorway onto the East Coast Main Line and struck by a passenger train resulting in 10 fatalities. The railway infrastructure authorities and highway/roads authorities were required to implement measures to mitigate, as far as reasonably practicable, against similar accidental incursions of road vehicles onto the railway. A joint survey (in accordance with national risk assessment methods) of Moray's road over rail bridges carried out by Network Rail and Moray Council engineers concluded that all fell below the agreed threshold where upgrading of barriers was required.

**3.5 Service Utility Activity**

- 3.5.1 Public utilities activity can have a major impact on the maintenance and management of the structures asset. Where new services are required or refurbishment of existing services is undertaken, this can have a major impact on the availability of the structure and the road it carries. In addition, when maintenance work on the structure is undertaken this can require disturbance and even diversion of the services carried by the structure, with a very large additional cost implication for the scheme.
- 3.5.2 The Council encourages statutory undertakers to put services within a structure rather than attaching them to the external walls and soffits. To this end all new bridge decks incorporate spare ducts for future use by utilities.



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- 3.5.3 Planning and programming of bridgeworks and the co-ordination of any utility involvement or other works in the vicinity is required under:
- Amendments and extensions to the New Roads and Street Works Act 1991
  - Associated legislation requiring roads authorities to enter and regularly update the relevant information into the Scottish Road Works Register (SRWR).

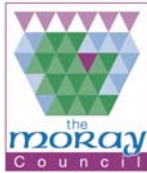
For noticing purposes, the Regulations and the Code of Practice for the Co-ordination of Road Works and Works for Road Purposes and Related Matters categorises works for road purposes as emergency works, minor works, standard works and major works. These categories are used to specify minimum registration periods (ie the timescales by which notices must be placed on the SRWR).

### **3.6 Third Party Claims**

- 3.6.1 Claims against the Council, by third parties, are not currently identified as being associated with any particular road structure.
- 3.6.2 Where practicable and evidence exists, third parties are pursued to reclaim damage repair costs. This is generally carried out where a police report for an incident (OPPS 99) is available.

### **3.7 Environmental Considerations**

- 3.7.1 The Moray Council is aware that a number of its structures are within or adjacent to sites of particular environmental classification (eg. SAC, SSSI etc). Works on bridges may be affected by the presence of bats, otters or other creatures, requiring surveys and, in some cases, a licence to work. It is also noted that other constraints such as geology and flora may need consideration. Work within protected areas (Cairngorm National Park) may also need special planning permission. Restrictions on types of work, materials used and timings of work, may be applicable.
- 3.7.1 The Scottish Environment Protection Agency (SEPA) is responsible for maintaining and improving the environment and regulating environmental emissions. It has a duty to discharge its functions to protect and enhance the environment and to promote conservation and recreation. The Water Environment (Controlled Activities)(Scotland) Regulations 2005 apply to any works on Structures that are over or adjacent to a watercourse. Legislation requires the Council to notify SEPA of all works on such structures, based on a number of criteria, and for a licence to be granted where appropriate.
- 3.7.3 The Moray Council is committed to promote sustainability. In practical terms this means re-cycling materials such as stone from demolished structures for use in repair works for masonry arch structures and re-use of fill material wherever possible.



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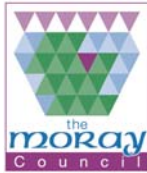
**3.8 Network Availability Considerations**

3.8.1 Work on bridges is subject to the normal restrictions imposed by the requirements of the New Roads and Street Works Act 1991 and Transport (Scotland) Act 2005. See Section 3.5.

3.8.2 There are structures on Council roads that are the sole access to communities or businesses, which have specific closure requirements mainly regarding restricted times for working. Access to maintain these structures is generally by negotiation with the adjacent landowners or tenants. Providing alternative road access can often be the main consideration (and cost) in these situations. Additionally, works over railways are subject to restrictions imposed by the rail authority.

**3.9 Amenity Value Considerations**

The Council does not currently have a policy in regard to construction or material standards for differing amenity areas. Some works require planning permission, and there is recognition that all works should be in keeping with the local area and in particular, that works on heritage or Listed structures may require formal consent and consultation with Historic Scotland or Scottish Natural Heritage.



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**4 Management Practices**

**4.1 Policies**

There are a number of areas where policies need to be developed. Those relating to the management of the structures asset are included in table 4.1 below

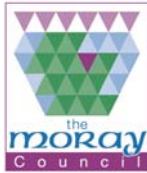
<b>Table 4.1 – Moray Council Policies</b>	
<b>Policy</b>	<b>Description</b>
The Moray Council Service Standards	We will maintain our stock of bridges so that they are safe and contribute to the transport infrastructure of Moray through scheduled inspections and monitoring of percentage of inspections carried out on time. (Page 33)
The Moray Council Local Transport Strategy 2010 Draft	See Section 2.5
Environmental Services Improvement Plan – Approved 15 August 2007	Priority 5.2 Sustainable Development - Progressing Asset Management Referenced to 'Management of Highway Structures Code of Practice' including the Design Manual for Roads and Bridges (and Eurocodes) as standards for design and maintenance of bridges and highway structures).
Scottish Government – Single Outcome Agreement	The Single Outcome Agreement reflects how the community planning partnership in Moray will contribute to the delivery of national outcomes.

**4.2 Inspection Regime**

4.2.1 Bridge inspections are carried out in accordance with the guidance and recommendations of the Code of Practice “Management of Highway Structures” (the COP).

4.2.2 General Inspections (every two years) comply with that recommended in the COP. These are carried out in accordance with the County Surveyors Society (CSS) Bridge Condition Indicators and recorded in the SMS module of the WDM database. Consultancy has one bridge inspector to carry out all General Inspections. He has received training in CSS inspections and has over twenty years experience of bridge construction, maintenance and inspection.

4.2.3 At present our Principal Inspections (PIs every six years for all bridges) do not strictly comply with that recommended in the COP. Due to resourcing problems, PI's are carried out on the larger more complex bridges or where access is difficult. They are generally carried out by external consultants again due to a lack of resources in house. PIs are carried out in accordance with the CSS Bridge Condition Indicators and recorded within WDM.

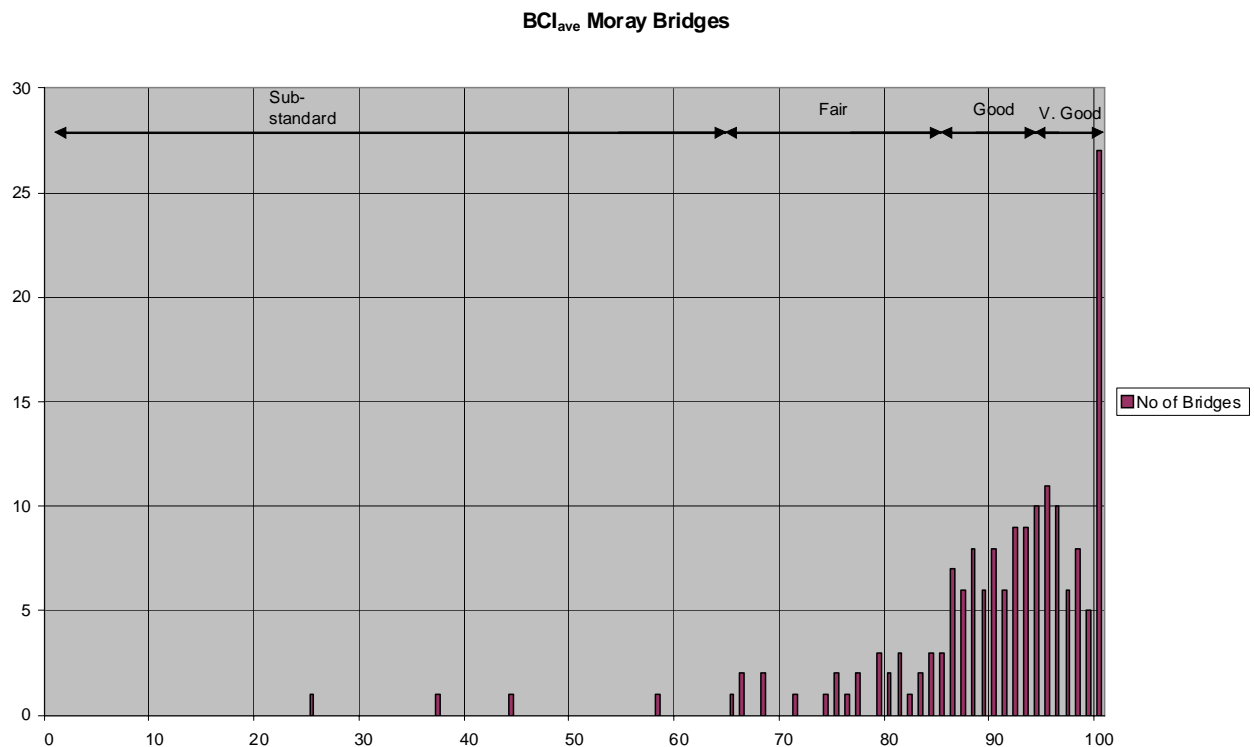


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- 4.2.4 A review of Principal Inspection policy is part of the Improvement Plan. It is likely that an inspection regime based on risk will eventually be formed. This is the subject of research proposed by the Bridges Owners Forum.
- 4.2.5 GIs and PIs are used to determine the reactive and planned work requirements. They are essential to the management of the bridgestock.
- 4.2.6 Additionally Special Inspections are sometimes required after a specific event such as a road traffic accident or severe flooding where the structural integrity of the bridge may need to be checked.

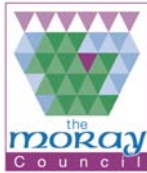
**4.3 Condition Assessment**

4.3.1 Inspection findings produce Bridge Condition Indicator (BCI) values, as recommended within the COP. Taken in total for the whole structures stock, average (BSC lav) and critical (BSC lcrit) values are obtained which may be used, over time, to gauge improvement or deterioration in the road structures stock condition.



**Fig 4.3**

Fig 4.3 shows the BCI average for the full bridgestock. It can be seen that the majority of Moray's bridges are in the 'good' to 'very good' category. This is a reflection of the safety of the bridges rather than a requirement for maintenance. The indicator contains a bias towards structural elements (eg main beams) rather than elements which are less important for the strength of the bridge but essential for its long term performance (eg waterproofing, road surface).



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4.3.2 As a result of European Legislation the assessment of structures to carry 40/44 tonne vehicles was initiated nationally during the 1980's. The programme of assessments within The Moray Council remains to be completed with 68 assessments outstanding out of a total of 400.

Note that not all bridges require to be assessed for load carrying capacity eg those built to modern standards (post 1975) .Also a bridge may have more than one construction form demanding an equivalent number of assessment calculations. This is the reason why there is a discrepancy between the figures in the table below and those given above.

<b>Table 4.3 – Bridge Assessment Statistics</b>			
		<b>2011/12/</b>	
		<b>Number</b>	<b>%</b>
Number of bridges assessed	(i) Council	355	
	(ii) Private	34	
	(iii) All	389	
Bridges failing to meet European standard of 40 tonnes	(a) Council	21	6.5%
	(b) Private	6	17.6%
	(c) All	27	7.5%
Bridges with a weight or width restriction	(a) Council	7	2.0%
	(b) Private	2	5.9%
	(iii) All	9	2.3%

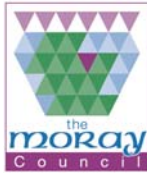
4.3.3 No local or national standards have been set for assessment failures. Where bridges fail to achieve this assessed capacity, they are considered for strengthening/replacement or monitoring, or may have a restriction placed on their use.

4.3.4 Ad hoc load assessments may be required where exceptional use, or the movement of abnormal indivisible loads (AIL) are proposed

4.3.5 Privately owned bridges: As Table 4.1 indicates the failure of private bridges within the assessment programme impacts markedly on the overall performance of the roads network. In order to improve this situation the following private bridge replacement/strengthening schemes have been identified and are currently being progressed with Network Rail.

- C72H/40 Tarmore Railway Bridge – bridge replacement completed 2011
- B9116/10 Keith Station Bridge – no date for strengthening

The other bridges are of a lower risk and will be subject to further discussion with Network Rail.



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**4.4 Construction / Asset Acquisition**

New assets are typically acquired through road adoption through improvement works completed by the Council, or from developers acting through road construction consents. Design and construction standards for new or altered structures are enforced through the Technical Approval process operated by the Consultancy section.

**4.5 Routine Maintenance**

4.5.1 Routine reactive repairs that are identified during the bridge inspection process are prioritised using the BCI crit and BCI ave values coupled with the engineering judgement of responsible officers and with historic knowledge of the bridgestock. This forms the basis for the annual bridges revenue programme.

4.5.2 There is a bias towards masonry arch structures for which there is an annual maintenance schedule of rates agreed with Roads Maintenance Direct Labour Organisation (DLO). Most other repairs are issued to the DLO and, if of a specialist nature, sub-contracted to a suitable firm. Estimates of cost are generally sought before the work is issued.

4.5.3 Required response times for the DLO are shown in Table 4.2. These are embedded in the works instruction module (WIM) of WDM.

Table 4.3 Reactive repair prioritisation categories	
Emergency	Works undertaken as soon as physically possible, structure may be restricted or closed until works are undertaken.
Priority 1	Works undertaken as soon as practical, based on financial and resource availability – generally 2 days.
Priority 2	Works programmed for completion within 28 days wherever possible.
Priority 3	Works programmed for completion within 180 days wherever possible.
Inspection	Inspection required – as soon as possible.
Programmed work	To be agreed but within the financial year of ordering.

**4.6 Operational / Cyclic Maintenance**

Cyclic maintenance on structures is usually undertaken as part of cyclic carriageway works. This would include clearing drainage channels and minor pothole repairs. There is no set timetable for cyclic maintenance except for an annual programme of sweeping of bridges. This is limited to longer span rural bridges which may be prone to damage from roads salts. There is also a sum set aside annually for clearance of vegetation in advance of inspection work.



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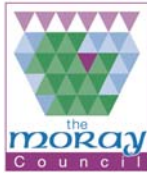
**4.7 Planned Maintenance: Renewals**

No programme of planned maintenance renewals has been developed. At present replacement of specific bridge elements – bearings, joints, waterproofing and parapets – is based on inspection reports highlighting problems. It is recognised that there is a deficiency in this approach in terms of life cycle planning.

**4.8 Disposal**

- 4.8.1 The disposal of structure assets is relatively rare from the perspective of a Council disposing of all responsibility for the structure. However there have been a few occasions where the enforced redundancy of a length of carriageway or footway due to the introduction of a new route, for example, has resulted in a “stopping up” order being invoked with the structure and its ongoing maintenance liabilities reverting to the responsibility of the adjacent land owners. In such circumstances it is the responsibility of the Council to ensure that the structure is of an adequate standard prior to its disposal. Note that this issue is complicated if there are still live utility plant in the redundant structure.
- 4.8.2 Other instances may be where water courses have been diverted or dried up naturally and the structure is in-filled, often with the provision of a drainage pipe, such that the structure becomes part of the carriageway or footway. At present the Council has no formal procedure for determining when a structure should be disposed of.





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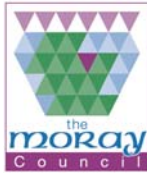
**5 Investment**

**5.1 Historical Investment**

<b>Table 5.1 Revenue and Capital Spend on Structures</b>			
<b>Year</b>	<b>Revenue</b>	<b>Capital</b>	<b>Total</b>
<b>05-06</b>	£252,000	£186,000	<b>£438,000</b>
<b>06-07</b>	£197,000	£186,000	<b>£383,000</b>
<b>07-08</b>	£275,000	£240,000	<b>£515,000</b>
<b>08-09</b>	£125,000	£150,000	<b>£275,000</b>
<b>09-10</b>	£170,000	£224,000+£340,000	<b>£734,000</b>
<b>10-11</b>	£170,000	£250,000+£386,000+£297,000	<b>£1,103,000</b>
<b>11-12</b>	£70,000	£354,000+£303,000	<b>£727,000</b>

5.1.1 The assessment of structures and larger bridge refurbishment, strengthening and replacement schemes are funded from the Annual Capital Budget.. An additional sum is allocated from the Capital Budget for non-routine works (larger maintenance works) to bridges.The above figures include any carry over sums unspent in the previous years.

5.1.2 An additional sum of £297,000 was allocated to the replacement of Tarmore Railway Bridge as Moray Council's contribution (25%) to Network Rail's cost for the works.



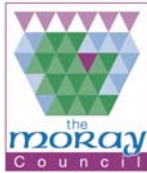
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**5.2 Output from Investment**

The capital works undertaken in regard to the investment in 2005 to 2011 are recorded in Table 5.2

<b>Table 5.2 Output from Investment</b>		
<b>Year</b>	<b>Works Description</b>	<b>Works Value</b>
2010/11	Tarmore Railway Bridge replacement	£284,000
2010/11	B9103 Auchroisk – extension replacements	£65,000
2010/11	B9014 Lower Towie – extension replacements	£88,000
2009/10	Reiket Lane Rail Bridge Replacement (Elgin Traffic Management)	£2.3m
2009/10	West St Fochabers Bridge Replacement (Unplanned works post flooding)	£495,000
2009/10	B9002 Bridge of Isla Emergency Repairs (Unplanned works post flooding)	£195,000
2009/10	U131E Auchinroath Bridge repairs	£110,000
2008/09	C17H/10Edinvillie Bridge deck replacement	£105,000
2008/09	B9103/10 Spynie Canal – paint troughing	
2007/08	A98 Tynet Bridge strengthening	£28,000
2006/07	B9015/70 Orbliston and C1E/20 Lhanbryde strengthening	£60,000
2006/07	C47H/20 Braco Culvert – deck replacement	£80,000
2005/06	C22E Calcots Bridge and U171E Braelossie Bridge strengthening	£70,000
2005/06	U88E Bantrach Bridge strengthening	£40,000

Table 5.2 does not include maintenance works, load assessments etc. It should be read in conjunction with Table 5.1. It would be possible to analyse historical spend and possibly discern trends but this would entail significant effort. As a general comment it is apparent that budgets have remained fairly static over the past 10 years whereas inflation in the field of construction has risen dramatically.



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### 5.3 Forecasting Financial Needs

The Moray Council does not have a formalised process for establishing the ongoing, long term budgetary requirements for the maintenance and management of the structures asset. Funding of both capital and revenue budgets for maintenance and renewal is based on historical precedence. It is recognised that this is flawed and that asset management planning is a more reasoned approach to funding.

5.3.1 Currently the structures works programme is determined using the data in the structures management system with priority given to the following:-

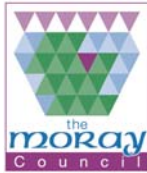
- Structures with structural defects which have a direct impact on their load bearing capacity
- Structures with safety related defects such as sub-standard parapets
- Structures with defects which require to be remedied to prevent further deterioration or more serious problems developing
- Structures requiring painting or aesthetic improvements

5.3.2 The available funding is allocated to each of the above work-types on an annual basis to suit the importance or criticality of the works identified. Although influenced by various factors this strategy is intended to deliver the identified levels of service. Precedence is normally given to structures on higher category roads and on roads carrying higher volumes of traffic, or where structures require immediate repair or replacement following accident damage.

5.3.3 It is important that the asset management planning takes account of the entire lifecycle of structures and seeks to minimise whole life costs. The development of lifecycle plans and value engineering schemes require whole life cost data and comparisons. Forward financial planning based on asset valuation, deterioration modelling, gross replacement and depreciated replacement valuations etc., is complex. However, it is hoped that research and guidance in this area currently being developed by CSS and SCOTS Bridges Groups and in particular HMIFG (Highway Asset Management Financial Information Group) will feature in future editions of this Plan.

### 5.4 Valuation

An exercise to calculate the value of the structures has been initiated. The valuation will be finalised as part of this RAMP production and further information will be included here when complete. The Council's Consultancy Section has estimated a Gross Replacement Cost (GRC) value of £78,172,000, for its road structures. The method of calculating this figure is defined in SCOTS RAMP (Task 12).



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**6 Forward Works Programme**

**6.1 Existing Programmes**

The Council's current Capital Programme was approved in 2012. (Policy and Resources 7th April 2009).

	2012/13	2013/14	2014/15	2015/16	2016/17
Bridge Assessment and Strengthening	£200k	£200k	£200k	£200k	£200k
Bridges Revenue	Not available	Not available	Not available	Not available	Not available

6.1.1 At present and consistent with past practice, the structures section produces a 12 month programme of Capital works within the corporate budget under the heading of Bridge Assessment and Strengthening. Also produced is a 12 month programme of Revenue works. The Revenue programme includes routine and reactive works on the structures asset.

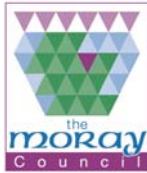
6.1.2 Capital projects, both roll-over and new, are identified before the start of the financial year. A regime of monitoring of capital spend is maintained throughout the year. Revenue projects are similarly identified for inclusion within the annual maintenance programme based on interrogation of condition appraisal within the structures management system and routine inspection reports.

6.1.3 There is no process at present for developing a capital or revenue forward works programme beyond a 12 month period other than maintaining a list of bridges which will require strengthening, replacement or major maintenance work. However in forecasting medium to long term funding requirements cognisance is taken of anticipated timeframes for larger schemes. Budgets are however based on a historical basis rather than the condition of the bridgestock.

6.1.4 Where large schemes are beyond the capacity of normal annual budgets (B9103 Boat o Brig deck refurbishment and B9103 Arthur's Bridge Replacement) it is anticipated that they will be the subject of specific reports to committee. These may well be of the order of £1m each.

**6.2 Programme Co-ordination**

There is no current process for creating a coordinated works programme comprising appropriate schemes from each of the individual asset groups although an element of this is achieved by the mandatory individual scheme notification within the Scottish Road Works Register (SRWR). In the future the application of asset management and lifecycle plans should provide for coordination of maintenance programmes within all asset groups with the potential for creating joint asset schemes to achieve more efficient use of the road space occupation and to minimise disruption to road users.



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### **6.3 Option Appraisal**

The identification of the appropriate treatment required at an individual location is based at present on the engineering judgement of the responsible officer rather than on any set criteria.

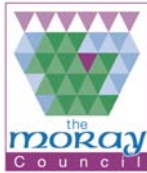
A project prioritisation process has been developed which is used to assess the different project options available, within the allocated budget.

At a higher level the identification of budget allocation against the different works streams is mainly based upon the level of historic investment in that treatment type rather than by using a process to identify the best use of monies over a long period.

It is the intention of the authority to develop a process to consider how options are identified and appraised for this asset group including consideration of whether it is better value to invest in:

- Different available maintenance treatment options
- Maintenance or asset improvement works
- Routine maintenance or planned renewals
- Asset options against “non asset options” e.g. demand management
- Preventative maintenance as opposed to corrective maintenance activities
- Renewal of asset components or full asset replacement

In all this it should be noted that presently the option chosen for a particular problem is often, if not always, driven by the budget. It may well be more cost effective to replace a bridge deck entirely but short term maintenance is the only affordable alternative if funding is not available. This is one of the challenges of asset management planning.



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## **7 Risk**

Risk management is a systematic approach to identifying and dealing with the risks that threaten our plans and projects and impact upon the continuation of service delivery.

Risk management involves understanding the things that could help or hinder efforts to deliver objectives. Evaluation and management of risk may be summarised in the questions:

- What is the worst that could happen?
- What is the likelihood of it happening?
- What would be the impact if it did happen? and
- What can be done about it? (ie. how can it be prevented from happening; or what can be put in place to manage it, if it should happen?)

Whilst risk registers are used for larger schemes no generic register has been produced for the Structures Asset as a whole. This is an item for future development.

### **7.1 Risk Identification**

Risk registers are used on larger schemes for financial risks.

Designers' health and safety risk assessments are carried out as part of the Construction (Design and Construction) Regulations on projects where appropriate.



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**8 Works Delivery and Procurement**

- 8.1 All goods and services are procured in accordance with the Council's Financial Regulations. Procurement policy and procedures set out guidance.
- 8.2 Schemes over £30,000 require to be tendered. These are advertised and procured through the 'www.publiccontractsscotland.gov.uk' website. Selection of tenderers is through a pre-qualification questionnaire containing a vetting process for financial and health and safety probity. Tender evaluation is normally on a quality and price combination, the ratio of quality to price being set according to the nature of the contract. In certain circumstances competitive tendering is not necessary – emergency works, works of a specialist nature, works covered by a existing term contract.
- 8.3 The Council has no standing list of approved contractors. It does however have a number of term contracts both for supplies and services. These include Morrison Construction (Moray Flood Alleviation Group) and AEG (ground investigation). Extensive use is also made of the Council's Direct Labour Organisation.

The New Engineering Contract (NEC3) is the form of contract used and the Manual of Contract Documents for Highway Works (MCHW) is the method of measurement.



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**9. Performance Measurement**

**9.1 Performance Measurement**

9.1.1 Statutory and local performance indicators are reported in the Direct Services Quarterly Performance Review.

9.1.2 The Moray Council is taking part in development of relevant local performance indicators, through the SCOTS RAMP project.

**9.2 Performance Indicators: National and Local**

9.2.1 The only indicator required by Audit Scotland is that for inspection of bridges. This is repeated in the local indicator (ENVDR 092) – ‘We will maintain our stock of bridges so that they are safe and contribute to the transport infrastructure of Moray through scheduled inspections and monitoring of percentages inspections carried out on time.’

9.2.2 Before 2009 there was an indicator for road network restrictions – bridges failing load assessment, weight restricted bridges etc (see Table 4.1). This has since been dropped from both national and local PIs. No replacement indicator has been put in its place although something on the lines of the Bridge Stock Condition Indicator would seem reasonable as the CSS method of bridge inspection is now nationally recognised within the local authority bridge community.

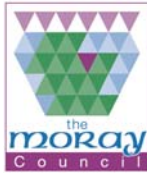




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**10 Future Strategies**

Developing a lifecycle plan will enable the evolution of improved strategies for the management of the asset. Focusing on better long term outcomes may identify a need to invest in different treatments or in different parts of the asset.



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## 11 Service Improvement Actions

<b>Table 11.1 Improvement Actions (Structures)</b>			
<b>No.</b>	<b>Action</b>	<b>Proposed Implementation Date</b>	<b>Responsibility</b>
<b>WDM related actions</b>			
IA1	Complete CSS type General Inspections to produce a BSCI for the full inventory of MC bridges.	March 2011 - completed	John Morrison
IA2	Complete the population of the road structures database (SMS) with structures information. This includes transfer of all records (drawings, photographs, reports etc)	June 2011 – mainly complete but on-going	Pat Ellistone
IA3	Develop roads asset management system to record and monitor finance for all capital and revenue projects including staff charges, invoices and other costs	DBS Issue – partially complete	Neil Fotheringham
IA4	Recording of retaining walls to be included in the inventory of structures management system (SMS).	Started but will take years to complete.	Neil Fotheringham
IA5	Develop a procedure for recording within SMS all significant maintenance, repair or strengthening works on structures.	Take forward.	Neil Fotheringham
IA6	Improve the process for formally adopting and disposing of structures assets to ensure retention and traceability of agreements and records.	To be agreed	To be agreed
<b>Design and Assessment, Inspection</b>			
IA7	Initiate use of Eurocodes for bridge design/assessment.	Take forward	Neil Fotheringham
IA8	Progress risk analysis of Principal Inspection intervals .Do all bridges require a PI at 6 year intervals?	Take forward	Neil Fotheringham
IA9	Progress load assessments – smaller concrete slabs, remaining masonry arches – review programme.	Progressing	Neil Fotheringham
<b>Policy and Strategy</b>			
IA10	Develop the use of the Bridge Condition Indicator (BCI) for formal reporting of the structures stock as required by the Service.	Completed	