

Cabinet
13 April 2016

County Road Highway Maintenance Capital Budget: Progress on 2015/16 Schemes and the 2016/17 Programmes

Report of the Head of Highways, Capital Development and Waste

Please note that the following recommendations are subject to consideration and determination by the Cabinet (and confirmation under the provisions of the Council's Constitution) before taking effect.

Recommendations: That:

- (a) progress on 2015/16 capital funded Highway Maintenance schemes detailed in Appendices I and II to this report be noted;
- (b) the capital funded highway maintenance programmes for 2016/17 as set out in Appendices III and IV be approved;
- (c) detailed allocation of the available budget be determined by the Head of Highways, Capital Development and Waste in accordance with the Highways Asset Management Plan, and within the limits of the approved budget;
- (d) authority to amend the programme to maximise the impact of the programme be delegated to the Head of Highways, Capital Development and Waste, within the agreed policy guidelines subject to consultation with the Cabinet Member for Highway Management and Flood Prevention for any budget changes to individual schemes exceeding £25,000.

1. Summary

Government has decided its formulae for the allocation of highway capital maintenance funds, which includes a Needs Allocation, an Incentive Fund and a Challenge Fund.

The level of available capital funding falls short of that needed to maintain all elements of the highway in a steady state.

Within the anticipated Government Allocation for 2016/17, programmes of capital funded highway maintenance schemes have been developed in accordance with Devon's Highway Asset Management Plan. This is to address the priority needs of the network and ensure that where possible preventative maintenance is carried out so that as much of the network as possible is held in a reasonable condition.

This report presents information on the programmes of highway capital maintenance work delivered in 2015/16. It also presents the latest high level information on the condition of carriageways for A, B, C and unclassified roads.

The report details proposals for capital funding of highway maintenance programmes in 2016/17. These include for investment in carriageways, footways, cycleways, drainage systems, road restraint systems, street lighting and traffic signals, bridges and other highway structures.

2. Background

Cabinet agreed the Highway Asset Management Policy, Strategy and Plan at its meeting in March 2013.

As the Local Highway Authority, Devon County Council has the duty to maintain a road network of 12,850 kilometres comprising:

970km principal (A) roads,
660km non-principal (B) roads,
4,510km non-principal (C) roads,
6,710km unclassified roads,
over 4,000km of footways,
over 3,500 bridges,
1,579 retaining walls with a total length of 117km,
highway embankments,
road restraint systems,
traffic signal installations,
cycleways,
over 80,000 street lights and illuminated signs and bollards.

There are basically three types of maintenance works undertaken:

- (a) Reactive repairs such as pot-hole filling, vehicular damage to highway bridges, dealing with flooding, replacing road signs and markings, clearing vegetation which, if neglected, would pose a potential danger to road users. Additionally during the winter period precautionary salting and snow clearance are carried out as needed.
- (b) Routine or cyclic maintenance such as gully emptying, grass cutting, minor works to bridges and structures, cleaning and clearing of drainage pipes, ducts and channels and the like mostly carried out to a defined frequency.
- (c) Planned, programmed or structural maintenance, for example carriageway resurfacing, reconstruction and surface treatments, bridge and retaining wall strengthening, major examinations of bridges and structures, road restraint system renewal, drainage renewal, street lighting and traffic signals replacement.

Funding of all three types of maintenance works is closely linked. Pressure on revenue funding risks under-investment in reactive and routine highway maintenance, which can reduce the service life of assets. This will therefore tend to reduce asset value in time. Insufficient capital investment in the highway asset will lead to a fragile network, which is prone to failure, for example in severe weather conditions. It places extra demand on reactive safety defect repair work and can increase the revenue costs of interventions to keep the network available to highway users and to maintain network safety.

This report deals with the capital funding of planned, programmed or structural maintenance work, to restore or replace worn out components and add value to the asset (c above). The capital investment in the highway network is to keep the assets structurally sound thus reducing risks to highway users and reducing long term maintenance costs.

Revenue funding for 2016/17 is covered in a separate report to this Cabinet (HCW/16/32).

3. Asset Management Strategy

The Asset Management approach when applied to the management of Devon's Highway infrastructure provides a methodology for deciding when is the best time to carry out capital

maintenance to minimise the total cost of maintaining an asset over its whole life (Whole life cost).

The approach requires the establishment of service levels for highways assets, which are, for the Devon Highway Network, set out in the approved Highway Asset Management Plan. The approach involves identifying where work is required from survey data and choosing the most appropriate maintenance treatment and the timing of maintenance work, to achieve the lowest whole life cost.

The Highway Asset Management approach enables consistent investment decision making. Where insufficient budget is available to meet all maintenance needs, the approach can ensure that the best overall level of service is achieved for the available funding.

The Devon Highway Asset Management Plan reflects the different needs of roads based on the hierarchical categorisation of the road network. So, for example, the A and B road networks, which are the busiest roads supporting business activity, access to other services and leisure use, and which carry relatively high levels of traffic, are prioritised for capital investment over minor unclassified roads. However, for rural communities, the Plan recognises the need to maintain key access routes to communities.

The Asset Management Plan provides for preventative capital investments. A low cost intervention delivered at the right time in the life of a road provides better overall whole life cost outcomes compared to full reconstruction of an alternative section of dilapidated road. With insufficient capital funding to meet all of the demand for maintenance, this does mean that some sections of lower category roads will remain in a poor condition. They will however, be kept safe by appropriate revenue funded essential repair work.

4. Financial Considerations and Sources of Funding

In November 2014, following consultation, the Department for Transport (DfT) announced a new formula for allocating Local Highway Maintenance funding allocations until 2021. The new funding is made up of a Needs Formula, an Incentive Fund and a Challenge Fund. The new approach enables highway authorities to improve long term works planning as the announcement details the Needs Formula allocation for a six year period.

Devon has been awarded £38.785 million in 2016/17 for the needs based formula which is based on the DfT calculation on the quantity of all highway features, not just carriageway length.

Future needs formula allocations announced by DfT are shown in Table 1 below.

With regard to the Incentive formula, a self-assessment questionnaire has been submitted for the year 2016/17 to the DfT claiming Band 2 level for Devon. If accepted this could secure an additional £2.35 million for 2016/17 (see Table 1).

The criteria for evaluating the Incentive formula includes; efficiency in service delivery, good compliance with asset management principles, collaboration with other highway authorities and good supply chain management. Consultation with other authorities in the South West indicates that no authority is currently assessed as Band 3. Devon is targeting Band 3 for future years.

Table 1 DfT Needs Based and Incentive formula allocations.

Devon		Indicative incentive element by "band" of self-assessment ranking (£)		
	Total needs/formula allocation (£) announced in December 2014	Band 3 highest band	Band 2 medium band	Band 1 lowest band
2015/16	42,306,229	No incentive funding		
2016/17	38,784,623	2,347,737	2,347,737	2,112,964
2017/18	37,610,754	3,521,606	3,169,446	2,112,964
2018/19	34,042,193	7,090,167	4,963,117	2,127,050
2019/20	34,042,193	7,090,167	3,545,084	709,017
2020/21	34,042,193	7,090,167	2,127,050	0

During 2015 Devon was successful in securing an additional Challenge Fund of £10.2 million to provide replacement street lighting luminaires on all main roads with low energy alternative. This will reduce revenue funded maintenance and energy costs and will reduce street lighting carbon emissions. Work on the Street Lighting Energy Efficiency project will continue in 2016/17 and the following year.

Bids for other Challenge funding will be made when the opportunity arises.

In summary, funding for 2016/17 is:

DfT Settlement (needs based)	£38,785,000
DfT Incentive Funding (anticipated)	£2,348,000
Carry over from 2015/16	£361,000
DFT Challenge Fund (street lighting)	£5,079,000
 Total	 £46,573,000

5. Trends in Road Condition

Machine based ("SCANNER") carriageway surveys are carried out annually to provide condition data on road carriageways.

In presenting summary findings of the surveys, road lengths that have only minor deterioration are shown in green, lengths that should be considered for maintenance works immediately are shown in red and lengths that are at stages of deterioration in between are shown in amber. See Figures 1, 2, 3 and 4 attached.

The summary findings show that Devon's A, B and C roads are being maintained in relatively steady state and good condition. This reflects the aims set out in the approved Highway Asset Management Plan.

Unclassified roads combined with C roads, make up 87% of Devon's road network. The summary findings show that the unclassified road network has a relatively high proportion that should be considered for maintenance work immediately i.e. 23% in red condition and 47% in the amber condition. This reflects the fact that the level of available capital funding is insufficient to carry out structural maintenance on the entire Devon road network.

The condition trend shows that from 2007/08 to 2010/11 or 2011/12 the proportion of roads in the red condition was increasing. Since 2011/12, the trend is for a reduction of road length in the red condition. This supports the Asset Management approach to target preventative maintenance treatments, like surface dressing, rather than higher costs programmes of reconstruction work, which would enable less road length to be maintained.

Work on the major road network and key links into communities has been made a high priority. This matches the primary winter salting network, which is designed to keep communities and businesses on the move when winter weather affects the county.

Despite capital investment in carriageways, the condition of a large part of the C and unclassified road network remains a concern. The evolved nature of these roads, combined with limited resources to carry out strengthening work, and the normal process of wear and tear under usage leaves such roads vulnerable to the formation of potholes and other surfacing failures.

6. Analysis

Devon's highway network represents the largest capital asset managed by the Council.

The asset has been valued at £12.99 billion (Gross Replacement Cost) under CIPFA guidance (excluding land costs). This includes all highway assets such as footways, bridges and street lighting. Carriageways (road surfaces and the underlying construction layers) form by far the greatest part of Devon's highway assets by value. The value of carriageways alone is £11.13 billion.

The accumulated depreciation of the highway asset has been calculated as £1.21 billion. This figure represents the loss in value of the asset due to ongoing deterioration. Using asset management models the annual rate of depreciation has been estimated as approximately £86 million per annum which is the level of investment required to maintain all elements in a steady state condition. Whilst there will always be a level of residual defects (those that are awaiting repair) in the asset, the accumulated depreciation figure indicates that there is a lag in maintenance which is the equivalent of 14 year's worth of "steady state" funding.

Modelling of the carriageway component of the asset indicates a need for approximately £62 million per annum to maintain carriageways in a steady state.

The current budget does not provide sufficient funding to meet the annual cost of deterioration of the asset and as a consequence the condition of certain elements of the highway asset will get worse.

Whilst the funding prioritises the strategic routes, the authority's asset strategy has a wider remit in ensuring all communities have access to a road infrastructure which is resilient, well connected and safe. It is necessary that the investment in the main roads is complimented by ensuring that good access to local communities is maintained. Therefore an investment will continue to be made on roads outside of the A and B network that are included in the primary salting network, and other roads prioritised by maintenance category.

Recent winters have been more severe in terms of adverse weather events than any in the last 30 years and December 2015 was the wettest month ever recorded. The effects are felt not just in the revenue cost of dealing with the events as they arise and in the immediate aftermath but also in serious ongoing attrition of the surface and structure of the County's highway infrastructure.

During 2016/17 a proportion of the available funding will still be required to continue to repair the legacy of storm damaged surfaces that have suffered a high number of potholes.

The programme to upgrade bridges on the principal roads to meet the 44 tonne gross vehicle weight capacity has been substantially completed although a few smaller structures on minor roads will require strengthening over the coming years.

Overall, Devon's bridge stock is classed as "Good" in the nationally adopted method of assessing and reporting condition. The size of Devon's bridge stock is such that despite this overall score, there remain over 800 structures classed as "fair" or "poor". The "poor" structures are managed and the level of risk is mitigated by weight restriction signs and other physical measures.

The overall condition of the highway retaining wall stock is assessed as "poor" and this is reflected in the number of retaining wall collapses in recent severe weather conditions.

A prioritised programme of replacing street lighting columns will continue to focus on older vulnerable lighting columns to mitigate the risk of column failure. Investment has been made in the street lighting remote monitoring system and the implementation of LED lighting, the latter funded from the successful Challenge Fund bid, on all main roads. This will reduce the demand for revenue funding of energy and routine lighting maintenance.

7. Capital Highway Maintenance Programmes: 2015/16

Appendix I shows progress with the Highways programme.

Appendix II shows progress with the Bridges and Highway Structures programme.

8. Capital Highway Maintenance Programmes: 2016/17

The available funding for 2016/17 is £46,573,000. It is proposed that the funding is allocated as follows:

Highway Structural Maintenance	£38,678,000
Bridges & Structures	£6,200,000
Schemes carried forward from 2015/16 programme	£1,695,000
Total	£46,573,000

A more detailed breakdown of the allocation is outlined in Appendix III and Appendix IV.

Based on the network condition data, presented in figures 1 to 4, the level of funding for the A and B road network, has been reduced compared to 2015/16. This is because the proportion of the A and B road network in the red condition has been reduced to between 2 and 3 percent in recent years, and the target for this network is 4%. This adjustment enables more of the available funding to be used to maintain the C and unclassified road network.

Key elements of the proposed allocations include:

(i) Highway Structural Maintenance (HSM): Principal Roads (A class roads):

£2.7 million for specific larger schemes with a high pothole count and structural defects or which will rectify carriageways with potential skidding defects.

£2.3 million for surface dressing and preparatory patching works. This will surface dress

carriageways in 2016/17 and prepare for the 2017/18 dressing programme.

All will target roads where the condition survey data shows roads to be "red" and "amber" The total is £5 million, compared to £5.4 million in 2015/16.

The right level of Skidding Resistance is an important contribution to road safety. The County's Skid Management Strategy has been reviewed in 2015 (Appendix V) and is based on the Highways England standard HD28/15 "Skidding Resistance" which identifies survey method, the level of skidding resistance required at differing locations and a risk based approach to analysis and treatment of those sites identified as being deficient in skidding resistance.

The levels put forward in the code are defined as investigatory levels which trigger an engineering analysis to establish what if any action should be taken. HD28/15 was developed for trunk road use and Devon has adapted the approach within the code for local roads where vehicle speeds and volumes tend to be lower. It is neither good value for money or practicable for all roads on the highway network to be surveyed for skid resistance. Devon therefore carries out routine annual surveys on the principal road network. In addition sites identified as being skid collision sites through the annual review of collision are included in the programme of surveys.

Initial analysis of the 2015 survey data has identified 3284 sites for skid resistance treatment investigation. The sites make up approximately 17% of the principal road length in the County which is broadly similar to previous years and compares favourably with the most recently published national average of 22%.

It is not possible to treat all parts of the principal road network that are currently below the current standard. Therefore the investigation is prioritised and limited to potentially high risk sites with a history of collisions. This includes sites with a reported skidding resistance deficiency and a history of collisions on wet surfaces, and others with a high deficiency (greater or equal to -0.15) and collisions on dry surfaces.

(ii) HSM Non-Principal Roads:

£2.164 million for non-Principal roads to undertake preparatory patching and surface treatment on local roads.

£11.8 million for surface dressing and surface dressing preparatory patching work. This will surface dress carriageways in 2016/17 and prepare for the 2017/18 dressing programme.

£0.5 million for unclassified urban estate roads for preventative maintenance.

(iii) Footways:

£1.7 million for footways. A significant programme of footway slurry sealing is planned. It is proposed to target £250k of footway budget to repairing slab footways in urban areas. Such footways generate a lot of defects reports. Consideration will be given to replacing such footways with alternative surfaces in consultation with local communities.

(iv) Drainage:

£1.1 million for drainage repair and upgrading. Drainage problems on the winter salting network and other major roads will be a priority.

(v) Road Restraint Systems:

£1.7 million for the upgrading and replacement of road restraint systems. This will mainly focus on barriers on major roads, high risk sites, A road timber posts, timber post systems that cross the M5 motorway or trunk roads and roads crossing or adjacent to railways.

(vi) Street Lighting and Traffic Signals:

£7.232 million for replacing streetlight components including the 2016/17 DfT Challenge Fund allocation of £6.512 million for the LED (low energy) programme on major roads.

£0.5 million for replacing dilapidated Traffic Signal equipment, including new low energy consumption electrical options.

(vii) Bridges and Structures:

£0.45 million for bridge strengthening schemes. A programme is proposed to strengthen five priority sub-standard bridges on lower category roads during 2016/17. These have either a very low carrying capacity or show significant signs of distress. Where appropriate, other sub-standard bridges are being managed using a risk-based approach "Management of Sub-standard Structures".

£2.574 million for repair and strengthening of highway retaining wall structures. The increased rainfall in recent years has resulted in significant number of failures of retaining walls, highway embankments and cutting slopes. Priority structures retaining the highway will be strengthened and repaired.

£0.49 million for scour protection. The effects of extreme weather events continue to impact on all highway structures with bridges being particularly vulnerable to scour in extreme flooding events.

£0.525 million for replacing dilapidated components on major routes such as the A380, A361 and A39. This will focus on priority worn out components, like bridge joints, bearings and bridge deck waterproofing.

£0.65 million for bridge and retaining wall inspections and bridge strength assessments. Structural inspection and assessments are necessary to identify and prioritise essential works to maintain and improve the condition of the stock of highway structures.

(viii) Storm Damage:

£2 million for storm contingency work. This is required because DfT has said that local highway authorities need to make provision within the overall DfT funding allocation. It has said that extra money will not be provided in the future.

9. Options/Alternatives

The programme for 2016/17 optimises the use of the available funding in accordance with the agreed Highway Asset Management Plan.

The programme uses the allocation made directly by Government for capital maintenance of highway assets. Devon's analysis is that the level of funding is not enough to meet all of the highway needs of the local road network.

An alternative to the Asset Management Plan preventative regime would be to repair roads on a 'worst first' basis. However this would cost about a third more over time to maintain

road condition. In going against sound asset management principles it could also adversely affect future financial settlements from DfT who have said that they will take this into account in future funding allocations.

10. Consultations

The results of the 2015 National Highways and Transport (NHT) Public Satisfaction Survey reflect public perception of performance, importance and desire for various activities to be funded. Analysis shows that the condition of the highway network and the speed and quality of repairs are important to the public.

The complete survey can be seen at <http://nhtsurvey.econtrack.com>

A summary of the results illustrating condition of road surfaces since 2009 is shown at Appendix VI. The survey shows that the level satisfaction with the condition of the highway in Devon is low at 36%. Although this is an improvement on the 2014 results (30%) the longer term trend has been one of reduced level of public satisfaction in the last 6 years. A similar trend is evident in the results for neighbouring authorities in the South West Region.

11. Sustainability Considerations

The ability to efficiently transport people and goods around the County underpins Devon's economy and has a direct impact on the quality of the environment.

When maintenance work is undertaken it is managed to ensure that the effect on the surrounding environment is kept to a minimum. On carriageways, surface treatment and reconstruction work is tightly controlled to achieve long term durability. Recycled materials and secondary aggregates are used whenever possible. When carriageway surfacing incorporating primary materials is required, a durable low noise material such as stone mastic asphalt is considered.

Construction contracts include for recycling plans to ensure that the use of natural resources is reduced where recycled alternatives exist.

12. Carbon Impact Considerations

The carbon impact of this highway maintenance programme through the manufacture and planning of the materials is likely to be offset by reduced emissions from highway users utilising a better maintained network, and using suitable alternatives such as walking and cycling.

The replacement of street lighting and traffic signal equipment with low energy components, including the introduction of LED lighting on main roads will contribute to reducing the County Council's carbon footprint.

13. Equality Considerations

Where relevant to the decision, the Equality Act 2010 Public Sector Equality Duty requires decision makers to give due regard to the need to:

- eliminate discrimination, harassment, victimisation and any other prohibited conduct;
- advance equality by encouraging participation, removing disadvantage, taking account of disabilities and meeting people's needs; and
- foster good relations between people by tackling prejudice and promoting

understanding.

Taking account of age, disability, race/ethnicity (includes Gypsies and Travellers), gender and gender identity, religion and belief, sexual orientation, pregnant women/new and breastfeeding mothers, marriage/civil partnership status in coming to a decision, a decision maker may also consider other relevant factors such as caring responsibilities, rural isolation or socio-economic disadvantage.

This may be achieved, for example, through completing a full Equality Impact Needs Assessment/Impact Assessment or other form of options/project management appraisal that achieves the same objective.

A copy of an updated overview of the impact assessments for all service areas has been circulated separately and is available to all Members of the Council at: <https://new.devon.gov.uk/Impact/published/budget-setting-201617/> which Members will need to consider for the purposes of this item.

This assessment shows that over 75% of those responding felt that major roads should be given priority in the budget decision making and similarly over 80% felt that minor roads should be given a priority.

14. Legal Considerations

The lawful consequences of the recommendations have been considered in the preparation of this report.

The reduction in the revenue allocation will put more pressure on the amount and type of work that will be completed in the capital budget. This will lead to an overall reduction in maintenance standard and potential road closures, particularly on the minor part of the network. This may be legally challenged by local residents and other road users.

There is also likely to be an increase in user dissatisfaction and complaints which could lead to challenges to the Authority under Section 56 of the Highways Act.

A reduction in routine maintenance could also result in more safety defects that will lead almost inevitably to an increase in third party claims and potentially litigation.

15. Risk Management Considerations

The proposals contained in this report have been assessed and all reasonable actions are taken to safeguard the Council's position.

The cumulative reduction in the revenue budget has significant implications for this capital allocation. Inability to undertake enough planned and general preventative maintenance work will result in an increased depreciation to the highways asset. This will lead to increased deterioration and defects and as a consequence, increased repair costs with potential for claims, which will put pressure on revenue and staffing budgets.

Where risks have been identified such as those associated with cost inflation or inclement weather, which could disrupt the capital programme by causing higher than anticipated costs or delays respectively, the implications have been taken into account in preparing this report. This includes developing long term programmes and the provision for reasonable contingencies in the estimates for capital highway and bridge maintenance schemes.

16. Public Health Impact

The cumulative reduction in budgets could also have an impact on public health with reduced maintenance having an effect on sustainable travel alternatives, and potentially more injuries resulting from crashes, trips and falls.

17. Reasons for Recommendations/Conclusion

The DfT capital settlement for 2016/17 provides the funding for capital maintenance of highway assets and this report sets out proposed programmes for different highway assets.

However, it should be noted that it only provides funding to 54% of the amount of maintenance funding required to keep the highway assets in their current condition.

The proposed programmes are designed to make best use of the available financial resources using the Cabinet endorsed approach to highway asset management.

David Whitton
Head of Highways, Capital Development and Waste

Electoral Divisions: All

Cabinet Member for Highway Management and Flood Prevention: Councillor Stuart Hughes

Strategic Director, Place: Heather Barnes

Local Government Act 1972: List of Background Papers

Contact for Enquiries: David Whitton

Room No: AB1 Lucombe House, County Hall, Exeter

Tel No: 01392 383379

Background Paper Date File Ref.

None

Figure 1
To HCW/16/31

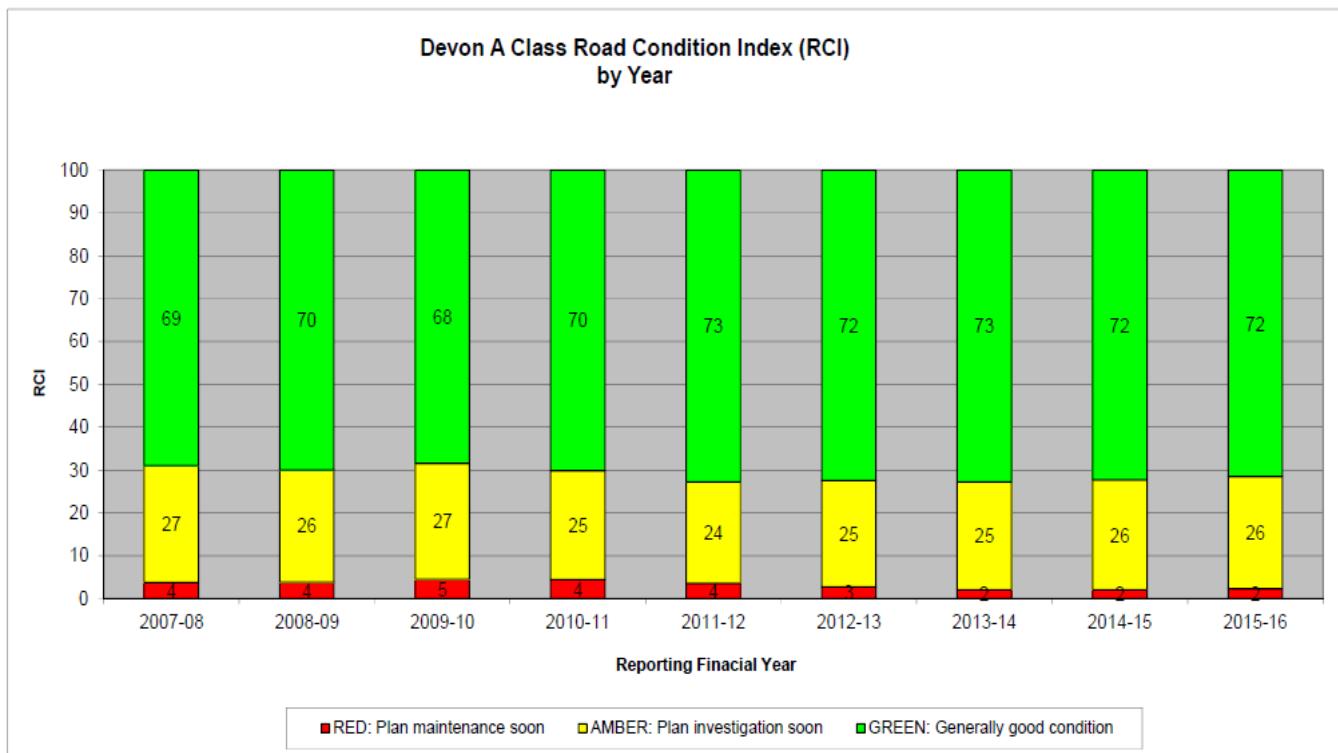


Figure 1

Figure 2
To HCW/16/31

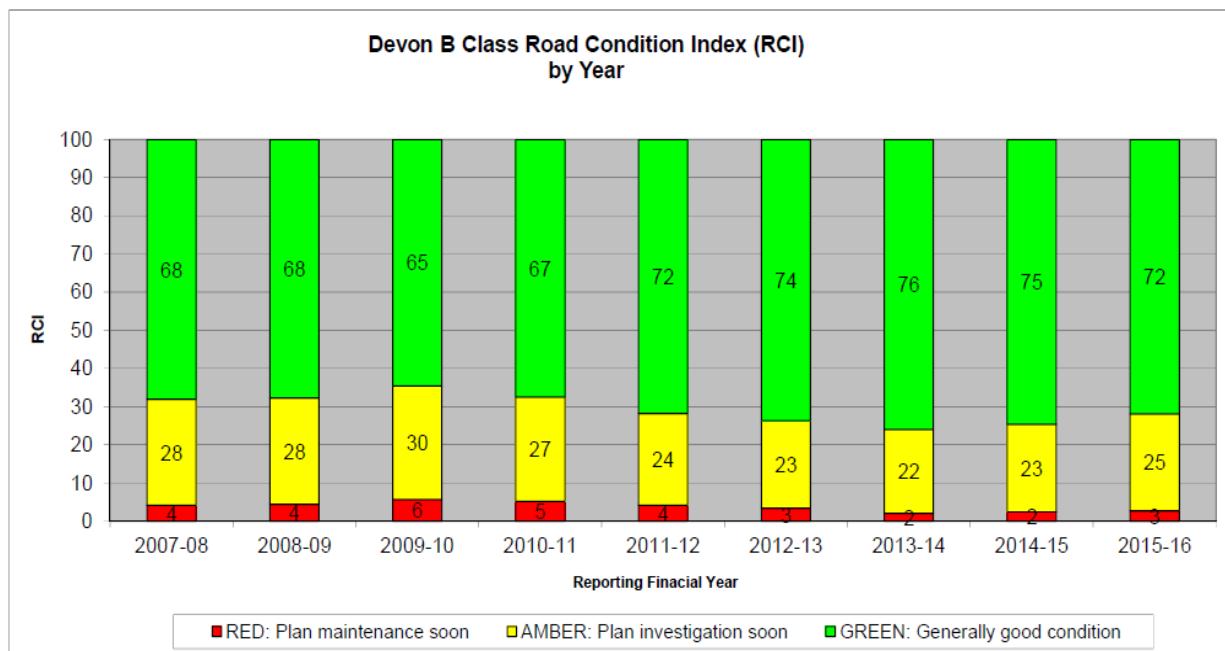


Figure 2

Figure 3
To HCW/16/31

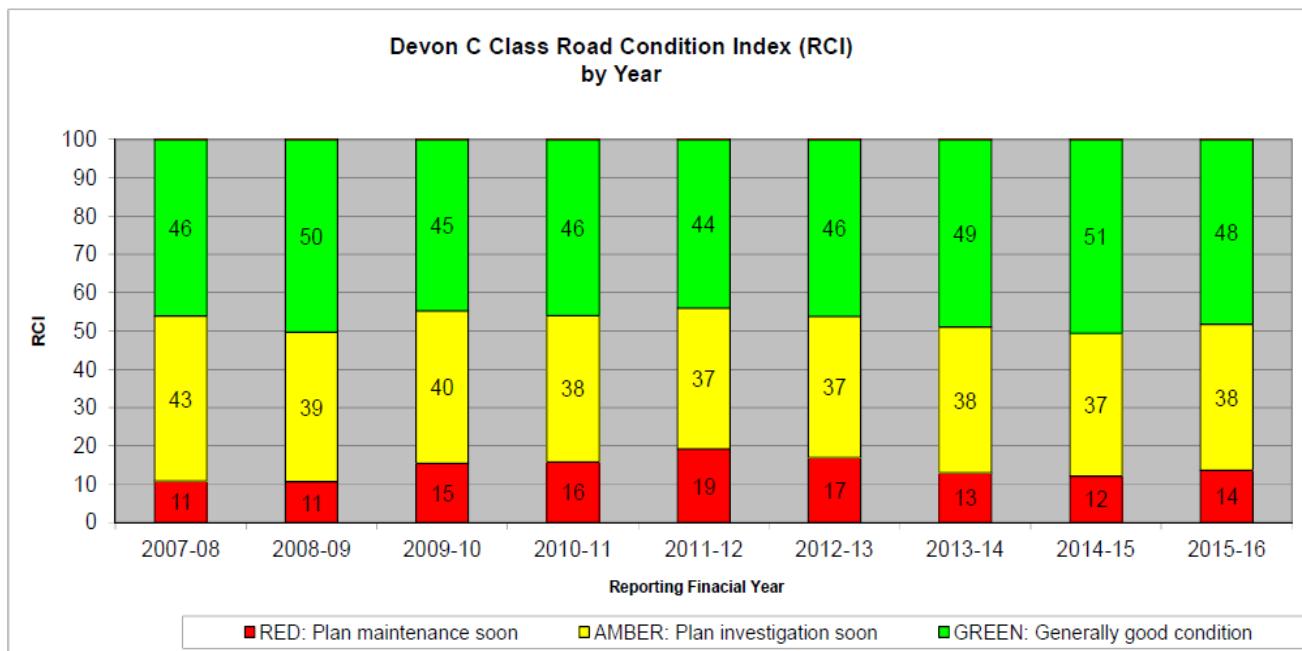


Figure 3

Figure 4
To HCW/16/31

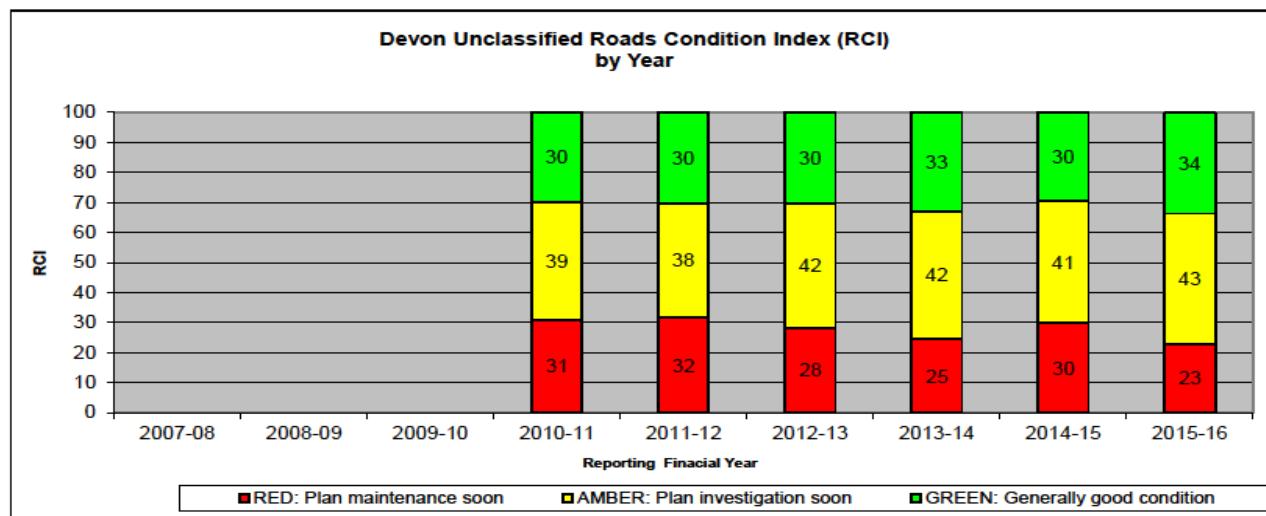


Figure 4

Appendix I
To HCW/16/31

Highway Structural Maintenance Programme 2015/2016					
Road	Scheme Name	County Electoral Division	Treatment Type	Scheme Total £'000	
A386	Calf St to New St - Great Torrington	Torrington Rural	Resurface/Overlay	93	
A361	Gornhay Jct w/b slip on - Tiverton	Tiverton East	Resurface/Overlay	84	
A373	Dowell Street - Honiton	Honiton St. Paul's	Resurface/Overlay	112	
A386	New Road Bridge rab - Bideford	Bideford East	Resurface/Overlay	17	
A375	Exeter Road - Honiton 2	Honiton St. Michael's	Resurface/Overlay	30	
A386	Church Hill Way - Northam	Northam	Resurface/Overlay	12	
A361	Mullacott Cross - Ilfracombe	Combe Martin Rural	Resurface/Overlay	2	
A375	Pinn Hill - Sidmouth	Ottery St Mary Rural	Resurface/Overlay	71	
A361	Gornhay Jct w/b slip off - Tiverton	Tiverton East	Resurface/Overlay	65	
A3072	Higher Newland - North Tawton	Hatherleigh and Chagford	Resurface/Overlay	120	
A3052	Trow Hill - Sidmouth	Sidmouth	Resurface/Overlay	586	
A373	Colliton Cross to Broadleaze - Broadhembury	Honiton St. Paul's	Resurface/Overlay	93	
A388	Stibb Cross to Holsworthy (Various Sites)	Bideford South and Hartland	Resurface/Overlay	536	
A358	Chard Road - Chardstock	Axminster	Resurface/Overlay	64	
A361	A361 Gornhay Jct e/b slip on - Tiverton deferred to 2015/16	Tiverton East	Resurface/Overlay	85	
A386	New Road - Torrington	Torrington Rural	Resurface/Overlay	96	
A377	A377 Deep Lane to Little Silver Wood - High Bickington	Torrington Rural	Resurface/Overlay	42	
A377	A377 Cowley Bridge Road - Exeter	Duryard and Pennsylvania	Resurface/Overlay	65	
A399	Portland Street & High St - Ilfracombe	Ilfracombe	Resurface/Overlay	242	
A39	Watersmeet Road - Lynmouth	Combe Martin Rural	Resurface/Overlay	20	
A3052	Westpoint to Football Ground - Sowton	Broadclyst and Whimple	Resurface/Overlay	306	
A375	A375 Exeter Rd - Honiton 3	Honiton St Michaels	Resurface/Overlay	20	
A380	A380 Preston Down rab s/b approach - Marldon	South Brent and Dartington	Signs and markings	18	
A380	A380 Churcombe rab - Marldon	South Brent and Dartington	Resurface/Overlay	20	
A376	A376 Clyst St George rab n/b exit	Broadclyst and Whimple	Resurface/Overlay	62	
A373	A373 King's Mill Road junction - Cullompton (Financial contribution)	Cullompton Rural	Resurface/Overlay	18	
A372	A382 Whiddon Down roundabout Drewsteignton	Hatherleigh and Chagford	Resurface/Overlay/HFS	61	
A39	Shamble Way Commitments	Combe Martin Rural	Resurface/Overlay	44	
				46	
Principal Roads					
SCRIM Remedial Works					1,371
Surface Dressing					587
Pre Patching for 2016/17 Surface Dressing (summer 2015/16)					395
Non-Principal Roads					
Non-Principal Road Recovery Programme					3,943
Non-Principal Road Recovery Programme (Stage2: 2015/16)					6,028
Surface Dressing					2,354
Pre Patching 2016/17 Surface Dressing (summer 2015/16)					119
Pre Patching 2016/17 Surface Dressing (winter 2015/16)					3,951
Storm legacy works (Report HCW/13/42)					1,463
All Roads					
Urban Estate Roads					1,572
Spray Injection Patching					751
Joint Sealing					293
Pre Surface Dressing Cleaning / Design					1,079
Wet/Dry Collision Sites					330
High Skid Resistance Surfacing Programme					1,794
Carriageway Condition Surveys					330
Forward Design and Investigation					0
Material Testing					150
Scheme Delivery					750
Footways					2,242
Cycleway, PROW & Unsurfaced Roads					592
Road restraint systems - strategy priority 1 and 2 schemes					1,150
Road restraint systems - strategy priority 3 schemes					9
Road restraint system A396 Exeter Inn/Cove					386
Road restraint system - damage permanent replacements					712
Drainage works					1,924
Cattle Grid structural repairs					20
Extreme Weather Resilience Contingency					0
DfT challenge bid match funding					1,565
Street Lighting Columns					500
Street Lighting Remote Monitoring System					529
Traffic Signal Replacements					500
HIGHWAY STRUCTURAL MAINTENANCE PROGRAMME					40,419

Bridge Assessment & Strengthening Programme 2015/16

Scheme Name	Budget Line	Scheme £'000
<u>Bridge Strengthening Schemes</u>		
Creedy Bridge (1568)		110
Wiscombe Bridge, Cornwood No 0447		40
Waterstave Bridge (legacy completion work)		6
Langford Shiffhayes		5
<u>Retaining Walls</u>		
Programme Development		5
A386 Landcross		200
Bray Quarry +650m		160
Byter Mill		400
Combe Martin		140
Diptford		15
Fairview Road		16
Farrants Hill		122
Hardstone		100
Nadrid Cross		57
Cloonavon		105
Marlborough Road		30
Strand Hill		85
West of Ward House		95
A379 (Brixton to Yealmpton)		48
East Allington		10
Gatcombe Mill		10
Buckland Court		41
The Mill, Umberleigh		60
Bray Quarry -550m		1
Old Sidmouth Road		2
<u>Scour Protection</u>		
Stage 1 Assessments (Jacobs)		110
Stage 1 Assessments (EDG)		8
<u>Sub-Standard Parapets</u>		
Bridford Mill		20
Fatherford		45
<u>Principal Inspections (Bridges)</u>		200
<u>Principal Inspections (Retaining Walls - Jacobs)</u>		133
<u>Principal Inspections (Retaining Walls - EDG)</u>		5
<u>Principal Inspections (Bridges)- Laser Scans</u>		20

Scheme Name	Budget Line	Scheme £'000
Bridge Strength Assessments (EDG)		15
Bridge Strength Assessments (Jacobs)		52
Post Tensioned Special Inspections		100
Traffic & Signing Replacing damaged/obsolete signs at low headroom bridges		60
Management of Sub-Standard Structures		3
Major Refurbishments Shaldon Bridge Lifting Span A380 Teign Estuary Viaduct Shaldon Bridge Tie bars and painting (part complete) Fremington Viaduct (part complete) Rock Park Viaduct (part complete) River Exe Viaduct River Yeo Cyclebridge (part complete) River Bray Viaduct (fwd design)		105 3,160 575 390 390 460 25 2
Minor Refurbishment (Bridge Maintenance)		200
Forward Design (Bridges) Alma F/B Denham Bridge (scour) Axmouth Bridge (scour) Norley (parapets) Bovey Bridge Bideford Long Bridge Ironbridge Exeter Hornshayes Devonport Leat Sidford Two Bridges Higher Crook Crediton Station Leat		10 10 15 10 50 28 20 5 12 5 25 6

Scheme Name	Budget Line	Scheme £'000
Forward Design (Retaining Walls)		
Bow Road, Harbertonford		37
Hillside Road, Ilfracombe		50
Rockside		15
Tuckermash		61
Russell Court		35
Stoke Woods		40
Bittaford		20
Beacon Lane		10
Brayford Quarry +950		5
A377 Blackboards		25
Newton Ferrers Riverside Rd West		2
Byter Mill		5
	Total	8,441

Appendix III
To HCW/16/31

Highway Structural Maintenance Programme 2016 / 2017				
Road	Scheme Name	County Electoral Division	Treatment Type	Estimate £'000
A379	Exeter Road, Dawlish	Dawlish	Resurfacing	65
A388	Stibb Cross to Holsworthy (Various Sites)	Bideford South and Hartland	Resurfacing	795
A379	Powderham Arch	Exminster and Kenton	Recon	65
A377	Deep Lane to Little Silver Wood - High Bickington	Torrington Rural	Structural	150
A383	Vicarage Hill	Kingsteignton	Structural	127
A380	Churcombe Roundabout Marldon	South Brent and Dartington	Resurfacing	90
<i><u>Principal Roads</u></i>				
	SCRIM Remedial Works			1,400
	Surface Dressing			2,269
	Pre Patching for 2017/18 Surface Dressing (summer 2016/17)			25
<i><u>Non-Principal Roads</u></i>				
	Non-Principal Road Recovery Programme			2,164
	Surface Dressing			8,571
	Pre Patching 2017/18 Surface Dressing (summer 2016/17)			2,949
	Pre Patching 2017/18 Surface Dressing (winter 2016/17)			300
	Storm legacy works (Report HCW/13/42)			500
	Kingskerswell Village			240
<i><u>All Roads</u></i>				
	Urban Estate Roads (micro)			460
	Spray Injection Patching			1,000
	Joint Sealing			250
	Pre Surface Dressing Cleaning / Design			650
	Wet/Dry Collision Sites			50
	High Skid Resistance Surfacing Programme			600
	Carriageway Condition Surveys			325
	Forward Design and Investigation			75
	Material Testing			200
	Scheme Delivery			650
	Footways			1,650
	Cycleway, PROW & Unsurfaced Roads			400
	Road restraint systems - strategy priority 1a			17
	Road restraint systems - strategy priority 1b			269
	Road restraint systems - strategy priority 1d			724
	Road restraint systems - strategy priority 2			416
	Road restraint system - damage permanent replacements			300
	Drainage works			1,100
	Cattle Grid structural repairs			100
	Extreme Weather Resilience Contingency			2,000
	DfT challenge bid match funding street lighting			6,512
	Street Lighting Columns			720
	Traffic Signal Replacements			500
	HIGHWAY STRUCTURAL MAINTENANCE PROGRAMME			38,678

Bridge & Structures Programme 2016/17		-
Scheme Name	Estimate £'000	
<u>Bridge Strengthening Schemes</u>	450	
<u>Retaining Wall Strengthening Schemes</u>	2,574	
<u>Scour Protection Schemes</u>	490	
<u>Sub-Standard Parapet Replacement Schemes</u>	105	
<u>Principal Inspections (Bridges)</u>	300	
<u>Principal Inspections (Retaining Walls)</u>	150	
<u>Post Tensioned Special Inspections</u>	100	
<u>Bridge Strength Assessments</u>	100	
<u>Upgrading Height Restriction Signs to comply with European Standards</u>	150	
<u>Component Replacements on Major Route Bridges (A380 & A361)</u>	525	
<u>Major Refurbishment</u>	400	
<u>Minor Refurbishment (Bridge Maintenance & Shaldon Br)</u>	326	
<u>Management of Sub Standard Structures (monitoring)</u>	25	
<u>Forward Design</u>		
Bridge Schemes	185	
Retaining Wall Schemes	145	
Major Refurbishments	175	
		6,200



Managing Skid Resistance Strategy



This statement outlines the changes to the approach to managing skid resistance in Devon between the Skidding Policy Version 8 and the Managing Skid Resistance Strategy Version 1.

The main differences are –

- The survey periods have been extended in line with the survey periods used by Highways England. HD28/15 no longer defines the survey periods and allows for the authority to choose suitable periods.
- The Investigatory levels have been set in accordance with HD28/15, the differences between the Skidding Policy version 8 and the new strategy are detailed in Appendix D.
- The strategy outlines the data used to prioritise investigations, this has been updated to include texture data from the SCANNER survey to assist with this process.
- The selection of aggregate PSV for sites Appendix G has been updated in line with IAN 156/12 and aggregate performance on the Devon network. The changes are highlighted in the attached table.
- The maintenance category split for PSV selection has been changed to 3 to 6 and 7 to 11, PSV selection on 3 to 6 categories includes traffic levels. This is supported by lower level of collisions on maintenance categories 7 to 11.
- The approach to the erection of Slippery Road warning signs has changed, the strategy now calls for warning boards only to be erected once the a need for treatment has been identified following investigation.

It should be noted that these changes are all within the scope of HD 28/15.

These changes to Devon's approach to managing skid resistance will –

- Include the latest recommendation from HD 28/15
- Reduce the investigatory level applied at key locations
 - Approach to pedestrian crossing reduced from 0.55 to 0.5
 - Approach to roundabouts reduced from 0.55 to 0.45 <50mph & 0.5 >50mph
 - Roundabouts reduced from 0.5 to 0.45
 - Bends 100 – 500m radius removed where speed limit <50mph
- Include latest guidance on aggregate selection from IAN 156/12 potentially reducing the volume of high PSV aggregates used across the network.
- Potentially reduce the level of SCRIM deficiency
- Provide a method for prioritising sites for investigation and treatment
- Potentially reduce the need for High Friction Surfacing.

HD 28/15 Investigatory Level Table 4.1

APPENDIX D1

Approved SCG 23-02-2015

Site Category HD28/04		HD28/04 & IAN 98/07 Range	DCC 1st stage audit	Speed Limit Restrictions	Scrim Site Category Code	Scrim Site Category Name	DCC 2015 audit
A	Motorway	0.30 - 0.35	N/A	None	A	N/A	N/A
B	Dual non-event	0.30 - 0.40	0.35	None	06 B - M	B - Mid - Dual Non-Event (0.35)	0.35
C	Single non-event	0.35 - 0.45	0.40	None	06 C - M	C - Mid - Single Non-Event (0.40)	0.40
Q	Approaches to junctions	0.45 - 0.55	0.50	<50mph	06 Q JA - L	Q - JA - Low - Junction Approach (0.45)	0.45
	Approach to roundabouts	0.45 - 0.55	0.55	>50mph	06 Q JA - M	Q - JA - Mid - Junction Approach (0.50)	0.50
K	Approaches to pedestrian crossings and other high risk situations	0.50 - 0.55	0.55	<50mph	06 Q RA - L	Q - RA - Low - Roundabout Approach (0.45)	0.45
				>50mph	06 Q RA - M	Q - RA - Mid - Roundabout Approach (0.50)	0.50
R	Roundabout	0.45 - 0.50	0.50	None	06 K CA - L	K - CA - Low - Crossing Approach (0.50)	0.50
				None	06 K HR - L	K - HR - Low - High Risk Site (0.50)	0.50
G1	Gradient 5 to 10% longer than 50m	0.45 - 0.50	0.45	None	06 G1 - L	G1 - Low - Gradient - 5 to 10% (0.45)	0.45
G2	Gradient >10% longer than 50m	0.45 - 0.55	0.50	None	06 G2 - M	G2 - Mid - Gradient >10% (0.50)	0.50
S1	Dual <500m (100 to 500m)	0.45 - 0.50	0.45	<50mph	06 C - M	B - Mid - Dual Non-Event (0.35)	0.35
	Dual <500m (<100 m)	0.45 - 0.50	0.50	>50mph	06 S1 D - L	S1 - Low - Dual <500m (0.45)	0.45
S2	Single <500m (100 to 500m)	0.45 - 0.55	0.50	None	06 S1 a D - H	S1a - Old H2 - High - Dual <100m (0.50)	0.50
	Single <500m (<100 m)	0.45 - 0.55	0.55	<50mph	06 C - M	C - Mid - Single Non-Event (0.40)	0.40
	>50mph	06 S2 - M	S2 - Mid - Single <500m (0.50)	0.50			
	<50mph	06 S2a - M	S2a - Old H2 - Mid - Single <100m (0.50)	0.50			
	>50mph	06 S2 a - H	S2a - Old H2 - High - Single <100m (0.55)	0.55			

1. Investigatory Levels are for the mean skidding resistance within the appropriate averaging length.
2. Investigatory Levels for site categories A, B and C are based on 100m lengths or the length of the feature if shorter.
3. Investigatory Levels and averaging lengths for site categories Q and K are based on 50m approach to the feature but shall be extended when justified by local site characteristics.
4. Investigatory Levels for site category R are based on 10m lengths.
5. Categories G1 and G2 must not be applied to uphill gradient on dual carriageways.

DCC Investigatory Level & Aggregate Choice

APPENDIX G

Comparison with Appendix G v 8

Site Category HD28/15		Investigatory Level	Maintenance category 3 to 6 inclusive					Maintenance category 7 to 12 inclusive		
			Aggregate PSV recommendation for defined Traffic Level (cvd/lane/day)						Any	
			0 - 250	251 - 500	501 - 750	751 - 1000	1001 - 2000			
B	Dual non-event	0.35	50	50	50	50	50	50		
C	Single non-event	0.4	50	53	53	58	58	50		
Q	Approaches to junctions & roundabouts	<50mph 0.45	60	65	65	68	68	55		
		>50mph 0.50	60	65	65	68	68	60		
K **	Approaches to pedestrian and railway crossings & high risk situations **	0.5	65	65	65	68	68	65		
G1	Gradient 5 to 10%	0.45	55	60	60	65	65	50		
G2	Gradient >10%	0.5	60	65	68	68	HFS	55		
S2	Single 100 to 500m radius	>50mph 0.5	60	60	65	65	68	50		
S1	Dual 100 to 500m radius	>50mph 0.45	55	60	60	60	65	50		
S2a	Single <500m (<100 m)	<50mph 0.50	55	60	65	65	68	50		
		>50mph 0.55	60	65	68	68	68	55		
S1a	Dual <500m (<100 m)	0.5	60	65	68	68	68	50		
R	Roundabout	0.45	50	55	60	60	65	50		

Note:

Based on HD36/06 and IAN 156/12 and aggregate performance on the Devon network.

Where there is evidence to show that a particular aggregate is performing satisfactorily at a site this aggregate may be used as alternative to the suggested PSV level.

HFS = High Friction Surfacing

** For Site Category "K" refer to appendix I for approaches to pedestrian & similar crossings.



NATIONAL HIGHWAYS & TRANSPORT NETWORK
HIGHWAY MAINTENANCE BENCHMARKING INDICATOR RESULTS
For HMBI 01 Condition of Road Surfaces

