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**ARGYLL & BUTE COUNCIL****EXECUTIVE****OPERATIONAL SERVICES****19 JUNE 2008**

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**ROAD CONDITION SURVEY ARGYLL & BUTE**

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**1. SUMMARY**

This report provides information regarding the road condition survey in 2007/08, and indicates that Argyll & Bute Council's roads are now ranked 32<sup>nd</sup> nationally.

**2. RECOMMENDATIONS**

That the Executive Committee notes this report and understands that the Spokesperson for Transportation will be meeting with relevant Scottish Ministers and local MSPs to press for funding for the road network.

**3. BACKGROUND**

- 3.1 There is a Scottish statutory performance indicator based on the condition of the road network assessed by a machine survey. The basis of this indicator has changed and the new indicator now shows Argyll & Bute Council to have the highest percentage of roads needing attention in Scotland.
- 3.2 The revised indicator is more aligned with the rest of the United Kingdom and includes whole carriageway cracking, 10 metre profile assessment and a change in the urban rural texture parameters.
- 3.3 The first two changes have had a seriously detrimental effect on the assessment of the network within Argyll and Bute whilst the last has probably benefited the more urban authorities. It is proposed to further revise the indicator as data collection methodology improves. A detailed explanation of the changes is given in Appendix 1. Appendix 2 details values associated with the road classification and RCI parameters.

**4. DETAILS**

- 4.1 The previously reported positions for Argyll and Bute under the KPI (Key Performance Indicators) were in line with the trend and generally slightly poorer than the average.
- 4.2 The current Network RCI (Road Condition Index) for Argyll and Bute is 16.5% red, 41% amber and 42.6% green resulting in a RCI value of 57.4%. The Scottish average values are 9.0% red, 28.5% amber, 62.5% green with RCI equal to 37.5%.

The average for the rural peer grouping of authorities is very close to the Scottish figures. The closest member of that group has values of 15.7% red, 31.4% amber, 52.9% green with RCI value of 47.1%. The red factor implies that roads are in urgent need of maintenance/reconstruction work; the amber factor represents those roads which should be reviewed and are close to critical point. The national condition is the sum of these two factors.

- 4.3 A major concern is that the RCI percentages when back calculated for periods 2006-2008, 2005-2007 and 2004-2006 are 57.4, 54.9 and 52.4 which shows a trend of continued deterioration. The equivalent average Scottish figures are 37.5, 37.2 and 35.9 respectively. These figures although deteriorating are at a slower rate than those for Argyll and Bute. An analysis of the results shows that the cracking and profile parameters have had a detrimental effect on the results. More detailed analysis of the profile values shows that the 10 metre profile measurement is extremely detrimental.
- 4.5 It is a service priority to develop a ten year maintenance strategy for the road network. It is essential that this is developed timeously in order to contribute to the 2009 -10 road maintenance programme. This is to ensure that the optimum benefits of any funding are obtained.
- 4.6 The capital expenditure specifically allocated for road reconstruction / resurfacing is increasing to £3.453 million on average over the next four years compared with £2.226 million on average allocated over the past three years. However, increased funding has been provided for both revenue and capital work to help address this issue. This is a significant increase in funding. There is also a discrete scheme allocation of £1.326 million for road improvements that will assist.
- 4.7 The roads maintenance asset management plan has identified that an annual total of £7.38 million is required for carriageway repairs, reconstruction and surface treatment. A large element of the £6.376 million revenue budget specifically targeted to roads maintenance is required for reactive repairs including £2.517 million for bridge repairs, pothole and carriageway patching. The balance is taken up with routine activities including grass cutting, gully emptying, drainage, traffic signals, signs.

## **5. CONCLUSION**

- 5.1 This revised indicator has had a detrimental impact on the assessment of the Argyll and Bute road network. A combination of increased funding and optimisation of treatment methods will be necessary to address this issue.
- 5.2 The amount of the additional funding necessary requires to be determined that will be sufficient to deliver any significant improvement of the network as a whole as assessed by RCI.

**6. IMPLICATIONS**

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|-----|------------------------------|---|
| 6.1 | Policy                       | Part of the Council's Corporate Plan to ensure there is a sustainable road network.   |
| 6.2 | Financial                    | The overall backlog on Argyll & Bute Council is £50 million. The increased allocation on revenue and capital funding will ensure that appropriate steps can be taken to reduce the current RCI value. |
| 6.3 | Personnel                    | None  |
| 6.4 | Equalities Impact Assessment | None  |
| 6.5 | Legal                        | The road network is maintained in accordance with the Roads Asset Management Plan previously approved by the Council  |

For further information, please contact Alan Kerr, Network and Environment Manager, (01436 658877)

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28 May 2008

## Appendix One: SCANNER Road Condition Indicator

1.1 The SCANNER Road Condition Indicator (RCI), that replaces the Scottish SPI from 2007/2008, has been developed to characterise the overall condition of the road carriageway.

1.2 The RCI is calculated from some of the parameters measured by SCANNER (a high speed road condition monitor) including:

- (a) Ride quality, measured by 3m and 10m longitudinal profile variance (LPV), in the nearside wheel path.
- (b) Average rut depth in the nearside and offside wheel paths.
- (c) Average texture depth in the nearside wheel path.
- (d) Whole carriageway cracking intensity.

1.3 The RCI is calculated in three steps

- (a) Score each 'measured parameter average value' over a 10 metre subsection length on a scale of 0 to 100.
- (b) Combine the scores to obtain a value for each 10 metre subsection length of the road.
- (c) Combine the value for each subsection to give an overall figure for the section, the route or the network.

1.4 In the first stage, each parameter is scored between a lower threshold value (below which it is not counted) and an upper threshold value (above which further increase in the parameter does not increase the score). The basic pattern of thresholds and weightings is the same for each parameter.

1.5 As an example for rut depth readings below the lower threshold, the parameter scores zero. Above the upper threshold the parameter scores a maximum value of 100. Between the two thresholds the parameter scores an increasing value. In principle, this could be with proportionally more points allocated the nearer the parameter is to the upper threshold, although in practice only a linear relationship has been used so far.

1.6 The parameters to be used, and the thresholds and weightings for the SCANNER RCI are detailed in table 1.

1.7 The survey results from 2004/2005 have been re-processed using the revised RCI parameters to provide an overlap between the former SPI and the new RCI data.

1.8 In the second stage the scores for each parameter are multiplied by two factors to allow for the importance of the factor in assessing road condition and the reliability of the measurement. The individual scores are then added to give an overall score for the subsection.

1.9 In the third stage the results are combined to give overall percentage lengths in three categories for the road network. Depending on the total points scored each 10m sub section is allocated to one of the categories, with the following definitions:

- (a) Total score less than 40 points designated as "GREEN" = lengths where the carriageway is generally in a good state of repair.
- (b) Where the total score is greater than 40 but less than 100 designated as "AMBER" = lengths where some deterioration is apparent which should be investigated to determine

the optimum time for planned maintenance treatment. (Where there may be justification for carrying out a lesser maintenance treatment sooner, rather than more extensive treatment later, in order to minimise whole life costs. i.e. "economic prioritisation").

(c) Sections where the total score is greater than 100 are designated as "RED" = lengths in poor overall condition which are likely to require planned maintenance soon (i.e. within a year or so) on a "worst first" basis (Although there may be justification for postponing major repairs, and only carrying out minor repairs to keep the road safe and serviceable, in order to minimise whole life costs. i.e. "economic prioritisation").

1.10 It is the intention that in the future the SCANNER Specification and RCI will become the standard methodology of assessing road condition throughout the UK.

1.11 Built-up implies local speed limit of 40mph or less and non built-up implies local speed limit above 40mph.

**Table One: SCANNER REVISED VALUES**

SCANNER REVISED VALUES								
Defect	Road Class	Units	Defect Value Ti	Defect value Tu	Importance	Reliability	Weighting	Maximum Score
Rut depth (maximum)	A	mm	10	20	1	1	1	100
Rut depth (maximum)	B	mm	10	20	1	1	1	100
Rut depth (maximum)	C	mm	10	20	1	1	1	100
Rut depth (maximum)	U	mm	10	20	1	1	1	100
LPV 3m	A	mm <sup>2</sup>	4	10	0.8	1	0.8	80
LPV 3m	B	mm <sup>2</sup>	5	13	0.8	1	0.8	80
LPV 3m	C	mm <sup>2</sup>	7	17	0.8	1	0.8	80
LPV 3m	D	mm <sup>2</sup>	8	20	0.8	1	0.8	80
LPV 10m	A	mm <sup>2</sup>	21	56	0.6	1	0.6	60
LPV 10m	B	mm <sup>2</sup>	27	71	0.6	1	0.6	60
LPV 10m	C	mm <sup>2</sup>	35	93	0.6	1	0.6	60
LPV 10m	D	mm <sup>2</sup>	41	110	0.6	1	0.6	60

Defect	Road Class	Units	Defect Value TI	Defect value Tu	Importance	Reliability	Weighting	Maximum Score
Whole carriageway cracking	A	%	0.15	2	1	0.6	0.6	60
Whole carriageway cracking	B	%	0.15	2	1	0.6	0.6	60
Whole carriageway cracking	C	%	0.15	2	1	0.6	0.6	60
Whole carriageway cracking	U	%	0.15	2	1	0.6	0.6	60
Whole carriageway cracking	A	%	0.15	2	1	0.6	0.6	60
Texture	A(rural)	mm	0.8	0.4	0.75	1	0.75	75
Texture	A(urban)	mm	0.6	0.3	0.5	1	0.50	50
Texture	B(rural)	mm	0.6	0.3	0.75	1	0.75	75
Texture	B(urban)	mm	0.6	0.3	0.5	1	0.5	50
Texture	C,U (rural)	mm	0.6	0.3	0.5	1	0.5	50
Texture	C,U (urban)	mm	0.6	0.3	0.3	1	0.3	30
<b>TOTALS</b>	A(rural)							315
	A(urban)							290
	B(rural)							315
	B(urban)							290
	C,U (rural)							290
	C,U (urban)							270

1.12 The SPI calculated rut depth, texture and Longitudinal Profile Variance (LPV) for a 3 metre length. Whole carriageway cracking, Longitudinal Profile Variance (LPV) for a 10 metre length and urban rural texture differentiation were not reported. It is these changes that have had a significant effect on the results for Argyll & Bute Council.

## Appendix 2 Argyll and Bute Council Condition Values

Road Class km	Survey length km	Length 0 value	% 0	% 0-40	% 40-max	Max %>50	Max %>60	Max %>75	Max %>80	Max %>100	Parameter
A	898.71	637.12	70.87	19.93	3.19		6.01				Cracking
		497.0	55.29	18.99	17.94				7.78		LPV
		*557.0	759.67	84.50	11.58	3.57				0.35	Rutting
B	442.85	690.18	75.66	14.52	6.56			3.26			Texture
		267.16	60.35	25.17	4.86		9.62				Cracking
		147.45	33.31	21.53	33.32				11.84		LPV
C	312.57	*611.3	380.83	86.03	10.33	3.32				0.32	Rutting
		391.80	88.52	8.36	2.39			0.73			Texture
		172.79	55.28	28.31	5.69		10.72				Cracking
U	127.23	98.23	31.43	21.50	34.17				12.90		LPV
		*431.0	259.38	82.98	11.58	2.11				3.33	Rutting
		289.27	92.50	6.26	0.54	2.06					Texture
**	710.80	117.99	92.73	6.11	0.23	0.93					Texture
		67.12	52.75	30.35	6.18		10.72				Cracking
		37.55	29.50	21.68	31.67				17.15		LPV
**	710.80	98.36	77.30	18.33	1.97					2.40	Rutting
		117.99	92.73	6.11	0.23	0.93					Texture

**Table 1 :RCI values for road class**

Note \* Km represents adopted road length

Road Class	Survey length	<40 green	%	<100 amber	%	>=100 red	%
A	898.71	508	56.53	297.7	33.15	92.80	10.32
B	442.85	185	41.93	199.45	44.83	58.82	13.22
C	312.57	123.9	38.64	141.84	45.40	46.77	14.96
U	127.23	46.48	36.54	56.80	44.65	23.94	18.82

**Table 2: RCI Parameter values for road class**

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