



## **SCRUTINY COMMISSION – 21 APRIL 2010**

### **ROAD SAFETY MEASURES**

### **REPORT OF THE SCRUTINY REVIEW PANEL**

#### **Introduction**

1. This report sets out the conclusions and recommendations arising from the Scrutiny Review Panel investigation into road safety measures.

#### **Scope of the Review**

2. The Scrutiny Commission on 1 September 2009 appointed a Review Panel to investigate the County Council's approach to road safety under themed areas of physical and behavioural measures.

#### **Terms of Reference**

3. The Panel's review focussed on the following terms of reference:-

##### **Physical Measures**

- Evaluation of some of the County Council's measures to reduce road casualties and of alternative cost-effective ways of doing so which could produce better results. Examples of existing measures to be evaluated include Vehicle Activated (VA) signs, street signage, and speed limits.
- Comparison of the County Council's use of and types of VA signs, street signage and speed limits with those of other authorities, and comparison of outcomes.
- Consideration of the County Council's policy on the use of blind spot mirrors.

##### **Behavioural Measures**

- Exploration of how emerging technologies may enable greater compliance with speed limits.
- Evaluation of how the provision of information can change behaviour, especially that of the age range 17-24 years.
- Investigation of how far "greener" driving can improve safety.

## **Membership of the Panel**

4. The following members were appointed to serve on the Panel:

Mr. R. J. Shepherd CC (Chairman)

Mr. A. D. Bailey CC

Mr. D. C. Bill CC

Mr. D. Jennings CC

Mr. W. Liquorish JP CC

Mrs. C. M. Radford CC

Mr. P. A. Roffey DL, CC

## **Conduct of the Review**

5. The Panel met on five occasions between 13 November 2009 and 23 March 2010. The Panel, during the course of the review, received information and undertook research on:-

- (i) The background to how the County Council, in conjunction with its partners, undertakes road safety-related activity in Leicestershire;
- (ii) the Council's use of physical measures to improve road safety, including:
  - an analysis of the Council's approach to casualty reduction including against that of comparator authorities;
  - consideration of research outcomes on the effectiveness of Vehicle Activated Signs in Leicestershire;
  - a survey of local members' views on the use of 20 mph speed limits.
- (iii) the Council's use of behavioural measures to improve road safety, including:
  - road safety education undertaken across all age groups;
  - its role within the Leicester, Leicestershire and Rutland Road Safety Partnership;
  - the extent to which green driving and use of road safety technology was encouraged internally and across partner and business organisations.
- (iv) evidence based assessment of the County Council's policy on the use of blind-spot mirrors in the highway;
- (v) The Chairman, accompanied by Mike Hay – Group Manager for Transport Scheme Development, also attended the 8 December 2009 National Road Safety Conference 'A Safer Way – Road Safety Beyond 2010'. Information from the conference was presented to the Panel which informed the review.

6. The Panel was supported in its review by the following persons and is grateful for their contributions:-

Ian Drummond	Assistant Director, Transportation
Mike Hay	Group Manager, Transport Scheme Development
Nigel Horsley	Team Manager, Road Safety and Travel Awareness
Steve Karkowski	Team Manager, Accident Investigation
Ian Vears	Team Leader, Personal Travel and Accessibility
Ben Smith	Committee Officer

### **Context of the Review**

#### **The National Perspective**

7. The former Government Department for the Environment, Transport and the Regions, on 1 March 2000 released a new strategy 'Tomorrow's Roads – Safer for Everyone'.<sup>1</sup> The Strategy noted there were over 300,000 casualties injured every year on British roads, with around 3,500 people killed and 40,000 seriously injured, causing inestimable human suffering and a serious economic burden. The direct cost of road accidents involving deaths or injuries was thought to be in the region of £3bn a year.
8. The Strategy further noted that in 2000 Britain had a comparatively good road safety record. The casualty reduction targets for deaths and serious injuries, set in 1987, had been achieved with road deaths having fallen by nearly 40% and serious injuries by 45% compared to the 1981-85 average. However, there had not been such a steep decline in the numbers of road accidents, nor in the numbers of slight injuries. Nor did the record for child pedestrian deaths compare well with other European countries.
9. Using 1994-1998 averages, the Government set three national casualty targets to achieve specified percentage reductions by 2010:
- a 40% reduction in the numbers of people killed or seriously injured (KSI) in road accidents;
  - a 50% reduction in the numbers of children killed or seriously injured (KSI); and
  - a 10% reduction in the slight casualty rate, expressed as the number of people slightly injured per 100 million vehicle kilometres.
10. The Strategy contained a number of action plans aimed at improving both physical and behavioural measures which have been incorporated into the approach by Leicestershire County Council into road safety improvements since 2000.

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<sup>1</sup> <http://www.dft.gov.uk/pgr/roadsafety/strategytargetsperformance/tomorrowsroadsaferforeveryone>

## The Local Perspective

11. The County Council manages and maintains 2,575 miles (4,145 km) of roads across the county. The Authority aims to prevent accidents and reduce casualties by working towards the road safety targets set by Government for 2010 and by following its casualty reduction strategy laid out in the Leicestershire Local Transport Plan 2006-2011, which identifies the following four key themes:

- Providing a safer road environment;
- Managing speed;
- Improving safety for vulnerable road users;
- Encouraging safer driving.

12. The table below summarises progress in Leicestershire against the national targets, with all targets either exceeded or on track for 2010:

<b>Percentage Progress National Casualty Reduction Targets</b>			
	Target 2010	Progress by 2008	
Casualty	Great Britain	Great Britain	Leicestershire
KSI	-40	-40	-38
Child KSI	-50	-59	-67
Slight (rate)	-10	-36	-40

13. The County Council's takes an evidence based approach to accident reduction through the following means:

- Analysis of available data in order to identify current casualty trends;
- Identification of accident causes;
- Investigation into cost effective engineering and promotional initiatives to reduce accidents;
- Monitoring of the impact of initiatives;
- Feeding "lessons learnt" into future work.

14. Engineering initiatives are undertaken to prevent accidents but, where accidents do happen, they are subject to the following investigation process:

- Identifying locations where injury accidents have occurred over a 3 year period;
- Prioritising sites for investigation based on a combination of accident numbers and severity;
- Examining the reported details (at individual sites) for each accident to ascertain if the road layout may have adversely affected the driver's actions;

- Considering what changes to the road layout may be appropriate and assessing the potential benefits of using known accident reduction techniques at the particular location;
- Promoting the most cost effective solution.

15. The Authority is working to develop new monitoring processes for local safety schemes in place from 2004 onwards and is working to input its details on to the Department for Transport Database for the 'monitoring of road safety engineering schemes' (UKMoRSE). In time, this will allow the Authority to look in greater detail at schemes in other authority areas and determine how effective specified road safety treatments have been using greater sample sizes.

16. Promotional initiatives are undertaken to influence road user attitudes and behaviour through publicity and training programmes. Target groups are identified through analysis of casualty data and police enforcement referrals. Programmes are developed both for local application and to coordinate with regional and national campaigns in conjunction with partner agencies such as the Leicester, Leicestershire and Rutland Road Safety Partnership, Department for Transport, Road SafetyGB and the Royal Society for the Prevention of Accidents (RoSPA).

## **Analysis of the Effectiveness of the County Council's approach to Road Safety**

### **Physical Measures**

#### **Assessment of Casualty Reduction Performance against a selection of other councils.**

17. Local safety schemes in Leicestershire implemented in 2004/05 have led to an accident reduction rate of 54%. This is consistent with national progress of 50%.<sup>2</sup>

18. Across the country such schemes have been shown to represent very good value for money with the average value of the savings achieved in the first year of operation being between 1.4 and 2 times their construction cost, together with an average of 1 accident saved per scheme per year. In 2004/05 (using three year before and after accident number comparisons) Leicestershire's saving was 1.4 accidents per scheme, a saving of 109 accidents over the following three years. This led to a nominal saving of £13 million against scheme costs of £800,000 when taking into account the resulting avoidance of 'community costs' such as hospitals, police, sick leave, insurance and vehicle repairs.

19. In assessing Leicestershire's approach and performance against that of other councils in the country, Nottinghamshire, Shropshire and Staffordshire were used for comparison purposes as they ranked higher than Leicestershire when comparing the latest figures available, the 2008

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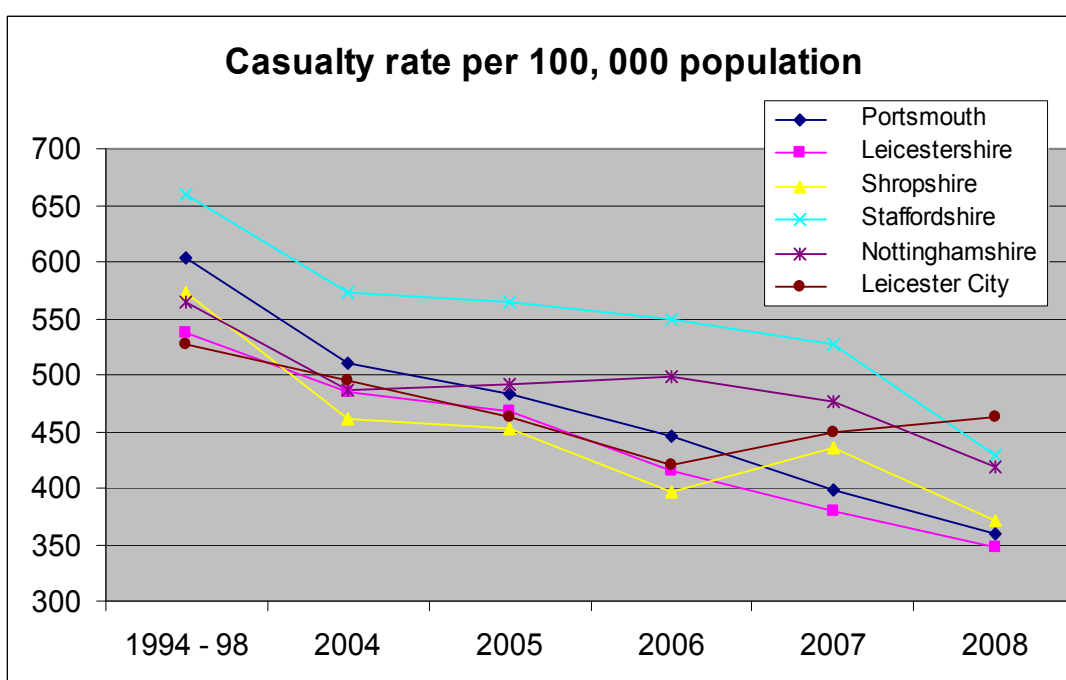
<sup>2</sup> Taken from a 2009 Road Safety Research Report published by the Department for Transport entitled 'Contribution of Local Safety Schemes to Casualty Reduction.

percentage change from 1994 – 1998 Killed and Seriously Injured (KSI) casualty average.

20. Although not direct comparators, Leicester City was also included as its highway network is intrinsically linked with the County's, together with Portsmouth as it has adopted an extensive set of 20 mph zones of interest to the Panel, and detailed later in the report.

21. Leicestershire has made consistent progress in reducing casualties between 2004 and 2008 whilst other Authorities have shown more variable progress, with Nottinghamshire (in 2005 and 2006) and Leicester City (in 2007 and 2008) showing increases.

Casualty Rate Per 1000,000 Population	1994 - 98	2004	2005	2006	2007	2008	% 2008 change on base
Portsmouth	603	510	483	447	399	360	-40.4
Leicestershire	537	484	467	415	380	347	-35.5
Shropshire	574	462	453	396	436	371	-35.4
Staffordshire	659	572	564	548	527	428	-35.0
Nottinghamshire	565	487	492	498	477	419	-25.8
Leicester City	527	495	463	420	449	463	-12.2



22. As can be seen from the graph and table overleaf, casualty reduction progress is demonstrably very similar across authorities. This is attributed to a combination of two main factors:

- Improved vehicle safety including better occupant protection, such as through improved vehicle structures and airbags; and
- National road safety engineering projects and speed management initiatives.

23. However, it should be noted that national casualty and accident figures can be published alongside local authorities' on a wide range of factors, and comparison of data should be treated cautiously as each local authority area is quite different with progress measured against differing 1994-98 baselines. Relating casualty numbers to traffic flows and population is particularly informative and is a better reflection of Leicestershire's progress, as well as its ranking out of 149 English local authorities:

Casualty	Ranking based on casualty rate per 100 million vehicle KM 2006-08 average	Ranking based on casualty rate per 100,000 population 2006-08 average
KSI	10 <sup>th</sup>	n/a
Slight	16 <sup>th</sup>	n/a
All	13 <sup>th</sup>	55 <sup>th</sup>

**(a) The Panel welcomes the consistent progress made by the County Council in reducing the number of accidents in Leicestershire and its progress towards the 2010 Department for Transport (DfT) national casualty reduction targets.**

**(b) In order to build on and learn from this success, the development of monitoring processes for local safety schemes implemented from 2004 onwards should be afforded greater emphasis and built into routine arrangements to allow the Authority to maintain more useful records, including through participation in the UK MoRSE database.**

## Speed Limits

24. The Panel notes a review of existing speed limits on 670 km of the County's A, B and heavily-trafficked C road network is currently being carried out by the Authority's Traffic Management Team in order to achieve vehicle speeds that reflect the function of the road, the prevailing conditions and the impacts on the local community. This review is being undertaken by all authorities in conjunction with the DfT, with any changes due to be implemented by the end of 2011. The Panel has therefore not sought to review the use and impact of speed limits in detail but has instead chosen to focus on the use 20 mph zones as they are seen as particularly effective in reducing speed where there is a particularly high degree of pedestrian activity, such as in front of schools.
25. Speed limits as low as 20 mph are normally introduced with extensive traffic calming measures (e.g. speed tables) to ensure that speeds are in compliance with the limit.
26. Leicestershire has implemented 20 mph zones in 19 locations over a number of years, with 17 in combination with physical measures to enforce the speed limit, and 2 relying on signage only. This has led to an accident reduction of approximately 41%, similar to that of London schemes using physical measures (42%) and in line with national guidance and trends. The Panel conducted a survey of those local County Councillors whose divisions contained 20 mph zones. Feedback was positive and emphasised the effectiveness of the zones when placed in conjunction with physical speed reducing measures.
27. An alternative approach is being trialled in Portsmouth City where the Council has received authority from the Government to implement six city sectors of 20 mph schemes, using signs only and no physical measures. The sectors were introduced between June 2007 and March 2008 and, so far have yielded a fall of 13% which is less than national trends. However, it is too early to judge to what extent this alternative method has been a success, as only an interim report of one year's accident reduction data is available.
28. 20 mph advisory zones are also offered to all schools in Leicestershire and, by 2008/09, 72% of schools had implemented such zones. It is shown that child school journey accidents have fallen at a faster rate than child accidents since 2000 and a 2008 internal evaluation indicated advisory 20 mph schemes have reduced vehicle speed, been well received and encourage more walking and cycling.

**(c) The Panel supports the approach of the County Council to casualty reduction in creating 20 mph zones, usually in conjunction with physical speed reducing measures. However the results of the Portsmouth City Council alternative for such zones should continue to be monitored as, if successful, this could potentially reduce the costs of the Authority's own schemes.**



## Parking Enforcement

29. Poor parking is a known nuisance and can cause accidents, although it is not a major cause overall. Where parking is identified as a contributor to accidents, parking restrictions are imposed and enforced through the Civil Parking Enforcement (CPE) regime, operated by the County Council in partnership with District Councils.

## Street Signage

30. The Panel has investigated the possibility of reducing costs to the Authority through the reduction of street signage and furniture. Having received evidence of projects on Kensington High Street, London<sup>3</sup> and in the Netherlands, where the removal of street signs and furniture has led to a more harmonious environment and not increased road casualties the Panel believes there is merit in doing so where appropriate. However, such schemes are far from the norm and should be treated with caution, as few locations are likely to have the right environmental factors to allow successful implementation. Simply removing signs and signals in towns where it is inappropriate would lead to confusion, whilst in addition the location would have to be re-engineered.

**(d) It is considered there is nowhere in Leicestershire that presently justifies the necessary investment to remove street signage and furniture but the amount of street signage in the County should be kept under review and where it is considered it can be 'de-cluttered' with no adverse effects on safety this should be done in the interests of efficiency.**

## Safety Cameras and Vehicle Activated Signs (VAS)

31. Around 70 safety camera sites have been operated over the years by the, Leicester, Leicestershire and Rutland Road Safety Partnership which have consisted of both fixed and mobile signed sites across the County. There are 52 camera locations for which three year before and after data is available. Overall these schemes have shown there to be a reduction of 27% accidents with numbers reducing from 851 to 622 - a fall of 229.

32. The County Council has 350-400 VAS signs in Leicestershire and uses a standard stock of signs to provide consistent and effective messages, such as flashing 30 mph signs, whilst not distracting motorists. This standardised approach allows the Council to buy in bulk, yielding approximately 20% savings and allowing more signs to be erected for total spend. As well as offering savings, these signs have been shown to be effective and less distracting than the type of VAS that shows the speed

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<sup>3</sup> <http://www.cabe.org.uk/case-studies/kensington-high-street>

you are travelling at; a study in Nottinghamshire showing the latter to be 15-20% less effective.

33. An exhaustive academic study conducted by County Council traffic engineer Ian Vears, was published in 2008 on the use of VAS in Leicestershire. It has received significant peer approval and is being used widely in authorities and institutions within, and beyond, the United Kingdom. The study covers evidence based research from 2000-2007 and reaches three principal conclusions:
- The greater the use of VAS in a given area does not diminish their effectiveness;
  - There is no extinction of learned behaviour, with evidence to show after three years of a VAS being in place there is the same level of positive reaction from motorists. On average this shows that 50-60% of drivers brake under the influence of a VAS, 20-30% of drivers ease off the accelerator and slow down, with 20% ignoring it;
  - VAS is value for money with the Council's use of simplified and stock versions of VAS signage being equally as effective as more elaborate models used elsewhere, allowing the Authority to spend as little as possible to get the savings required, maximising the rate of return in reducing the number of accidents.

**(e) The County Council's use of simple and effective VAS which delivers improved safety levels over alternative models whilst directing resources in a cost effective way is to be commended.**

#### Blind-Spot Mirrors in the Highway and other Highway obstructions

34. The County Council has a long standing policy of not allowing the use of blind-spot mirrors on the highway, dating back to a decision of the Highways Subcommittee in 1975. On 16 April 2009 a petition was presented to the Environment Overview and Scrutiny Committee requesting the Council to revoke this policy and look to install them at dangerous junctions, bends and driveways, in rural areas. On 1 September 2009 the Scrutiny Commission requested this Panel investigate whether the policy should be retained as part of its wider review of road safety.
35. The Panel notes the use of such mirrors on the highway is not prescribed and that they can only be used with authorisation by the Department for Transport (DfT). The DfT does not encourage highway mirrors and consequently has stringent assessment criteria and will only consider them for junctions (rather than for private entrances to dwellings) and where locations are rural/semi rural and visibility is virtually nil. It also requires evidence of accidents related to poor visibility and high speed crossing traffic where a mirror is requested. In line with this the DfT has authorised only 31 mirrors across the country in the last six years.

Special Authorisations granted for the placement of mirrors in the highway		
Period	Overseeing Organisation	Number of Authorisations
1 <sup>st</sup> April 2008 – 1 <sup>st</sup> Oct 2009	Department for Transport	3
1 <sup>st</sup> April 2003 – 31 <sup>st</sup> March 2008	Government Office for the North West	6
	Government Office for the North East	2
	Government Office for the South West	0
	Government Office for the South East	6
	Government Office for the East Midlands	0
	Government Office for the East of England	3
	Government Office for Yorkshire and the Humber	9
	Government Office for the West Midlands	2
<b>Total</b>		<b>31</b>

36. The Panel undertook a consultation of 123 local authorities in November 2009, 53% of which did not permit the use of mirrors on the highway, 23.5% did and 23.5% did not respond.



37. An assessment of the 3,805 accidents at junctions in Leicestershire between 2005 and 2008 shows only seven have been recorded as having rural private drives or entrances where vision has been recorded as obstructed by vegetation, road layout or buildings as a factor. Of these seven accidents, the circumstances and contributory factors do not appear to suggest that a mirror would have prevented accidents at any of the locations.

38. The Panel also has concerns about highway mirror performance in relation to maintenance and effectiveness, for example:

- Glare from sunlight and headlamps;
- Ineffectiveness during bad weather;

- Difficulty in judging the speed of traffic; and
- Maintenance issues as a result of vandalism and misalignment.

39. Obstruction of the highway in other ways is also of concern. A lack of maintenance of private land next to the highway obscuring signage, through overhanging branches etc is a problem for motorists. The Panel believes a contributory factor for this sort of problem is the Highway Authority's lack of powers of direction over planning applications<sup>4</sup>.

- (f) There is insufficient evidence to suggest that blind-spot mirrors make a positive contribution to road safety.**
- (g) The Panel therefore recommends that the County Council policy for not allowing the use of blind-spot mirrors on the highway be retained.**
- (h) The Authority should be more assertive in raising awareness of the responsibilities of landowners and developers in relation to road safety. The return of powers of direction to the Highways Authority in relation to planning and road safety may be an area in which the Local Government Association should be requested to lobby Government in future.**

### **Behavioural Measures**

40. As the standard of roads and signage has improved over the years, accident numbers have fallen but there remain a large residual number of accidents which cannot be explained by the road surface or environment, but rather by poor driving in the face of adverse weather conditions, lack of concentration or the effects of drugs and alcohol. Resources are therefore increasingly being targeted towards education for drivers and pedestrians, training and the use of publicity.

### **Road Safety Education**

41. The Panel sees it as imperative that road safety education begins at an early age and welcomes the County Council's committed approach to developing schemes for teaching road safety awareness to school age children, including:-

- Tiny Steps – the production of road safety packs for pre-school children that have been loaned out to over 130 organisations over the last 12 months;

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<sup>4</sup> Article 12 of the Town and Country Planning General Development Order 1977 had given powers of direction on planning applications to the Highway Authority. However this was repealed by the Town and Country Planning General Development Order 1988, which came into effect on 5th December 1988.]

- 1<sup>st</sup> Steps – for 5 to 7 year olds; this is one of the first schemes in the country to have School Crossing Patrols and Road Safety Tutors working together to train young people on staying safe;
- Bike 4 Life – Each year nearly 5 thousand youngsters participate in cyclist training. Bike 4 Life has been nationally accredited with ‘Bikeability Status’ by the national Cycle Standards Training Board;
- Junior Road Safety Officer (JRSO) scheme – Having run for over 20 years, the Scheme enlists the help of primary school children to tell their schools about road safety. The Department for Transport has analysed the work of the JRSO and accredited it as a good example of peer to peer training. There has been a large increase in take up in recent years with 192 schools (approximately 88%) in Leicestershire now participating in the scheme.

42. A number of local road safety campaigns are run at a local level by the Leicester, Leicestershire and Rutland Road Safety Partnership, funded in part by income generated from Driver Education Workshops for speed and traffic light related offences, provided as an alternative to prosecution for drivers. The aim of such workshops is to change people’s attitudes and to show why speed limits and traffic lights are needed. The offer of attending a course is only made for low-level speeding or traffic light offences and those who are eligible receive a booking form with their penalty offer from Leicestershire Constabulary.

43. The Partnership also participates in campaigns at regional level such as the ‘No More Lives Wasted’ campaign for younger drivers ([www.nomoreliveswasted.com](http://www.nomoreliveswasted.com)) and ‘The Shiny Side Up Partnership’ ([www.shinysideup.co.uk](http://www.shinysideup.co.uk)), which works to reduce the number of sports bikers involved in crashes on our roads. A particular success has been the ‘Wasted’ Roadshow which has toured the County over the last two years. The inclusion of footage of a real life fatal crash, together with a focus on its repercussions, including an interview with the family, has proved to be a very powerful deterrent message for young drivers.

- (i) The Panel commends the innovative ways in which road safety education and awareness is undertaken for offenders, young drivers in the 17-24 age bracket and for young children.**
- (j) A target of 100% participation in the Junior Road Safety Officer Scheme in Leicestershire schools should be established with the Chairmen of Leicestershire Highway Forums being asked to write to those schools not currently participating, to encourage them to do so.**

## Emerging technologies and “Greener Driving”

44. Whilst recently introduced technologies such as in-car satellite navigation systems and average speed limits on motorways and for roadworks have reduced levels of driver distraction and improved driving conditions in more dangerous areas other technologies such as in-car speed limiters are probably still some way off from being introduced to our roads. Other technological advances are, however, in use locally at present and the County Council promotes a Green Drive and Fleet Driver Training Scheme, which has included in the last 12 months circulation of a mail shot and DVD to 450 medium sized fleet companies in Leicestershire. The Scheme seeks to encourage better driving, for example through increased fuel efficiency via smoother driving, gentle acceleration and minimal braking. A local firm, Walkers Snack Foods Limited, in introducing such methods of fuel efficient driving via a ‘Driver Defensive Programme’, has seen reduced accidents, journeys, mileage and fuel use and in turn reduced levels of stress and staff absence.
45. It is with regret that whilst the County Council promotes such practices, it is to be noted that such a Programme does not currently exist for its own fleet. The Panel is aware the Council is currently undergoing a review of its fleet management arrangements and hopes that such practices can be incorporated into future planning.

**(k) The County Council should be urged, as part of its fleet management review, to incorporate ‘Green Driver and Fleet Driver Defensive Programmes’ for the benefit of both employer and employee in efficiency savings and safer driving. It should also encourage its partners, such as the Eastern Shires Purchasing Organisation (ESPO) whose vehicles formed part of the fleet on the County Council’s Goods Vehicle Operator’s Licence, to do so.**

**(l) Having developed and incorporated ‘Green Driver and Fleet Driver Defensive Programmes’ for its own and partners’ fleets, the County Council should be urged to commend such programmes to the wider business sector through appropriate provision of promotional and training services.**

## Resources Implications

46. The recommendations in the report can be implemented within existing highways and transport budgetary provisions.

## Overall Conclusions

- (m) At present, physical work on the highway is very much focussed on place and usually seeks to meet specific concerns of the public, supported by officers' professional judgments, related to improving road safety. Behavioural work is seen as more general but can have a more wide-ranging benefit, although this is very hard to measure directly. A combination of the two is considered best practice and should include campaigning in the vicinity of specific places where physical work is also envisaged.
- (n) Further work needs to be done to establish whether a significant change in driver behaviour and attitudes can be achieved such as to make physical work less important. Whilst work can be, and is, done on this subject locally, it is a wider national and cultural matter. The Panel notes this point and believes the Council should look forward to the results of further research and possibly legislation. Subject to and within the constraints of capital versus revenue funding streams, these in turn may lead the Council to consider a re-allocation of resources between physical and behavioural measures.

## Recommendation

**47. *The Scrutiny Commission is recommended to:-***

- a) support the findings of the Panel and refer the conclusions and recommendations (a-n) to the Cabinet for its consideration;***
- b) request officers to report on the progress made against the recommendations in twelve months' time.***

**Mr R J Shepherd CC  
Chairman of the Panel**

## Environmental Implications

48. Road safety and traffic calming initiatives are designed to reduce excessive speeds and as a consequence can provide environmental benefits through improved fuel economy and reduced CO2 emissions from vehicles.

### **Equal Opportunities**

49. None.

### **Circulation under the Local Issues Alerts Procedure**

50. None

### **Background Papers**

Government Strategy 'Tomorrow's roads: safer for everyone', published 1 March 2000;

Leicestershire Local Transport Plan 2006-2011;

VEARS, I, 2008, *Vehicle Activated Signs Too Much OF A Good Thing?* MSc Dissertation, School of Architecture, Design and Built Environment, Nottingham Trent University, IMOB Transportation Research Institute Hasselt University and The School of the Built Environment The Noordelijke Hogeschool Leeuwarden.