

Stewart Paton Associates Ltd

INDEPENDENT ROAD SAFETY REVIEW

PREPARED FOR

AUTOLINK CONCESSIONAIRES (M6) PLC

M74

GREENHILLSTAIRS – HOLMS ROAD BRIDGE (Rise in Accidents/Incidents)

Report prepared by:-

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**JOB No. 4047/M74-2013-2014 AccsSect2-Final-001
Date: December 2014**

INDEPENDENT ROAD SAFETY REVIEW**M74****GREENHILLSTAIRS – HOLMS ROAD BRIDGE
(Rise in Accidents/Incidents)****JOB NO : 4047/M74-2013-2014 AccsSect2-Final-001**

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Stage 1	Final	K P McMahon	December 2014	[Redacted]	4 December 2014

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1.0 INTRODUCTION

- 1.1 Stewart Paton Associates Ltd were commissioned by Autolink Concessionaires (M6) plc to undertake a road safety review of incidents and accidents on the section of the M74 motorway in the vicinity of Greenhillstairs to Holms Road Bridge at Junction 15.
- 1.2 The work was requested after the issue of a possible increase in accidents and incidents over the winter period of 2013/2014 was highlighted by Police Scotland.
- 1.3 No specific site visit was made, however the whole route had been visited by the auditors earlier in 2014 and the overall accident and incident for the route had been analysed and reported as part of the triennial Road Safety Audit process. (Stage 9 covered the years 2011-2013)

2.0 SITE DESCRIPTION

- 2.1 The area of road that Police Scotland are concerned with lies within the section identified for the triennial audit purposes as Section 2 – Paddy’s Rickle Bridge to Beattock.
- 2.2 When heading south the section commences at Paddy’s Rickle Bridge which is to the south of Junction 14 and continues to junction 15 at Moffat. The length is therefore taken as being 17.3km when using the motorway mark posts as a reference.
- 2.3 Having undertaken two triennial audits and driven the section of road numerous times for both business and private journeys, the author is of the opinion that this section of road tends to have a more onerous road geometry than other sections of the route within the Autolink concession, especially when compared to the sections south of junction 15 to the national border.
- 2.4 To deal with the surrounding topography the road in this section tends not to have long, relatively straight and level sections as seen further south. The route therefore incorporates much shorter horizontal curves and an ever changing vertical geometry which in turn leads to a constant switching of crossfall on both carriageway.
- 2.5 The Audit Team, when undertaking site inspections, have also observed that this section of the route tends to have a higher degree of hillsides, large embankments and more heavily wooded areas along the roadside which has an effect of giving the road an enclosed feel and also has an effect on lighting conditions in times of cloudy and overcast weather.
- 2.6 During the Stage 9 Audit the road surfacing was observed to be in good condition as was the street furniture and other infrastructure associated with this section of route.
- 2.7 In general, while the road geometry is more onerous than other sections of the motorway the Audit Team found no major road safety issues that should pose any particular problems for users if the route is driven at a speed appropriate for conditions and with due care and attention.

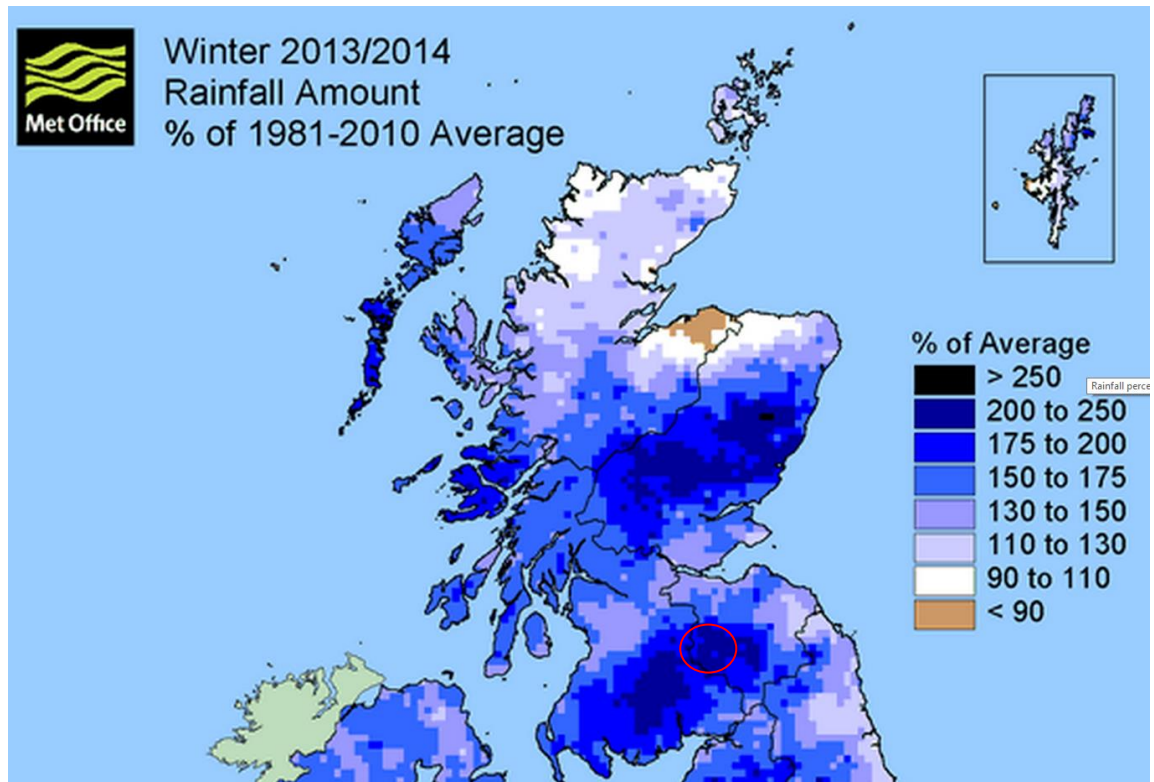
3.0 REVIEW OF INCIDENTS/ACCIDENTS

- 3.1 In previous triennial audits the Audit Teams have pointed out that in, statistical terms, there is generally a significantly higher number of injury accidents on Section 2 Paddy's Rickle Bridge to Beattock than the average for the length of the Autolink concession.
- 3.2 The comparative tests undertaken in previous Audits identified that it is certain that the number of weather-related accidents in both the northbound and the southbound carriageway is higher than would be expected.
- 3.3 A number of years previously a report identified that significant lengths of the section were affected by standing water and it is probable that the high accident rate is a direct reflection of the presence of the water on the carriageway.
- 3.4 Comment has been made in previous Audit reports regarding the skid resistance of TSCS. The opinion has been expressed that the accident problem is associated with the possible water retention, texture depth and the degree of contact to the road surface with the tyre.
- 3.5 However during the most recent Audit it was possible to view the section in heavy rain with the road surface in a 'saturated' condition. It was considered that the amount of spray rising from the road in such conditions could be having an effect on visibility which in turn may be leading to drivers making poor decisions or not seeing and reacting appropriately to the actions of others.
- 3.6 The photograph below is provided to illustrate how spray rising from the road surface in wet weather conditions can easily mask vehicles.

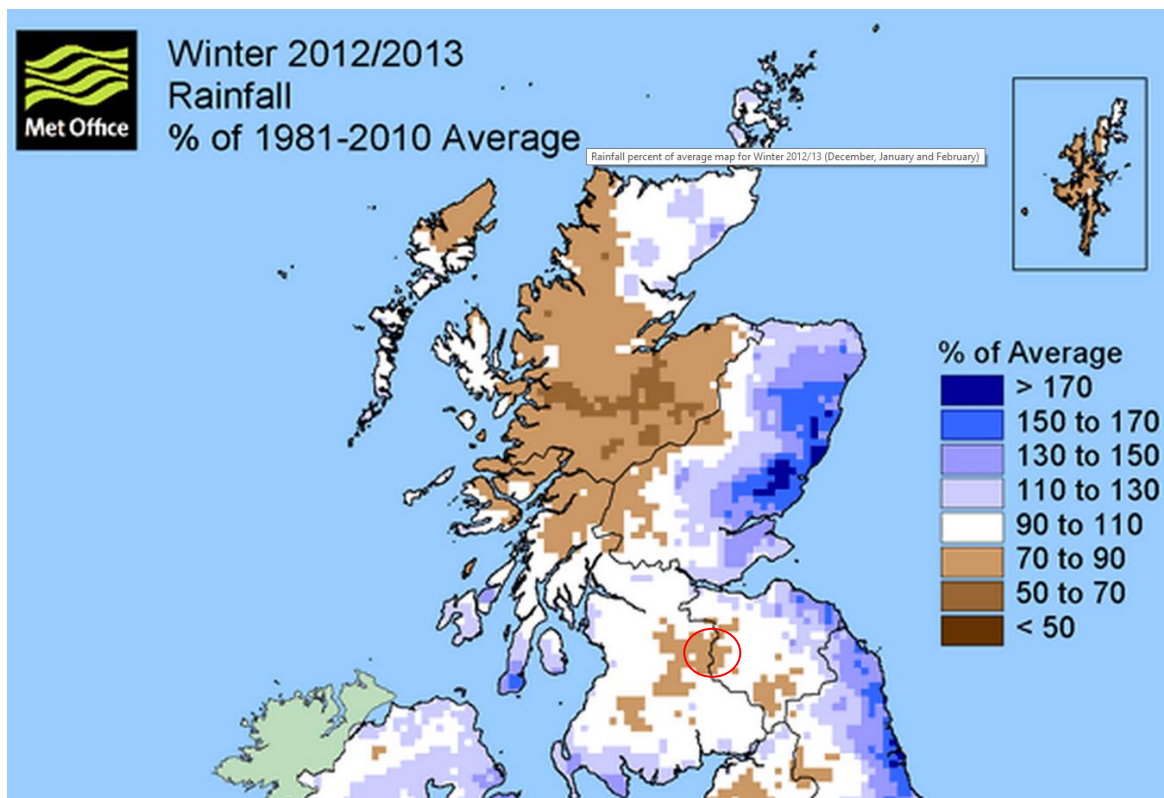


- 3.7 In considering the winter period of 2013/2014 a monthly breakdown of the total of both Stats 19 injury accidents and incidents recorded by Autolink has been undertaken using the figures analysed in the Stage 8 and Stage 9 Audits.
- 3.8 These have been included in tabular form in Appendix 1
- 3.9 For reference purposes the sections used for the triennial Audits are as follows:
- 1 - Millbank to Paddy's Rickle Bridge
 - 2 - Paddy's Rickle Bridge to Beattock
 - 3 - Beattock to Cleuchbrae
 - 4 - Cleuchbrae to Ecclefechan
 - 5 - Ecclefechan to Kirkpatrick Fleming
 - 6 - Kirkpatrick Fleming to National Border
- 3.10 The tables for injury accidents for the whole route and Section 2 show no particular trend, pattern or rise in terms of monthly accidents totals. Generally injury accidents appear to be limited to around 1 or 2 per month with the occasional 'spike' to 3 or 5.
- 3.11 As one would expect there are some winter months where there are a slightly higher number of accidents, most probably due to wintery conditions, however equally there are some summer months on all sections that have similar 'spikes' in injury accident numbers.
- 3.12 When turning to incidents recorded by Autolink, which include both injury and damage only incidents, it can be seen that there appears to be an increase in the number of incidents in Section 2 in January, October, November and December 2013 when compared to previous years. The October to December total, that covers the time period highlighted by Police Scotland, is 37 incidents.
- 3.13 However similar 'spikes' appear in other months in 2008, 2009 and 2011.
- 3.14 The rise in the number of incidents towards the end of 2013 is however an issue that will require monitoring.
- 3.15 Examining the incidents on the records provided for 2013 it does appear as though the vast majority of incidents have occurred when the weather and road conditions are detailed as being wet.
- 3.16 Police Scotland have highlighted that there appears to be a higher than expected number of incidents in January and February 2014. It is however the case that the number of injury accidents does not appear to show any unusual rise in numbers.
- 3.16 On examination of the weather conditions in the winter of 2013/2014 it is noted that it was a particularly wet winter.
- 3.17 A Met Office map of the rainfall for winter 2013/2014 has been included below with the area of the M74 under consideration highlighted in a red circle. It can be seen that the

rainfall was 200% to 250% of the 1981-2010 Average. In such circumstances rainfall and surface water would have been particularly high.



- 3.18 It is of interest to note that when compared to the total of incidents from October to December 2012 (total 11) the rainfall for the area is only 70% to 90% of the Average



- 3.19 Therefore it would appear that wet weather and road conditions are a major contributory factor in the number of incidents in the area of concern as raised by Police Scotland.

4.0 CONCLUSIONS

- 4.1 The Audit Teams undertaking previous triennial Audits have indicated that there may indeed be a connection with wet weather accidents and TSCS surfacing.
- 4.2 It is however the case that in previous audits, while specific comment was made with regard to accident/incident, cluster sites little comment was made with regard to the variance in the overall geometry and surrounding topography on Section 2 compared to other sections.
- 4.3 The author has reviewed the route in a number of different weather conditions this year, including torrential rain, and has identified no major concerns with the road geometry, road surface and infrastructure conditions that, if driven at appropriate speeds and with due care and attention, would contribute to road accidents and incidents.
- 4.4 It is therefore concluded that accidents and incidents are most likely due to poor driver behaviour, decision making and subsequent loss of control.
- 4.5 It is considered that the area of concern highlighted by Police Scotland and the general length of Section 2 has a more onerous geometry in terms of the number of changes in horizontal and vertical curves when compared to other sections, especially those to the south.
- 4.6 Observations on site have indicated that in wet and overcast conditions lighting levels appear relatively low and cloud cover and mist can accumulate at a low level in relation to the road surface.
- 4.7 It is considered that this generally ‘oppressive’ atmosphere combined with road surface water having to be directed across an ever changing geometry and high levels of spray may be leading to drivers misreading traffic conditions and other driver’s manoeuvres.
- 4.8 In such circumstances it is considered that regardless of the road surface there is a high probability of loss of control type incidents.
- 4.9 The fact that the vast majority of incidents in October to December 2013 involve single vehicles appears to support this conclusion.
- 4.10 It is recommended that specific attention is given to reviewing the number of incidents at the section of road under consideration in the Stage 10 Audit.

5.0 REPORT AUTHOR DETAILS

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APPENDIX 1

TABLES FOR MONTHLY INJURY ACCIDENTS AND INCIDENTS FOR YEARS 2008 – 2013 (Plus available injury accidents for 2014 to April)

Injury Accidents By section/year/month.

Section	Month	2008	2009	2010	2011	2012	2013	2014
1	January	2	1		1	3	2	1
	February						2	2
	March						1	2
	April				1	1		1
	May			1	2			N/A
	June		1		1		2	N/A
	July	1		1	3	1	1	N/A
	August			1			3	N/A
	September					1		N/A
	October	1				1	2	N/A
	November	3	1	3	3		1	N/A
	December			2	2			N/A
	TOTALS	7	3	8	13	7	14	Ave 7

Section	Month	2008	2009	2010	2011	2012	2013	2014
2	January	4	2		1			2
	February							1
	March	2				1	1	1
	April	2						
	May		1	1			1	N/A
	June	2	1			3		N/A
	July				1		1	N/A
	August	6						N/A
	September	1				2		N/A
	October				1		3	N/A
	November		5		1	3		N/A
	December		1		3	2	2	N/A
	TOTALS	17	10	1	7	11	8	Ave 9

Section	Month	2008	2009	2010	2011	2012	2013	2014
3	January						1	1
	February				1		1	1
	March	1					1	
	April		1		1		1	
	May	1			1		1	N/A
	June							N/A
	July		1	1		1	1	N/A
	August	1						N/A
	September	1				1		N/A
	October			1	2			N/A
	November				1			N/A
	December				1		1	N/A
	TOTALS	4	2	2	7	2	7	Ave 4

Injury Accidents By section/year/month (continued)

Section	Month	2008	2009	2010	2011	2012	2013	2014
4	January	3	1	1		1	1	
	February	1		1				
	March	1		2				1
	April		1				1	
	May			1	1		1	N/A
	June	1	5		1	2		N/A
	July		1	1	3	1		N/A
	August	1	3	1	1	2		N/A
	September	1	1		1		1	N/A
	October		2				1	N/A
	November		1	1				N/A
	December		1	1				N/A
	TOTALS	8	16	9	7	6	5	Ave 9

Section	Month	2008	2009	2010	2011	2012	2013	2014
5	January				1			
	February	1		1	1			
	March	1				1		
	April	1	1	1			1	
	May	1						N/A
	June						1	N/A
	July	1		1				N/A
	August	1	1	1		2		N/A
	September							N/A
	October		1					N/A
	November				1			N/A
	December				1		1	N/A
	TOTALS	6	3	4	4	3	3	Ave 4

Section	Month	2008	2009	2010	2011	2012	2013	2014
6	January	1						
	February							
	March		1					
	April	1				1		
	May			1				N/A
	June	1	1	1				N/A
	July						1	N/A
	August					1		N/A
	September						1	N/A
	October			1				N/A
	November							N/A
	December		1					N/A
	TOTALS	3	3	3	0	2	2	Ave 2

Incidents By section/year/month. (10 or more incidents per month highlighted in Red)

Section	Month	2008	2009	2010	2011	2012	2013	Ave
1	January	10	3	4	14	5	8	
	February	13		1	1	4	5	
	March	2	5	7	1	3	2	
	April	8	2		2	5	4	
	May	2		3	4	5	3	
	June	4	2	5	4	6	1	
	July	4	3	2	8	4	2	
	August	4		1	8	4	3	
	September	2	4	3		5	1	
	October	4	2	1	5	4	4	
	November	3	3	6	3	1	4	
	December	6	7	2	12	3	2	
	TOTALS	62	31	35	62	49	39	46

Section	Month	2008	2009	2010	2011	2012	2013	Ave
2	January	20	5	5	5	6	16	
	February	2	11	1	10	8	5	
	March	11	1	6	4	5	4	
	April	16	3	2	1	1	2	
	May	2	7	4	5	3	6	
	June	10	6	2	4	2	3	
	July	3	5	6	2	7	5	
	August	12	3	4	3	4	2	
	September	5	5	4	2	3	4	
	October	2	4	3	6	3	15	
	November	5	15	4	4	3	9	
	December		10	9	8	5	13	
	TOTALS	88	75	50	54	50	84	67

Section	Month	2008	2009	2010	2011	2012	2013	Ave
3	January	4	3	1	4	4	3	
	February	2	2	2	2	3	2	
	March	4	1	2		1	3	
	April	6	2	1	3	1	4	
	May		2	2	2	1		
	June	7	3	3	1	3	2	
	July	6	5	2	1	3	3	
	August	6	6	2	1	1	1	
	September	4	1		4	6	1	
	October	3		2	3		1	
	November	3		4	6		1	
	December	1	6	2	4	1	4	
	TOTALS	46	31	26	31	24	25	31

Incidents By section/year/month (continued)

Section	Month	2008	2009	2010	2011	2012	2013	Ave
4	January	3	2	4	2	5	2	
	February	2	2	3	5	1	4	
	March	2	4	1	6	4	4	
	April	4	4	3		4	2	
	May	3	4	2	5	4	3	
	June		9	2	4	6	2	
	July	1	7	4	4	1	3	
	August	7	6	2	5	7	2	
	September	4	5	3	6	4	2	
	October	2	6	1	10		1	
	November	5	12	1		4		
	December	3	5	4	6		2	
	TOTALS	36	66	30	53	40	27	42

Section	Month	2008	2009	2010	2011	2012	2013	Ave
5	January				2		1	
	February	1	1	2	1	1	4	
	March	5	1	1	1	1	3	
	April	2	1	1	3	10	1	
	May			2	4	1	1	
	June	1	2	2	3	1	1	
	July	1				3	2	
	August		3	4		4	1	
	September			3	3	2		
	October	1		2			3	
	November	1		5	2	4	2	
	December	4	1	3	2		2	
	TOTALS	16	9	25	21	27	21	20

Section	Month	2008	2009	2010	2011	2012	2013	Ave
6	January	2					1	
	February		1	1				
	March		2	1	1		1	
	April	1				1	2	
	May		3	2	1	1	1	
	June	1		2			1	
	July		1		1		1	
	August					1	2	
	September	1		2	1	1	2	
	October	1	1			1		
	November			1	3		1	
	December	1			1	2		
	TOTALS	7	8	11	8	7	12	9