ITEM 12

SURREY
COUNTY COUNCIL

INJURY ACCIDENT TRENDS AND SPEED MANAGEMENT Local Committee in Runnymede 28TH JANUARY 2005

Key Issues:

The Government has set national casualty reduction targets to be met by the year 2010. Surrey County Council intends to enter into a Public Service Agreement with the government to reach the targets three years early. The management of traffic speeds throughout Runnymede is intended to reduce the number and severity of accidents, and to reduce the fear of accidents.

Summary

This report outlines the national casualty reduction targets and shows Runnymede's progress towards the targets agreed with central government. Accident trends within Runnymede are compared to Surrey-wide and UK-wide trends. The report details investment during 02/03 and 03/04 in improvements that contribute to enhanced road safety and reduced numbers of accidents.

This report follows on from "Injury Accident Trends and Speed Management" a report presented to the Local Committee for Runnymede on 31st October 2003, which gives a wealth of background information regarding accident cause and prevention, and effective speed management.

The key conclusions of this report are as follows:

a) the transportation programme and speed management strategy are contributing towards injury accident reductions;

b) the injury accident trends in Runnymede show that the national target reductions are on course to be achieved by 2007;

c) reducing traffic speed is the single most effective means of reducing the number and severity of injury accidents.

Officer Recommendations:

For information only.

1.0 Road Safety, Government Targets and the Local Transport Plan

1.1 Road safety is one of the main concerns of Runnymede residents. A large proportion of all the enquiries made to the Runnymede Local Transportation Service express a fear of accidents; this fear arises from experience of previous accidents, and traffic speeds. The following comments are typical:

> *"…traffic often speeds dangerously…and this can be frightening at times for pedestrians."*
>
> *"I live…where cars are at their fastest and this poses a risk to my toddler…"*
>
> *"I have noticed…an increased number of cars travelling…too fast for the road conditions…and I am afraid that an accident could happen."*
>
> *"I am a concerned resident…who is becoming dismayed by the ever growing number of accidents that are occurring on my road."*

1.2 During 2003 there were 41 accidents on County maintained roads in which someone was killed or seriously injured. There were a further 309 accidents in which someone sustained a slight injury.

1.3 Crime and Disorder surveys of Surrey residents have shown that the fear of traffic is a prime concern. Although it is hard to quantify, it is thought that fast vehicles may discourage people from walking, cycling and horse riding. In the worst cases, fast, busy roads may prevent people accessing essential local facilities, shops and schools, contributing to community severance. This suggests that the fear of traffic drives people to use their cars as the primary mode of transport, which in itself further compounds the problem.

1.4 One long term aim of the Local Transport Plan is "to improve the safety and security of transport for all travellers". Central government has set the following national targets for reducing road casualties by 2010, from a base level of the average annual numbers of casualties in the 5 years between 1994 and 1998:

- Reduce killed and seriously injured (KSI) road casualties by 40%
- Reduce child KSI road casualties by 50%
- Reduce the rate of slight casualties per 100 million vehicle kilometres by 10%

Surrey County Council intends to secure increased funding from central government to reduce road casualties, in return for a commitment to achieve the targets by 2007 – 3 years early. The level of additional funding for reducing casualties will depend on how Surrey County Council performs against the 2007 targets.

1.5 The results presented in this report show that the annual number of accidents rose in 2002 and 2003. However the long term trend suggests that Runnymede will indeed meet the national targets for road casualty reduction by 2007.

2.0 Killed and seriously injured casualty trends up to 2003

2.1 Figure 1 plots the numbers of KSI casualties in Runnymede between 1994 and 2003. The casualties are classified according to road user type, and the target for reducing KSI casualties is also plotted.

2.2 By inspection of Figure 1 it is clear that the general trend in total casualty numbers is downward. It would appear that the general trend in casualty numbers for car users is also downward. However there are no clear trends for other types of road user. This is because the numbers involved are small; accidents are by nature are random events: therefore a low level of fluctuation in accident numbers is to be expected from a statistical point of view.

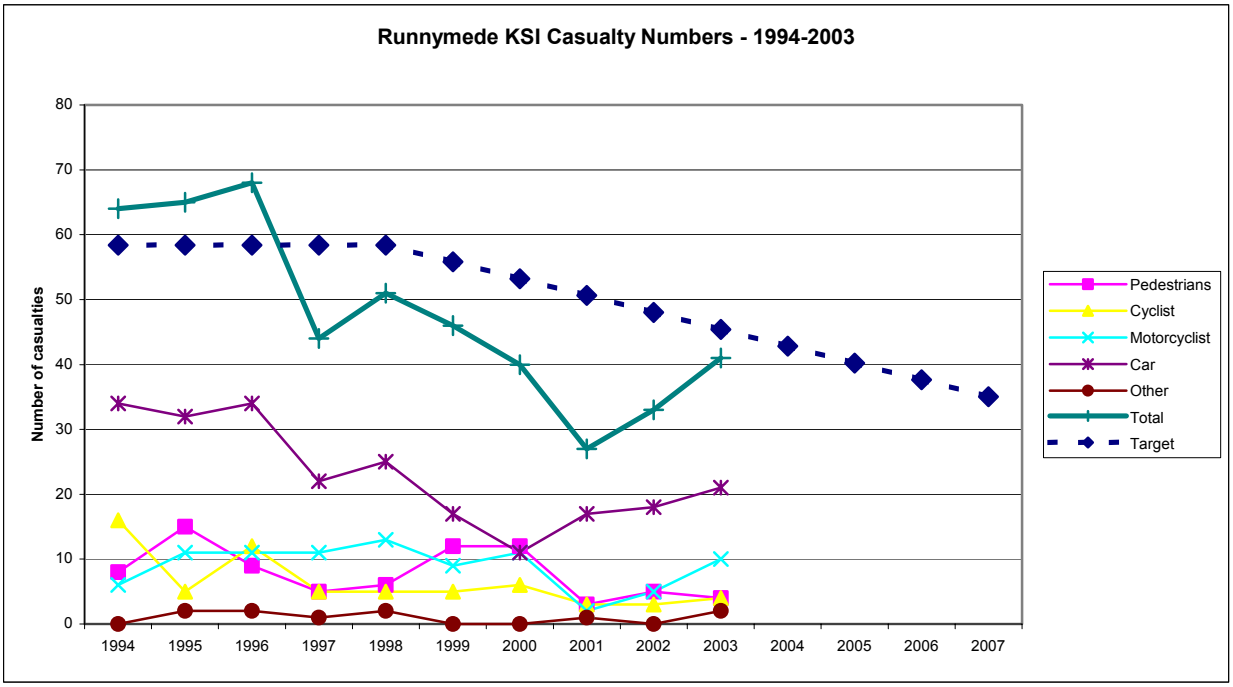

Figure 1 – KSI casualty numbers in Runnymede between 1994 and 2003

2.3 Figure 2 shows the numbers of KSI casualties in Runnymede expressed as a percentage of the 1994 to 1998 baseline. The casualties are again classified according to road user type, and the target for reducing KSI casualties is also plotted.

2.4 Each percentage in Figure 2 takes an average value over a 3 year period. This process is intended to eliminate some of the annual random fluctuation in casualty numbers, and instead highlight the longer term trends. It is generally accepted that within a period of 3 years, traffic conditions may be assumed to be essentially constant for the purposes of statistical analysis.

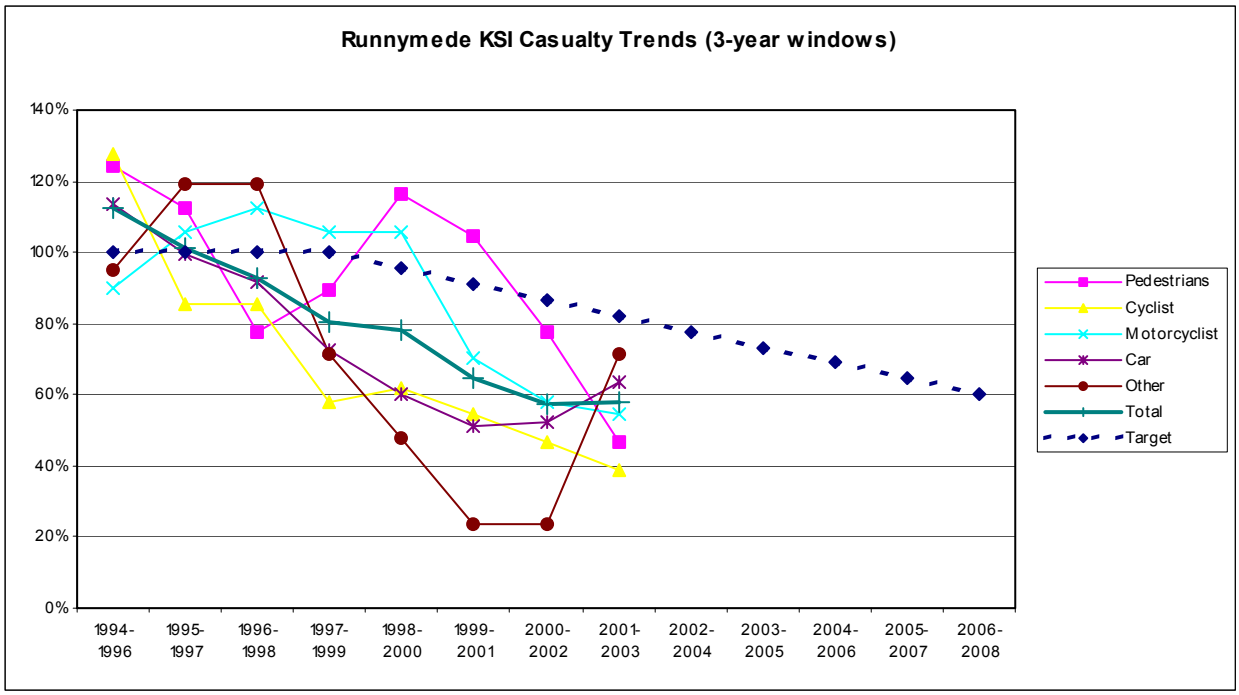

Figure 2 – KSI casualty trends in Runnymede between 1994 and 2003

2.5 Figure 1 shows that in 2002 and 2003 the total number of KSI casualties increased over the previous year. However Figure 2 suggests that the long term trend for total KSI casualties is approximately level for the 3 years 2001 to 2003. If this long term trend continues, Runnymede is on course to meet the target for a 40% reduction in KSI casualties by 2007. This result should be treated with caution: although the long term trend is on course to meet the national target for KSI casualty reduction by 2007, effort and investment is now required to ensure that this trend is sustained.

2.7 Figure 3 compares the numbers of KSI casualties in Runnymede to the equivalent Surrey-wide and UK-wide figures – all expressed as a percentage of the 1994 to 1998 baseline. Each percentage in Figure 3 takes an average value over a 3 year period, to give an indication of the long term trend.

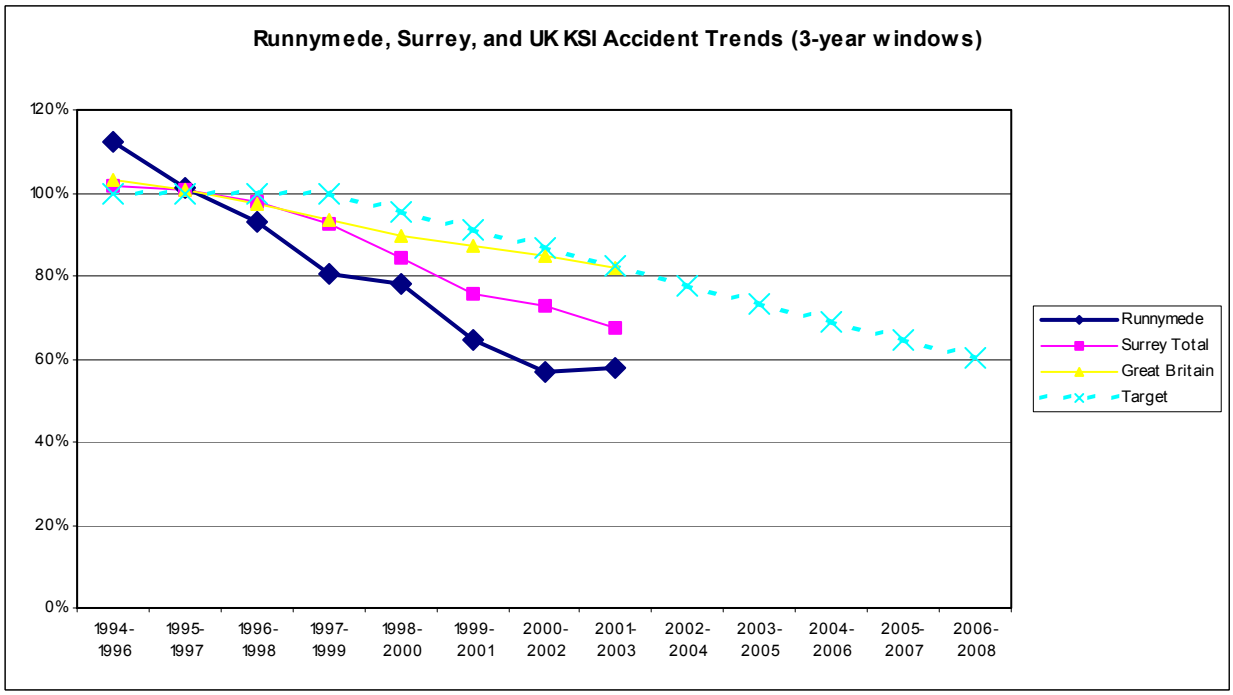

Figure 3 – KSI casualty trends in Runnymede, Surrey and Great Britain, 1994 to 2003

2.8 Figure 3 suggests that Runnymede is ahead of Surrey, which is ahead of Great Britain, in progress towards achieving a 40% reduction in KSI casualties by 2007. It should be noted that the national target is for a 40% reduction by 2010. Runnymede in fact achieved the target during the 3 years 2000 to 2002, and Surrey is on course to achieve the target in the 3 years 2003 to 2005. The focus now within Runnymede should be to sustain and improve on the current reduction in KSI casualties.

3.0 Child killed and seriously injured casualty trends up to 2003

3.1 Figure 4 compares the numbers of child KSI casualties in Runnymede to the equivalent Surrey-wide and UK-wide figures – all expressed as a percentage of the 1994 to 1998 baseline. Each percentage in Figure 4 takes an average value over a 3 year period, to give an indication of the long term trend.

3.2 Figure 4 shows a significant fluctuation in the child KSI casualty trend for Runnymede. This is because the annual numbers of child KSI casualties within Runnymede are low. The baseline is an annual average of 4 child KSI casualties between 1994 and 1998.

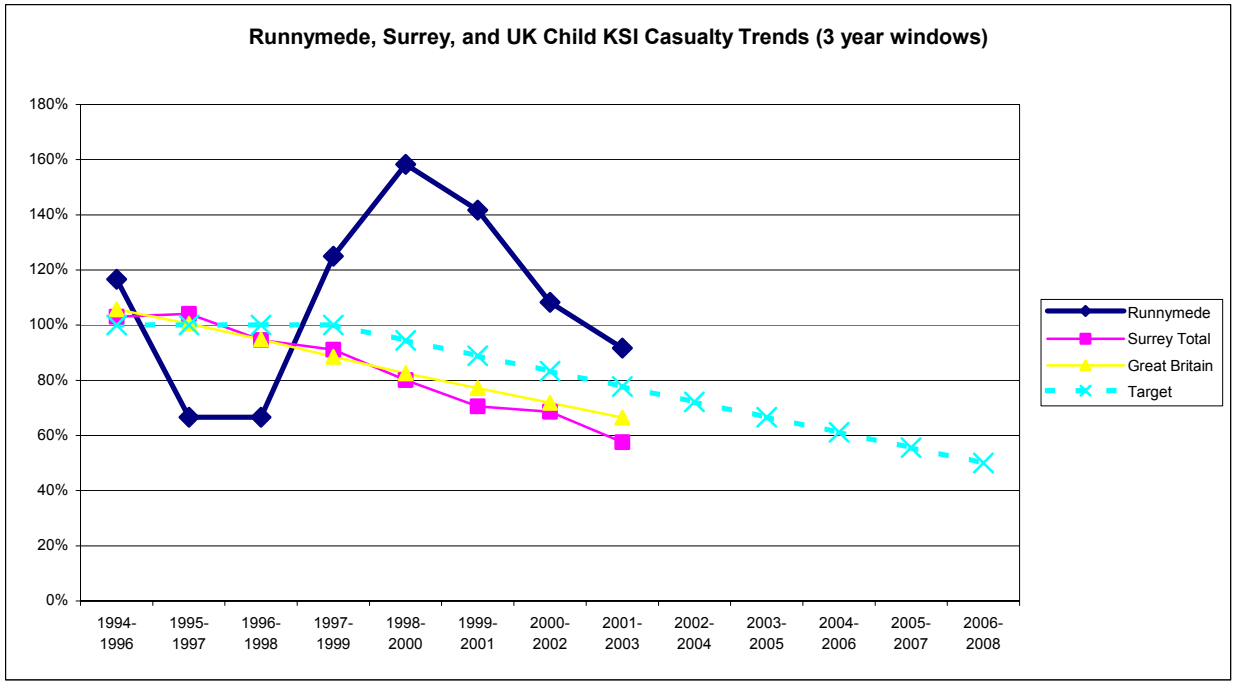

Figure 4 – Child KSI casualty trends in Runnymede, Surrey and Great Britain, 1994 to 2003

3.3 Figure 4 suggests that Surrey and Great Britain are on course to achieve the target of a 50% reduction of child KSI casualties by 2007. Given the level of annual fluctuation in the number of child KSI casualties in Runnymede, and the low baseline figure, it is difficult to identify any long term trend. Within Runnymede resources should be targeted towards sustaining the current low level of child KSI casualties.

4.0 Slight casualty trends up to 2003

4.1 Figure 5 compares the numbers of slight casualties per 100-million vehicle-kilometres travelled in Runnymede to the equivalent Surrey-wide and UK-wide figures – all expressed as a percentage of the 1994 to 1998 baseline. Each percentage in Figure 5 takes an average value over a 3 year period, to give an indication of the long term trend.

4.2 Figure 5 suggests that Runnymede, Surrey and Great Britain are all on course to meet the target of a 10% reduction in the number of slight casualties per 100-million vehicle-kilometres travelled by 2007. Surrey is making better progress in meeting this target than Great Britain; Great Britain is making better progress than Runnymede.

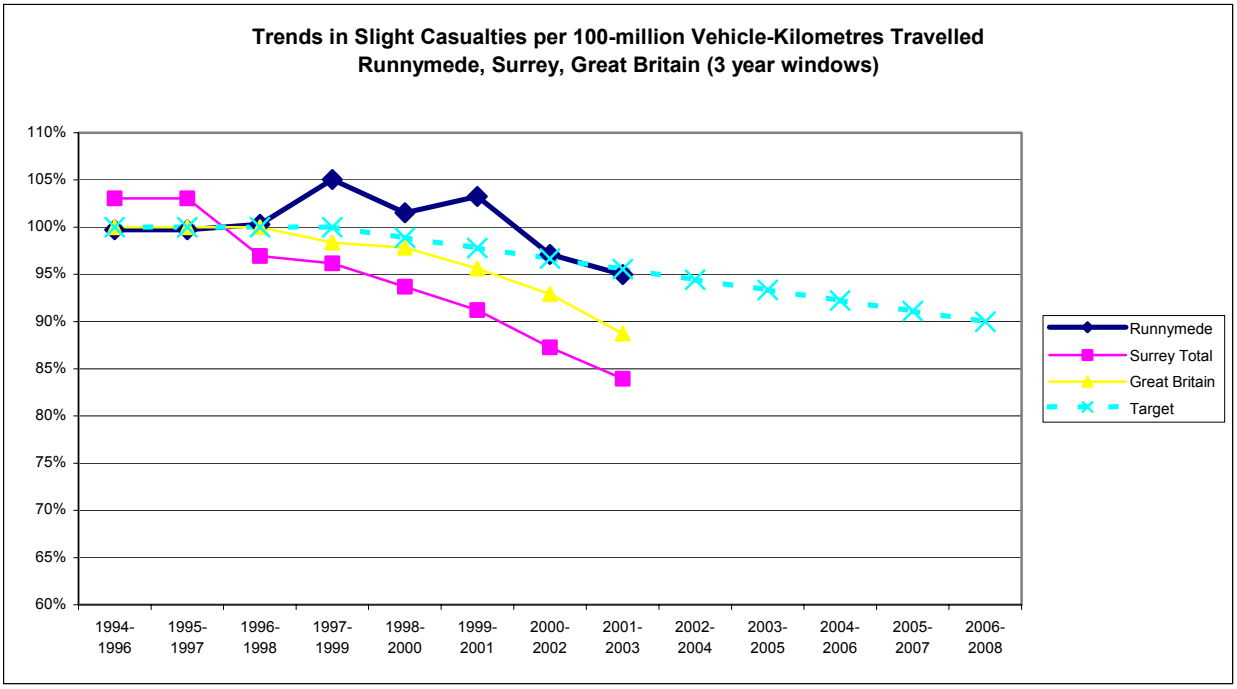

Figure 5 – Trends in slight casualties per 100-million vehicle-km travelled – comparison of Runnymede, Surrey and Great Britain between 1994 and 2003

4.3 Any investment to reduce the number of KSI casualties within Runnymede should also be effective in reducing the number of slight casualties per 100-million vehicle-kilometres travelled. Within Runnymede aim is for the trend in reducing slight casualties to catch up with Surrey over the next year.

5.0 Share of casualties by road user type

5.1 Figure 6 show the proportions of all casualties by type of road user in Runnymede during 2003. Figure 7 shows the same data but only for KSI casualties.

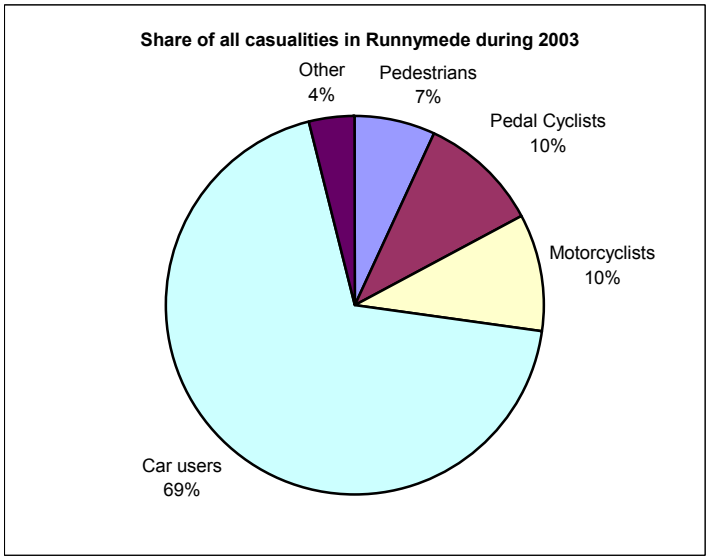

Figure 6 – Share of all casualties in Runnymede during 2003

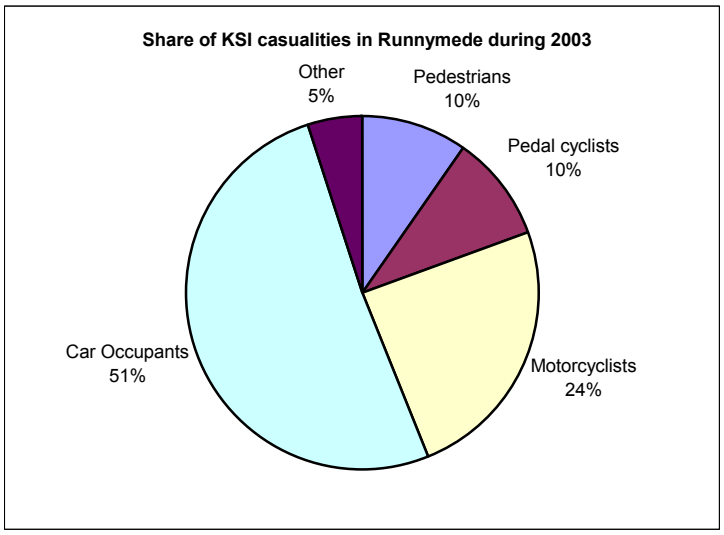

Figure 7 – Share of KSI casualties in Runnymede during 2003

7.2 The share of casualties among road user type in Surrey is broadly equivalent to the share in Runnymede. Comparison of Figures 6 and 7 suggest that:

- car users account for over two thirds of all casualties, and about half of all KSI casualties in Runnymede;
- motorcyclists have the greatest severity ratio: they account for 10% and 12% of all casualties in Runnymede, but around 25% of all KSI casualties;
- pedestrians have a high severity ratio too: in Runnymede they accounted for 7% of all casualties but 10% of all killed and seriously injured casualties;

7.3 The large proportion of road casualties experienced by car occupants may be accounted for by the fact that the private car is the most popular mode of transport within Runnymede. Unfortunately detailed modal share statistics are not available for Runnymede. Nevertheless experience suggests that the number of casualties and KSI casualties among the non-car road user types is disproportionately high – especially in the case of motorcycle KSI casualties.

7.4 In the case of motorcycle KSI casualties, it is often the case that excessive speed on the part of the rider is the main factor. It is therefore essential to educate motorcycle riders as to the dangers of such excessive speed.

7.5 In the case of pedestrians and cyclists, the most frequent scenario for accidents is a collision with a car, or some other motorised vehicle. Pedestrians and cyclists can be protected by investment in facilities such as footways, pedestrian crossings and cycle ways – such schemes account for a significant proportion of capital investment in Runnymede.

6.0 What causes accidents?

6.1 Road accidents are true ‘random’ events. Accidents in which a single issue or person can be said to be the sole cause seldom occur. Cause, in relation to road accidents, covers a multiplicity of factors identified in the circumstances leading up to occurrence of each individual accident.

6.2 Each set of circumstances preceding an accident is unique and therefore every accident is a unique event. However the factors in each set of circumstances generally fall into three basic categories:

- Highway factors – road design, the road environment and traffic conditions
- Vehicle factors
- Road user behaviour

Studies have shown that human factors (road user behaviour) contribute in 95% of accidents in urban areas, highway factors in about 20% and vehicle factors in 1%.

6.3 There is overwhelming national and international research evidence that lower vehicle speeds result in a lower likelihood of road collisions occurring. Lower vehicle speeds lead to a reduction in the severity of injuries suffered by those involved in collisions. This is especially true of vulnerable road users such as children, pedestrians, cyclists, motorcyclists and the elderly.

6.4 The 85th percentile speed is the speed at or below which 85% of vehicles are travelling. The 85th percentile speed is judged to be the speed that the majority of law abiding drivers consider to be an appropriate speed for the road and prevailing conditions. *It is rare for traffic survey results to indicate an 85th percentile speed of less than or equal to the speed limit.* If this aspect of road user behaviour can be addressed, then the facts below suggest significant reductions in accidents numbers are possible:

- It has been estimated that as a robust general rule, for each 1 mph reduction in average speed, collision frequency is reduced by 5%.
- An average family car travelling at 35mph will need an extra 21 feet (six metres) to stop than one travelling at 30mph, no matter how good the driver is.
- That at 40mph, 85% of pedestrians hit by vehicles die, compared to 20% at 30mph (at 20mph it is just 5%).
- The force of the impact on a cyclist or pedestrian is increased by a third when hit at 35mph rather than 30mph.

6.5 Numerous measures implemented within Runnymede are designed to reduce vehicle speed: for example traffic calming, speed poster campaigns, enforcement in partnership with Surrey Police, education, and various engineering measures designed to give drivers the impression that a lower speed is appropriate for a given road. It was recently reported to the Local Committee for Runnymede that the Woodham Lane traffic calming scheme had resulted in a reduction of injury accidents of up to 70%.

6.6 It would be impossible to isolate a single cause for accidents. Nevertheless it has been observed nationally and within Runnymede that reducing traffic speed is the single most effective means of reducing the number and severity of road accidents.

7.0 Road safety investment in Runnymede during 02/03 and 03/04

7.1 The road safety strategy uses a combination of education, engineering, enforcement, and partnership measures to deliver the target of reducing casualties. Table 1 itemises the investment in Runnymede during 02/03 and 03/04, which contributes to improved road safety, and therefore to reducing casualty numbers.

Nature of scheme(s)	02/03 Investment	03/04 Investment
Traffic management, speed management and traffic calming	£850,000	£163,500
Pedestrian crossings	£97,000	£101,800
Other pedestrian and cycling facilities	£160,000	£191,000
Public transport improvements		£11,700
St Peters Way crash barrier	£104,000	£211,000
Safe Routes to Schools		£55,800
Total	**£1,211,000**	**£734,800**

Table 1 – Investment in road safety measures in Runnymede

7.2 Table 2 shows estimated average accident prevention savings for accidents and casualties. The figures in Table 2 were estimated in 1999.

Severity	Cost saved per accident	Cost saved per casualty
Fatal	£1,262,090	£1,089,130
Serious	£146,890	£122,380
Slight	£14,540	£9,440
Average (all severities)	£49,920	£34,540
Damage only	£1,300	-

Table 2 – Estimated average accident and casualty prevention savings

7.3 Almost £2M was invested in road safety improvements during 02/03 and 03/04. The accident and casualty prevention savings shown in Table 2 suggest that these improvements could pay for themselves within a very short timeframe even if only a few accidents and casualties are prevented.

8.0 Conclusion

8.1 Runnymede is on course to meet the national targets for reductions in road casualties by 2007. The challenges for the next year are:

- to sustain and improve on the current reduction in KSI casualties;
- to sustain the current low level of child KSI casualties;
- to improve the current downward trend in reducing slight casualties to catch up with the trend for Surrey.

8.2 Almost £2M was invested in road safety improvements during 02/03 and 03/04. Over 50% of this investment was directed towards traffic management, speed management, and traffic calming.

8.3 Speed reduction has been identified as the single most effective factor in reducing the number and severity of accidents at sites within Runnymede.

ITEM 12

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Background Papers: **"Injury Accident Trends and Speed Management" Local Committee for Runnymede, 31st October 2003**

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