

NEATH PORT TALBOT COUNTY BOROUGH COUNCIL

Environment and Highways Cabinet Board

17 December 2015

Report of the Head of Engineering & Transport D. W. Griffiths

Matter for Decision

Wards Affected: ALL

Highway Structures Asset Protection and Maintenance

Purpose of Report

- 1 To update Members of progress on the County Bridge Assessment, Strengthening and Maintenance Programme and the implementation of the Code of Practice for the Management of highway structures, footbridges and other public rights of way.
- 2 The management of landslips and carriageway edge failures.

Executive Summary

- 3 This report provides an update on the progress in this important area and sets out the challenges to be addressed if the County's Highway Structure Assets are to be maintained in an appropriate condition in accordance with the Code of Practice and the standards set down in the Highways Asset Management Plan.

Background

- 4 Members will recall the County Bridge Strengthening Report and Presentations to the Environment & Highways Scrutiny Committee in February 2012 highlighting 'at-risk' structures and a programme of future management.
- 5 This report provides the current status, highlighting emerging liabilities affecting highway structures.

Progress Report on Bridge Assessment and Strengthening

- 6 In summary, the introduction of the 40 Tonne Truck to the Highway Network in 1999 prompted the assessment of 201 highway structures built before 1973.

Since February 2012;
Six bridges were strengthened in 2013/14
Eight bridges were strengthened in 2014/15

- 7 Overall, up to the end of December 2015 of the 183 no. assessments carried out (Appendix A):-

- 56 bridges passed the assessment.
- 116 bridges originally failed their assessment, and have been strengthened, to meet current Highway Loading Standard requirements.
- 10 bridges are designated as sub-standard and are currently unable to sustain the current Highway Loading Standard and require strengthening or replacement.
- 1 bridge has been closed to traffic.
- 5 bridges are programmed to be strengthened as part of the rolling programme 2015/16.
- There are 19 outstanding bridge assessments. These will be completed by April 2017, subject to resources. In general they are smaller bridges on unclassified roads and do not represent a major risk (Appendix B).

Management of Sub-Standard Structures

- 8 A routine inspection process is in place to monitor all substandard bridges. Assessment pro-formas for all sub-standard bridges are updated in accordance with the latest Design Code (BD 79/06 – The Management of Sub-Standard Highway Structures).
- 9 The 19 outstanding bridges that require assessment will be added to the monitoring list.

Other Bridges Issues

10 There are a number of actions to be implemented in accordance with the Code of Practice for the Management of Highway Structures as follows:

i) Complete the survey of existing retaining walls.

a) Update the system to record all new walls and structures built by private developers;

Preparation is ongoing. Adoption, maintenance liabilities, commuted sums and approved construction types are issues to be resolved. It is important to ensure that the Authority does not take on additional liabilities from developers without adequate funding to deal with the additional assets.

b) In accordance with the Code of Practice determine maintenance liabilities for 1,831 retaining walls.

ii) Currently 457 bridges are subject to a general inspection. However, due to the limited resources, only 50 of the above bridges that are critical and complex structures have been subject to principal inspections.

Subsequently, when routine inspections are delayed there is a risk that issues will become critical before they are noticed. This leads to budgeting difficulties and/or the risk of having to impose restrictions on routes and/or major works being necessary at short notice.

If the current inspection regime continues then it would be prudent to budget for a sizeable contingency sum in the Capital Programme.

Footbridges and Public Rights of Way (PROW) Structures

11 There are 90 footbridges listed in the highway structures asset inventory. Maintenance of these structures is met from the Bridge Maintenance Budget (£195k) with costs for inspection met from the bridges revenue allocation of £200k. There are estimated to be a further 400 PROW bridges, managed by the Countryside, Leisure and Estates sections. The Bridges Section provides professional

advice when requested to the relevant sections. Cycle track structures such as Bont Fawr Aqueduct in Pontrhydyfen carry a 'leisure' facility, and are not judged as strategic assets in the performance of the overall highway network. However, Bont Fawr and New Bridge Road Bridge are Grade II Listed Structures, and require extensive inspection and maintenance. Responsibility for these structures is outside the scope of the highway bridges' budget and works identified are separately funded out of the respective Revenue Budgets.

New Structures - Harbour Way and Baglan Energy Park

- 12 Harbour Way has added 4 no. highway bridges and Baglan Energy Park Link a further 1 no. However, the Cefn Gwrgan and Baglan bridges are exceptionally large and the overall deck area of highway bridges has increased by around 10%.
- 13 Harbour Way also has 4 no. culverts. These are significantly larger than average and have added approximately 10% to the total 'deck area' of culvert to be maintained. There are also a number of large retaining walls on Harbour Way totalling about 650m in length, these are exceptionally high, averaging around 7m. So whilst the percentage increase in length of walls is small (650m on nearly 104,000m is only 0.6%) in terms of wall area they probably represent an addition of around 2% to the asset portfolio.
- 14 It should be noted that these are new revenue pressures for the service.

Maintenance Backlog

- 15 The current backlog is estimated to be circa £1.7m of work. Current levels of expenditure (works only costs) is £195k per financial year. The replacement cost for all the bridges and retaining walls in the county is estimated to be between £350 and £450m, so current maintenance expenditure is only 0.05% of the asset value. At this level it is obvious that the backlog will continue to grow.

Bridge Strengthening Programme

- 16 Whilst the major issues arising from the Bridge Assessment programme have been dealt with, there are still 24 no. bridges remaining on the list (after this year's work is completed).
- 17 Whilst the majority of these involve relatively minor works to elements of the bridges there are some that require major works. These are detailed below:-

Cymmer Viaduct – estimated cost	£2m (alternative access route)
Cymmer Railway Bridges	£350k
The Green, Neath	£100k
Bridge Street, Neath	£40k or £750k if lifting bridge required.

Landslips/Carriageway Edge Failures

- 18 There are approximately 148 landslip areas within the Neath Port Talbot county boundary. The majority of these landslips are away from areas of habitation so do not present a risk to life or property.
- 19 The Engineering Section are currently dealing with 17 long standing sites that are impacting on the highway network and which represent potential liabilities if not dealt with in the near future. The current budget for monitoring these sites is £20k. An external specialist consultant has been commissioned to undertake further monitoring of the Panteg landslip. The findings of this report will be the subject of a separate report to Board.

Financial Impact

- 20 The current revenue (backlog programme) of £195k is inadequate to maintain the asset portfolio. Continued under investment will result in emergency works, bridge weight restrictions or closures.
- 21 The budget associated with the outstanding bridge assessment and strengthening programme needs to be at a minimum maintained at the current level and ideally increased to complete the programme.
- 22 Major works identified from the principal inspections are unfunded and will become future capital programme pressures.

- 23 The monitoring or repair of landslip and carriageway edge failure is also a high risk area and an increasing revenue and capital pressure.

Equality Impact Assessment

- 24 A Screening Assessment has been undertaken to assist the Council in discharging its Public Sector Equality Duty under the Equality Act 2010. After completing the assessment it has been determined that this proposal does not require an Equalities Impact Assessment.

Workforce Impact

- 25 N/A

Legal Impact

- 26 The inspection of highway structures and assets are a statutory duty of the Council, as Highway Authority.

Risk Management

- 27 A risk management plan is in place. If no additional funding is identified, then weight limits and/or road closure will need to be implemented.

Consultation

- 28 There is no requirement for external consultation on this matter.

Recommendation(s)

- 29 It is recommended that:-
- 30 Members note the progress to date on the County's bridge assessment and strengthening programme carried out in accordance with the Code of Practice (Appendix A).
- 31 Members approve the forward assessment programme as set out in the circulated report (Appendix B).

- 32 Members note the increasing pressures for revenue and capital resources to maintain and monitor highway and PROW structures, and associated risks set out in the report.

Reason for Proposed Decision(s)

- 33 To maintain the integrity of the structural assets on the Council's highway network.

Implementation of Decision

- 34 The decision is proposed for implementation after the three day call-in period.

Appendices

- 35 Appendix A: List of bridges strengthened in the last 10 years
- 36 Appendix B: List of bridges requiring assessment
- 37 Appendix C: List of Landslips/Carriageway Edge Failures

List of Background Papers

- 38 Highway Asset Management Plan

Officer Contact

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Appendix A

APPENDIX 'A' - List of bridges strengthened in the last 10 years									
BRIDGE ASSESSMENT AND STRENGTHENING PROGRAMME									
BRIDGE No.	BRIDGE NAME	STR. REQD	REMARKS	PRIORITY	WT REST	Monitoring Appropriate			
15A	Burrows Road	YES	Subject to NWR OK			YES		Complete	
17A	New Road, Skewen	NO						Closed	
17B	Station Road, Skewen	YES	3 Tonne wt Limit			YES		Subject to NWR agreement	
17C	Crymlyn Road	YES	Subject to NWR OK			YES			
40	Neath Abbey	19	strengthened 2003						
59	Dinas Rock	NO							
65B	Hill Road	YES	Subject to NWR OK						YES
77	Argoed Culvert	NO							
77A	Afan Argoed Bridge		Replaced 2000						
80	Glynnafan Colliery Bridge		Strengthened 2014						
80A	Ty Nant Bridge, Cymmer		infilled 2006						
81	Gelli Mill	NO							
89	Cwmgwrach Bridge		Replaced 2001						
90	Cymmer Afan Bridge		strengthened 2010						
91	Cymmer Corrwg		Replaced 1996						
92	Cymmer Viaduct	YES	Full replacement	1				7.5t	
92A	Troed y Rhiw	YES							
92B	Abercragan Culvert		Culvert filled 2008						
92C	Abergreggan Ft Br		Replaced 2014						
93	Glyncorwg River Bridge		Strengthened 2003						
93A	Nant Y Allor		Re-decked 2012						
93B	Old Railway Bridge		New Parapet						
94	Heol-y-Deryn, Glyncorwg		strengthened 2008						
94A	Glan-yr-Nant	NO							
95	Melyn Street		Strengthened 2009						

96	Cynonville Culvert				Strengthened 2015			
96A	Dyffryn Rhondda Culvert				Just PPT			
97	Culvert N'th of Dyffryn Rh'dda				Strengthened 2011			
100A/100A1	Cymmer Railway bridges	YES			Full Replacement	2		YES
104C	Canal Bridge, Trebanos	NO						
105	Rhyn Dwy, Clydach				Strengthened 2005			
105A	New Road Culvert, Ynysmeudwy				Strengthened 2011			
105B	Old Road Culvert, Ynysmeudwy				strengthened 2011			
109	Pedestrian Underpass, Ystalyfera				Strengthened 2003			
110	Commercial St., Ystalyfera	NO						
111	Afon Twrch, Ystalyfera	NO						
113	Commercial St., Canal Bridge				Strengthened 2008			
117	Crown Bridge				Strengthened 2012			
118	Cwmllwynfell Bridge	NO						
120	Pen Rhiw Fawr Bridge				strengthened 2004			
123	Carmel Road, G-C-G				Strengthened 2005			
124	Heol Hir				Strengthened 2005			
125	Tairgwaith Culvert				strengthened 2010			
126(1&2)	Glyn Clydach, Bryncoch	NO						
128	Bryncoch (Main Rd.)				strengthened 2011			
129	Farmers Road, Bryncoch				strengthened 2011			
*130	Dyffryn Arms;Bryncoch Conc Slab	NO						
131	Tyn y Cwm				Strengthened 2003			
134	Old Bridge, Pontardawe	NO						
135	Alltwen Bridge	NO						
135A	Tramway Road				Strengthened 2006			
136	Herbert St.Canal, Pontardawe				strengthened 2011			
136A	Upper Clydach, Pontardawe	NO						
137	Holly St., Pontardawe				Strengthened 2010			
138	Baran Mountain, Rhyd-y-fro				strengthened 2009			
139	Egel Br, Rhyd y Fro,Pontardawe				Strengthened 2014			
140	Pwllfawtakin				Strengthened 2004			
140A	Abernant Colliery Colliery Culvert				Strengthened 2009			
141	Pont y Groes				Strengthened 2014			
142	Llwyncelyn, Tairgwaith				Strengthened 2006			
143	Cilpental, Tairgwaith				Strengthened 2006			
144	Mary Street Pedestrian Underpass				strengthened 2004			

144A	Stockham's Corner Subways	NO				
144B	Beechwood Avenue, Neath		Strengthened 2006			
145	Millands Road Viaduct		Pier strengthened 1996			
145A	The Green, Neath	YES	Part of Canal Green Dev't	3		YES
146	A474 Neath River Bridge		Bracing system 2002			
147	Court Herbert, Tennant Canal	NO				
147A	Vale of Neath Line	NO				
148	Ty Drew		Strengthened 2009			
149	Ddenwen Fawr		Infilled 2007			
150	Tan y Rhiw, Cilfrew	NO				
151	Twin Stone Culvert		strengthened 2011			
152	Llwyngruuffydd Culvert No. 2		Strengthened 2007			
153	Llwyngruuffydd Culvert No. 1		Strengthened 2007			
154	Blaen-Nant Culvert,Abernant	YES	NWR			YES
155	Nant Ddu, Crynant		strengthened 2010			
156	Crynant		Strengthened 2003			
157	Maes Mawr, Crynant		strengthened 2009			
158	Ynys y Bont, Treforgan		strengthened 2009			
158B	Culvert near Treforgan		strengthened 2011			
159	Treforgan		Strengthened 2006			
160	Ynys y Fforch		Strengthened 2003			
161	Nant y Cafn		Strengthened 2003			
162	Garden City,Seven Sisters		Strengthened 2002			
163	Heol-y-Felin, Seven Sisters		strengthened 2011			
164	Ty n Newydd 1 bridge		Strengthened 2011			
165	Nant y Melyn		strengthened 2009			
166	Dulais Gardens		Strengthened 2002			
167	Station Road, Onllwyn		Replaced 2007			
167A	Halfway House	YES	Subject to NWR			YES
169	Camnant Road Bridge		Strengthened 2005			
170	Gorsllwyn		Strengthened 2011			
171	Nant y Fedwen Fawr		Strengthened 2006			
172	Ton y Fildre		Strengthened 2014			Yes
173	Pant-y-Ddrainen Culvert		strengthened 2004			
174	Coed Cae Culvert, Barwen		Strengthened 1999			
175	Nant y Gwyddili,Glynneath		Replaced 1999			
176	Maes-y-Pergwm,Glynneath	YES	Bridge Closed to Traffic	0t		NO
178	Maes -y- Ffynnon		strengthened 2010			

179	Nant Llwyn y Gwin		NO					
216	Burrows Lodge			strengthened 2005				
216B	Jersey Marine Railway			strengthened 2006				
221	Tollgate		YES					YES
221A	Bertha Road			Strengthened 2009				
222	Ffwdwyllt			Replaced 1996				
224	Chapel of Ease			Replace Parapet & trief Kerbs				
225	Pont Sam Culvert			Extended 2013				
226A	Rhyd y Bont Bren			Replaced 2007				
246	Pont yr Offeiriad		NO					
247	Cwm Wern Deri Road Bridge			strengthened 2011				
252	Velindre			Replaced 1999				
253	Afan Way			strengthen 1999				
255	Seaway Parade		NO					
255D	Evans Bevans Subway		NO					
255F	Christchurch Subway			Strengthened 2009				
255G	Afan Way Subway No. 1			Strengthened 2009				
255H	AfanWay Subway No. 2			Strengthened 2009				
255J	Afan Way Subway No. 3			Strengthened 2009				
255K	Afan Way Subway No. 4			Strengthened 2009				
255L	Afan Way Subway No. 5			Strengthened 2009				
255M	Afan Way Subway No. 6			Strengthened 2009				
257B	Zion Chapel Culvert			Strengthened 2013				
258	Afan Valley Road Culvert			Strengthened 2011				
258A	Afan Valley Road Culvert			Strengthened 2011				
259	Blean Baglan Culvert			strengthened 2011				Yes
259A	Baglan Church Culvert		Yes	Parapet is listed with CADW				
259B	Crythan Farm Railway Bridge		NO					
259C	Crythan Brook			strengthened 2004				
261	Pont y Cymmer			strengthened 2003				
261A	Heol Y Graig Culvert			Strengthened 2011				
262	Pen Star Bridge			strengthened 2009				
263	Nant Groes Ddu Culvert			Strengthened 2013				
264	Efail Fach Road Bridge			Strengthened 2009				
265	Tyn-y-Cwm Culvert, Tonmawr		NO					
268	Bridge st Bridge		YES	Part of Canal Green Dev't			4	YES
275	Shelone Road		YES	Subject to NWR				YES
278	Cryddan Brook, Old road, Neath			Overslabbed 2007				

280	Llantwit Road Culvert		NO				
281	Hentiaes Terrace Culvert			strengthened 2006			
282	New Canal Bridge, Tonna			Remedial work 2010			
284	Neath canal Bridge			Strengthened 2010			
283	Tonna Road Bridge			Replaced 2002			
286	Pant-y-Coed, Tonna/Clyne			strengthened 2003			
289	Cyd Terrace Culvert			Subject to NWR OK			YES
290	Clyne Railway Bridge		YES				YES
291	Cwm Coed Culvert		YES				
292	Ynys Dyfnant, Melin Court			Strengthened 2010			
293	Melyn Court, Resolven			Strengthened 2003			
294	Waterfall Bridge			Strengthened 2005			
295	Glyn Castle, Resolven			Strengthened 2006			
296	Resolven Housing Estate Bridge			strengthened 2005			
297	Resolven Railway Bridge		YES	Subject to NWR			YES
298	Resolven River Bridge			strengthened 2005			
314A	Glais to Alltwen Road Railway Bridge		NO				
324	Penlannau			Replaced 2008			
342	Swansea to London Railway Bridge		NO				
343	Water Street River Bridge		NO				
344	Subway next to bus station		NO				
344A	St Joseph to St Mary Church Subway		NO				
346A	Pentyla Subway		NO				
346B	Llewellyn Street subway No. 1		NO				
346C	Llewellyn Street subway No. 2		NO				
346D	Cwmafan Road Subway		NO				
345	St. Mary's Viaduct		NO				
347	Prior St. River Bridge		NO				
701	Ynysbwilog Culvert						
705	Crugau Culvert		NO				
706	Rheola Brook Culvert						
707	Pentrechwydau Road Bridge						
708	Yscwrfia Bridge						
709	Yscwrfia Culvert		NO				
712	Lamb & Flag Canal Bridge			Strengthened 2003			
10/134	Pyle Road Bridge		NO				
706	Rheola Brook Culvert						
1006	Pontwalby			Interim Strengthening-02			

1007/1039	Plas y Felin, Glynneath								
1008/G227	New Bridge Pontneddfechan						Strengthened 2009		
1009/1199	Old Bridge, Pontneddfechan		NO				Strengthened 2009		
1015/G169	Brynaman Boundary Bridge		NO						
1016/1033	Pwll y Wrach						Strengthened 2006		
1017/G84	Garnant Boundary Bridge						Strengthened 2014		
1002/1162	Wetral Bridge (Bridgend C.C.)						Replaced 2004		
	Total No. of Bridges Assessed = 183								

Appendix B

APPENDIX 'B' - Outstanding Bridge Assessments		
Bridge No.	Bridge name	
29a	Old Road Culvert	1
85a	Nantgwyn Culvert	2
85b	Abergwynfi Culvert	3
93C	Norton Terrace Bridge	4
100c	St Michaels Arch	5
141A	Cwm Garnant Railway Bridge	6
147b	Business Park Canal Bridge	7
158A	Ynys y Bont Farm	8
221c	Margam Road Footbridge	9
221f	Knight's Rd. Culvert	10
224A	North Street Footbridge	11
226	Oak Bridge, Aberbaiden	12
245a	Pyle Rd. Culvert, at entrance to Water Street	13
255b	Seaway Parade Culvert No.1	14
257D	Jersey Inn Culvert	15
277	Giants Grave, Briton Ferry	16
285	Vicarage road bridge	17
299	Old Canal Bridge, Resolven	18
335	RHYDDING CULVERT	19

Appendix C

List of Landslips/Carriageway Edge Failures

1.	<u>Cwmavon Road, Port Talbot</u> Landslips affecting the B4286 causing uneven road surface. Some evidence that this is a circular slip affecting 200m of road. No significant evidence of landslip affecting retaining wall between road and disused rail land. Monitoring pins being levelled four times/year. £1K per year + resurfacing in 5 years
2.	<u>Pant-du, Cwmafan</u> Steep slope opposite entrance to new housing estate on B4286. No deep seated movement. Surface movement observed during or after heavy rainfall or high winds. Water flow off land above – investigated, but no obvious solution. Extensive tree reduction works undertaken a few years ago. Frequent claims from car owners from colliding with boulders. No room for catch fencing. Claims have reduced following tree reduction works. £10K
3.	<u>Pwll y Glaw, Cwmafan</u> Depression affecting A4107 Afan Valley Road. No obvious cause. £20K
4.	<u>Heol y Glyn, Glyncorrwg</u> Landslips onto road accompanied by large quantities of water, caused build-up of trapped water in moss and peat high on hillside. Three occurrences in last 10 or so years. Each time the road has been closed and Police refuse to open until hillside has been inspected by engineer. However, once the water has been released, the danger is passed. Inspection on forestry land on hillside did not reveal any immediate solution. £1K per year
5.	<u>Pen y Star, Efail Fach</u> Road closed unofficially due to total collapse of road side. No prospect of rebuilding bank and restoring support. Remedial works

	<p>could involve moving road laterally into upside including retaining wall and/or mass earthworks on private land. Alternative route now used for many years without incident. Complaints initially but it would appear that all residents apart from Sardis Chapel accept the situation. Route does not warrant the cost of reconstruction and the bends below and under railway bridge pose a significant risk to road users. £500K</p>
6.	<p><u>Ormes Road, Skewen</u></p> <p>This road and New Road are <u>not</u> adopted highways. It was resolved by Committee many years ago that those roads should not be adopted.</p> <p>The area is not recognised as a landslip area, however, there are 12 plots and houses which remain empty. Also, area between Ormes Road and Newell Road was drilled by a potential developer but ground conditions were not suitable. Evidence of long term instability.</p> <p>Complaints and claims regarding drainage and collapsed retaining walls are being dealt with by Drainage Section and Insurance Section. £1k per year</p>
7.	<p><u>Forest Goch, Bryncoch A474</u></p> <p>Road in danger of losing support due to meandering River Clydach. Water main has been diverted. NRW denied responsibility. Works needs to reinstate bank protection and infill to support road. £30K</p>
8.	<p><u>Glan Rhyd, Ynysmeudwy</u></p> <p>River Tawe meandering closer to A4067 Swansea Valley road. Works carried out many years ago, but ideally additional works required. NRW would not object to us extending blockstone and moving shingle. £30K</p>
9.	<p><u>Ynysmeudwy B4603</u></p> <p>Road edge and footway collapsed and fenced off. Road has been drilled and investigated leading us to conclude that movement should not extend out into carriageway. £55K</p>
10.	<p><u>Graig Road, Garnant</u></p>

	<p>Footway depression occurring over many years and requiring regular reinstatement. Extensive investigation by the Coal Authority has proved that it is not caused by mining activity. Evidence of old leat crossing road at this point, possibly serving steam engine sheds in valley below.</p> <p>Reinstatement would possibly entail reconstruction from river bed level below, however, sewer main in embankment and fibre optic Openreach cables in footway. Carry on reinstating footway. £1K per year</p>
12.	<p><u>Graig Road, Godre'r Graig</u></p> <p>Loss of footway and support to carriageway. BT pole and manhole/cables in footway. £20K</p>
13.	<p><u>Panteg, Godre'r Graig Landslip</u></p> <p>Monitoring of pins on roads and on trees carried out periodically.</p> <p>Further report and re-assessment by Earth Science Partnership due when available.</p> <p>Movement over winter has continued as expected. Objective is to monitor and if possible warn of imminent movement. £250K over 5 years.</p>