ROAD SAFETY : THE NEXT STEPS

DEPARTMENT OF TRANSPORT

July 1987

FOREWORD BY THE SECRETARY OF STATE FOR TRANSPORT

Compared to our European neighbours Britain has a fair record in reducing road casualties; but over 5,000 people killed and more than 300,000 injured each year on Britain's roads are still far too many.

The Government decided in 1983 to set up a comprehensive review of road safety policy by the main Departments involved: Transport, Health, Education, the Home, Scottish and Welsh Offices. The aim was to take stock of what had been achieved and to recommend the action required to accelerate the downward trend in road casualties for at least the remainder of the present century.

This Report is the result. There are no simple answers. Road casualties are a problem as intractable as any that an advanced industrial society has to face. Its roots go deep into the attitudes and values of both the individual and the community as a whole.

The Report is a definitive examination of the various approaches available for tackling road casualties and the constraints within which action can be taken. The Review's central recommendation is that there should be a continuing emphasis on actions, throughout the road safety field, which clearly demonstrate maximum value for money in reducing casualties.

The Government accepts the analysis presented by the Review and we have adopted the strategy it recommends. Two immediate changes will result. First we will embark on a major programme of research into road use behaviour and accident causation. Secondly we shall endeavour through a wide variety of means to establish a climate of public opinion that is both more concerned about, and favourable to road casualty reduction. A society more concerned about death and injury on our roads is our aim.

The immediate priority is to shift resources to actions which will save lives. This we shall do. The Report concludes that the most important gains will come from improvements to vehicle engineering, and from expanding local activity to provide safer roads, particularly for pedestrians, cyclists and motor-cyclists.

We are putting an extra £3 million into road safety research. A Behavioural Studies Unit has been set up at the Transport and Road Research Laboratory. The Roads White Paper set out some of the actions directed at reducing casualties in a more cost-effective way. We are already developing a programme of low-cost safety schemes for the Department's own roads.

The Review has already been sent to the Chairman of the Transport Committee of the House of Commons because of their previous interest in road safety matters. I am now making it available to a wide range of interested organisations. I look forward to developing further new ideas and initiatives within this framework in the light of the response to this Report. I also look forward to receiving views on specific recommendations.

The Report suggests that we should aim to reduce road casualties, by the year 2000, by one third. This is a challenge for us all: but it can be achieved if we set our sights on it now.

Paul Channon

PAUL CHANNON

INTER DEPARTMENTAL REVIEW OF ROAD SAFETY POLICY

REPORT BY THE DEPARTMENT OF TRANSPORT

May 1987

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INTER-DEPARTMENTAL REVIEW OF ROAD SAFETY POLICY
REPORT BY THE DEPARTMENT OF TRANSPORT

This document is the outcome of the first full review of road safety policy to be undertaken within Government since the early 1970s. The Review was established in 1983, at the close of a period which had seen a notably high level of activity in the road safety field (including a range of important legislative measures), but which as a result left the scope for further initiatives constrained. The task given to the Review was to take stock of what has been achieved thus far and consider what action is required to maintain road casualties on a downward trend for at least the remainder of the present century.

The Review was commissioned by Ministers collectively with the intention that it should be conducted on a fully inter-Departmental basis. Whilst the primary responsibility for road safety policy lies with the Department of Transport, a number of other Departments have a substantive interest in the subject and their involvement and support can be crucial to the success of certain types of approach. Hence the decision to entrust oversight of the Review to an Inter-Departmental Working Group* with a clear remit to ensure that the exercise was given the benefit of a Government-wide perspective and to identify those areas in which assistance from Departments other than Transport would be needed.

The Working Group was instructed to take account of three key considerations in setting about its task, viz

(a) no increase in overall resources available for road safety should be assumed and therefore obtaining the maximum value for money from existing activities and future proposals would be of the highest importance;

* Departments represented on the Working Group included; Transport, Health and Social Security, Education and Science, Trade and Industry, Scottish Development, Welsh Office, Home Office and the Treasury. The initial meeting was chaired by the then Minister of State, Department of Transport and subsequent meetings by the Under-Secretary, Road and Vehicle Safety, Department of Transport. Although the Review's remit was formally confined to Great Britain, the Group included a representative of the Department of the Environment (Northern Ireland) in the role of assessor.

(b) in examining future options there should be a presumption against measures which involved the imposition of new legislative controls on road users, except where unavoidable;

(c) whilst having due regard to the limits of practical and political reality, the Review should not fail to address the key issues that arise in the task of reducing road casualties and should identify radical solutions where appropriate.

Three years of work have left the Review satisfied that there is no simple formula for solving the problem of road accident casualties. On the contrary, it seems clear that the problem is as intractable as any that an advanced industrial society has to face - a problem whose roots go deep into the attitudes and values of both the individual and the community as a whole.

The great value of the Review has been in the opportunity it has provided to look at the fundamental issues underlying the road casualty problem. Some may find elements of this report unduly pessimistic in tone. The Review is in no doubt, however, that false optimism is of no service to the cause of road safety. It is only through an accurate understanding of the nature of the road casualty problem and a realistic appreciation of the gains which we can expect to come from different types of approach that we stand to achieve a material impact in the years ahead.

PART 1 : THE TASK WE FACE

General Picture

1. Since the 1960s there has been a significant reduction in the number of people killed and injured on the roads despite a large increase in the volume of traffic. The overall figures for Great Britain are

	1965	1975	1985	% Change 1975-1985
Killed	7,952	6,366	5,165	-19
Seriously injured	97,865	77,122	70,989	- 8
Slightly injured	292,120	241,462	241,379	- 0
Total casualties	397,937	324,950	317,524	- 2
Index of motor vehicle mileage (1965 = 100)	100	145	195	+36

Road deaths in 1985 were the lowest since 1954; total casualties have remained between 300,000 and 350,000 a year for nearly 15 years, roughly the same as the level as the late 1950s/early 1960s.

2. The overall trend has been one of a fairly rapid decline in casualties from the mid 1960s with a slower but steady decline in the late 1970s and early 1980s. This broad pattern has been mirrored in most developed countries despite differences of approach, societal attitudes, legislation etc. The UK is currently the most successful country in the European Community in terms of road deaths per 100,000 population. Over the rest of the world only Norway and Sweden have marginally better records, though Japan - which started later - is not far behind.

3. Within the overall figures, there have been different degrees of achievement. The figures for different road user groups are:

	1965	1975	1985	% Change 1975-1985
Killed and seriously injured				
Pedestrians	26,819	20,815	19,470	- 6
Cyclists	7,856	4,564	5,652	+23
Two wheeled motors	24,829	16,613	18,172	+ 9
Car occupants	36,222	35,182	29,107	-17

The figures for different age groups are

	1965	1975	1985	% Change 1975-1985
Killed and seriously injured				
0-4	14,861	2,138	1,429	-33
5-9		5,150	3,579	-31
10-14		5,098	4,903	- 4
15-19	23,177	18,292	16,582	- 9
20-59	65,834	41,153	39,154	- 5
over 60		11,630	9,850	-15

4. At a more detailed level, local authority roads in built-up areas carry only just over 40% of the traffic but have nearly 70% of the casualties, including 95% of pedestrian casualties. In terms of pedestrian deaths per 100,000 population, the UK is only average in the European Community and is well behind Norway, Sweden and Japan. In terms of child pedestrian deaths the UK is well behind nearly every country in the Community (except the Irish Republic) in the 5-9 age range and nearly twice the Community average in the 10-14 age range.

What has been Happening?

5. There is no single explanation for the fall in casualties. Some specific measures may be advanced with reasonable certainty as having made a substantive contribution over the last 15-20 years. These include: developments in vehicle safety standards (eg seat belts, better braking performance); infrastructure improvements, including motorways (8 times safer than other roads); urban by-passes (often 3 times safer than the roads they replace); town centre pedestrianisation; road lighting; safety barriers; and low-cost/ high return safety engineering techniques. Other measures may be mentioned but in rather more cautious terms, since our understanding of their effect - at least in the long term - is based on less certain, more circumstantial, evidence. These include: driver and rider training; legislation regulating road user behaviour (for example, on speed limits and drinking and driving); and education and publicity programmes.

6. Apart from central and local government activities, other, quite independent, factors may also have played a significant part in reducing casualties. These include: changes in the balance between usage of the comparatively dangerous two-wheeled vehicle and the much safer vehicle with four; reductions in the amount of walking, particularly by young children; changes in the speed and density of traffic; improvements in emergency treatment and medical care (reducing the risk of fatality); a fall in the child population; together with less tangible factors such as possible changes in road users' perception of risk, in their attitudes to their own and other people's safety and even in their ability to avoid accidents.

What of the future?

7. In theory, if the relationships among the various factors were fully understood, it would be possible to predict future levels of road casualties on a range of assumptions about population rates, traffic growth, changes in travel mode, the provision of improved roads, continuing vehicle safety measures and so on. This approach was developed in the Department of Transport in an internal review undertaken in the early 1970s. Unfortunately that review did not live up to its expectation: in particular its assumptions on the link between the growth of traffic and the growth of casualties led to considerable over-estimates, and new factors emerged, including petrol price changes, which could not reasonably have been predicted.

8. In recent years it has proved more realistic to assume that the existing range of road safety functions - driver licensing, vehicle testing, policing and so on - are sufficient to contain casualties at present levels, and that additional measures reduce casualties according to their particular effects - eg front seat belt wearing reduced front seat occupant fatal and serious casualties by about 7,000 a year. New policies can then be assessed in terms of their potential for casualty reduction against a background of assumed stability. If the background is not one of stability, but of increasing numbers of casualties, then new policies may be needed to maintain stability.

9. New policies can operate through the three elements in casualty causation: the individual, the vehicle or the road - either separately or in combination. Quite a lot is known about the factors in casualty causation, but the information is largely confined to accidents in rural or semi-urban areas; data about the factors in urban accidents where the bulk of vulnerable user casualties occur are more restricted. Human error is the prime factor in 70% of accidents and one factor in 95% of accidents. Yet methods of reducing or removing human error are extremely difficult to devise and probably difficult to introduce. As explored in Part II, the Review believes that at least for the foreseeable future many instances of human error can only be reduced indirectly through

creating safer vehicles and safer road environments. These will not remove the problem, but they will, as in other areas of public and private safety, reduce it or minimise its consequences.

10. Any casualty reduction programme has to make assumptions about the future. Principal among these are:

a. Population: the increasing proportion of elderly people will affect both the number of pedestrian casualties, and the number of elderly drivers having to cope with present traffic conditions. The decline in the birthrate may affect the number of child pedestrian and cycling accidents;

b. Travel mode: new forms of travel may be developed by the end of the century, but it seems likely that the present broad mixture of travel modes will continue. Changes in the popularity of two wheeled travel, particularly as an alternative to public transport, and the possible growth of leisure walking, may increase risks for the most vulnerable road user groups. As car ownership and traffic continue to grow and journeys become longer and more varied, there will be particular conflicts between mobility and safety, especially in urban and residential areas;

c. Road building: with much of the major road network in place, the road programme will be increasingly concerned with improving capacity and with local improvements and maintenance of the national road network. Within the local network there remains considerable scope for more comprehensive approaches to integrating transport, safety and land use planning and for local improvements balancing more effectively the needs of mobility and safety. Low cost treatment of casualty sites, new approaches to particular problems, eg junctions, and improvements to the environment and safety of existing residential areas,provide opportunities for improving movement and reducing casualties;

d. Legislation and enforcement: there appear to be few new opportunities for legislation which would be acceptable and offer cost-effective means of reducing casualties. This implies that, at least in the next few years, legislation will primarily be concerned with simplifying existing powers or making them more effective. Faced with existing resource constraints, the police will favour self-enforcing measures (eg road engineering to restrict vehicle speeds) and the wider use of technology to increase their effectiveness;

e. The human factor: current public attitudes are unlikely to change in the face of continued growth in traffic and a roughly static or slowly declining road casualty picture. Although measures are available to help continue to contain casualties at or below their present level for the next 10/15 years - through indirect influence on road users, eg road engineering and environment, in-car advice and safety features - there is a need to continue to search for effective ways of influencing road user behaviour more directly. Within this area identifying a permanent solution to the intractable problem of drinking and driving continues to stand out as a task of particular urgency and importance.

11. Historical trends, the current position, and possible future developments suggest that the priority concerns over the next 10-15 years will be

a. protection of the vulnerable road user - pedestrians, cyclists and motorcyclists;

b. the scope for reconciling the demand for movement with the need for safety, particularly in urban and residential areas;

c. the scope for reducing the chances of human error leading to road casualties; in the shorter term, largely through indirect means, such as highway engineering and vehicle safety measures; in the longer term through more direct means operating directly on human behaviour.

PART II : THE APPROACHES

What approaches are available?

1. One response to the problem of road casualties is to take action which minimises the consequences of accidents when they occur. This has been the aim of a number of important measures in the fields of both vehicle safety (eg seat belts) and highway engineering (eg crash barriers) and it is one that must continue to be pursued - for instance, in the development of "pedestrian friendly" car design. However, by far the main concern of those working in road safety has been to find ways of preventing accidents occurring in the first place. Given the overwhelming predominance of human error in road accident causation, accident prevention has to be seen as ultimately a matter of influencing human behaviour.

2. This task can be approached in two ways. One of these (which might perhaps be described as the direct approach) involves, in essence, inculcating in each road user an understanding of the standards of skill and behaviour that are conducive to road safety and persuading him - as a matter of more or less conscious decision - to comply with those standards. The alternative approach (which might be termed the environmental approach) involves creating an environment in which the scope for the road user to behave in an unsafe manner is, whether he wishes it or not, reduced.

3. Traditionally, much, if not most, of the effort directed towards accident prevention has been through the medium of the direct approach - that is, inducing road users to conform to standards of safety as a matter of choice. This, in essence, is the fundamental objective underlying the concepts of road traffic law; driver licensing, training and testing; road user education, whether in school or through national and local "publicity" programmes; and (in certain respects) vehicle licensing and testing. Some of these concepts hinge on the force of law, others merely on appeals to reason or common sense. Ultimately, however, they all operate in a similar way.

4. It is the activities involved in the direct approach that most people usually regard as holding the key to road safety. But there has been increasing evidence, particularly in recent years, of the contribution to accident prevention made by the alternative - ie environmental - approach, which works by reducing the scope for unsafe road user conduct. Into this category come measures relating to highway engineering, accident investigation and prevention, and standards of vehicle design, construction and use.

What are the most cost-effective approaches?

5. Functions relating to road safety currently involve public sector expenditure of up to £1,000m per year. The cost of road casualties to society is estimated at over £2,500m per year. (Details at Annex 2.) A central concern of Ministers in setting up the Review was that, with resources unlikely to increase, at least in so far as public funds are concerned, those available should be used to obtain the best possible value for money. This requirement applies to both existing strategies and the development of new ones.

6. Value for money in road safety can be assessed against two criteria:

a. that road safety-related functions are carried out as cost-effectively as possible;

b. that functions have a net positive benefit - in other words, that they achieve casualty savings whose economic value exceeds the cost of implementation.

7. Many established road safety activities - for example, driver testing or vehicle inspection - can be, and are, regularly tested against the first of these criteria. There may be scope for further improvement, not least by extending this type of assessment into areas where it has not traditionally been applied (for instance, the Department of Transport publicity and promotion work). In general, however, the Review sees no obvious cause for dissatisfaction as to the way in which established functions are discharged, at least so far as those involving central Government are concerned.

8. In contrast, assessment of road safety activities against the second criterion - cost-effectiveness in terms of casualty reduction - takes us into a much more difficult area. Ideally, it would be possible to establish in all cases whether or not the deployment of resources for the reduction of road casualties was achieving this objective in a cost-effective way. In practice, the instances in which this question can be satisfactorily addressed and answered are few.

9. Early in the Review's work, the Transport and Road Research Laboratory undertook a major analysis of all road safety functions to identify the scale of the contribution which each of them makes to casualty reduction. This study confirmed that, for the majority of road safety functions, we simply do not know what returns are being achieved in terms of casualties saved and, moreover, have little prospect of ever finding out.

10. In large measure the difficulties arise from the fact that many of the activities which one would naturally tend to regard as among the most significant in the promotion of road safety, and which account for the lion's share of public and private resources (eg the driving test, driver licensing, the whole corpus of road traffic law) are so long established and so broadly based that there is no easy way of evaluating their contribution to casualty saving, other than by abandoning each of them in turn (possibly for a substantial period) and attempting to assess the consequences. The problems involved in such a course of action hardly need to be spelt out. Even with activities that are less firmly established than those just mentioned, the scope for genuine evaluation is severely limited. In some cases such evaluation has been attempted, but all too often there has proved to be a band of uncertainty within which no substantive effect can be demonstrated. In some instances the band of uncertainty is so wide that there is no prospect of ever detecting an effect; educational activities are a case in point. At the same time there are some functions, such as vehicle testing, where failure to establish an effect does not mean the activity is not worthwhile, but certainly implies that it is not dramatic.

11. Thus it is that the greater part of existing road safety activity depends for its justification, not on demonstrable

cost-effectiveness in terms of casualties saved, but on subjective assessment of its value. Commonsense certainly suggests that, for instance, driver training and testing, road traffic law or traffic education in schools must be in the interests of road safety, but no-one has yet been able convincingly to prove it.

12. The Review considers that, for the future, every opportunity must be taken - within the limits of practical and political possibility - to subject established road safety functions to thorough scrutiny for the purpose of evaluating their effectiveness in casualty saving terms. The Review also considers that there should be a presumption against the implementation of new measures which are not susceptible of genuine evaluation as to their cost-effectiveness in casualty reduction.

13. In the meantime, however, it is encouraging to note that there are already certain areas of road safety activity which not only have been submitted to rigorous analysis of their costs and benefits in terms of casualty reduction but have actually emerged from analysis with very positive results.

14. These areas are very largely confined to the field of safety engineering, in respect of both the road and the vehicle. They include some vehicle safety measures, the safety aspects of road construction schemes, and above all, accident investigation and prevention work. The last of these remains by far the single most cost-effective means of reducing casualties yet identified, with individual schemes offering casualty savings of up to 80% and first year rates of return of 50-100% and above.

15. Based on the evaluation study by TRRL, over the next ten to fifteen years, the casualty savings available from the promotion of measures within the field of safety engineering might be as follows:

		Casualty saving
a.	vehicle safety measures	40,000+
b.	focussing on the safety benefits of highway engineering and increasing the number of schemes which offer a higher than average casualty reduction	15,000
c.	concentrating resources on low cost/high return safety engineering, particularly in the urban environment	20,000+

16. Those measures which have demonstrably proved their worth as aids to casualty reduction are concentrated largely within the "environmental" category - that is, they reduce the scope for unsafe road user conduct rather than seeking directly to persuade road users to refrain from such conduct. This points perhaps to the conclusion that it is the measures which least depend upon the choices made by individual road users that, at least in the short term, stand the best chance of success in casualty reduction. That said, there are indications that, within the "direct approach" category, police enforcement activities may, if well directed, prove cost-effective in the reduction of casualties. The Review considers that this is an area which needs urgently to be explored in more detail.

17. The assessment based on the TRRL evaluations study also suggests that, although the effectiveness of other functions such as education and training remain unproven, it is reasonable to assume that these activities may make some contribution to casualty reductions over the coming years. It is impossible to provide definitive figures, but the tentative estimates in Annex 4 give a general indication.

What can be Achieved?

18. Assuming a background of stability, the Review believe that the vigorous application of known proven measures, together with the

smaller contribution made by unproven measures, could produce overall casualty reductions of around 6,000 per year, including a reduction in fatalities about 100 per year. On this basis casualties could be reduced by the end of the century to around two-thirds of their present level - that is, 220,000 casualties overall, including 4,000 fatalities. Further reductions beyond this are by no means impossible, but will depend upon the extent to which we can succeed in surmounting the constraints which are examined in Part III.

PART III : THE CONSTRAINTS

Introduction

1. In an ideal world the task of this Review would simply be to identify the problems requiring attention in the field of road safety, to select the approach (or combination of approaches) best suited to countering these problems and to recommend to Ministers that they proceed on this basis without further ado. In practice the situation does not admit of such a clear-cut analysis or such a straightforward prescription. Formulation of a policy to reduce road casualties has to take account of a range of factors which constrain both our understanding of the problem and our ability to take effective remedial action. Some of these factors are largely mechanistic. They include, to mention a few, the restrictions arising from international obligations (of particular relevance to vehicle safety measures); the autonomy of individual police forces; the discretion granted to local authorities (which severely limits the scope for central Government initiatives at local level - a key issue in respect of safety engineering); and, inevitably, limitations on available resources, a problem which affects virtually every authority and agency working in the field.

2. The existence of constraints such as these is generally accepted and their implications for road safety relatively well understood. But we are also up against more fundamental constraints - in some respects harder to pinpoint and certainly harder to accommodate - than those just mentioned. These hinge less on organisational or resource considerations than on limitations in knowledge, distortions in understanding, differing perceptions and, to a degree, outright prejudice. They appear to have their roots deep in both the psychological make-up of the individual and the values of society as a whole.

3. The Review has identified four particular constraints of this nature which must be confronted before we can formulate realistic policies for casualty reduction over the next decade. This must be done, firstly, in order that the opportunities for removing the

constraints are adequately exploited but, secondly, so that - to the extent that the constraints are not readily removable - their continued existence is properly taken into account in the preparation of detailed options.

4. The four constraints are:

(a) limitations in knowledge;
(b) society's indifference;
(c) individual values;
(d) misconceptions and prejudice.

(a) Limitations in Knowledge

5. It has emerged clearly from the work done by the Review that there are no new solutions to road safety problems simply waiting to be introduced. Progress in at least the short term will depend upon our ability to utilise, to the maximum possible extent, those well-established measures which have convincingly proved themselves as an effective aid to casualty reduction.

6. If we are to stand any chance of identifying new solutions for the longer term, we need research and experiment. The Review is in no doubt that road safety measures need to be fully developed and evaluated before they are implemented on a national basis. The effect of limited research resources in recent years has been to restrict the opportunities, firstly, for deepening our understanding of the factors involved in road accidents and of the solutions needed to deal with them; and, secondly, for undertaking an effective programme of trials and experiment (such as is at present taking place in the field of urban safety). We are particularly short of knowledge on the means of directly influencing human behaviour; on the relative accident liability of different types of road user; and on the complex interaction between mobility, traffic management, speed, accidents and casualties. We do not know anything like enough about public attitudes to road safety or about the means of influencing these attitudes.

7. The number of high-quality research institutions working in this field is small. It is an area which could attract good minds if they could see long-term possibilities. It is an area which might attract a limited amount of private sector money - from, for example, motoring interests, insurance companies and the media - and thus could offer both additional resources and a wider perspective including increased awareness of the road casualty problem outside the existing small number of specialised groupings.

(b) Society's Indifference

8. Although there is no shortage of individuals and organisations with an interest in the subject, as a society we do not seem to rank the reduction of road casualties high on the list of issues meriting public concern. This emerges clearly from a variety of significant indicators. For example, there has been no Government White Paper on road safety since 1967. Within the Department of Transport and other relevant Departments, the promotion of road safety does not easily make headway in the face of other objectives and competing claims on limited resources. The Commons debate on the general subject of road safety in November 1985 was the first such occasion for as long as anyone can remember. That debate, and indeed the Select Committee report which gave rise to it, appears to have made no impact outside the ranks of those immediately involved. Only a very small proportion of backbench MPs maintain an informed interest in the road casualty problem. The issue is consistently omitted from the election manifestos of the main political parties. Road safety officers and their departments come well down in the hierarchy of local government. The pressure groups concerned with road safety, although numerous, often lack the expert leadership, sophisticated organisation and clear understanding of the political process displayed by the most successful lobbying organisations. The subject receives scarcely any attention from industry or the trades unions.

9. Perhaps most tellingly of all, road safety has failed altogether to capture the imagination of the media as an issue of continuing national importance. The fact that road accidents are both frequent and yet widely-dispersed occurrences deprives them, except in rare instances, of any obvious news value. The national press, radio and television will provide ample coverage of isolated

incidents - such as a major coach crash or a motorway pile-up in fog - which offer plenty of drama. But they show no sustained interest in the reality of the casualty problem, to which pictures of vehicles strewn across a motorway have little relevance. Road safety is generally the preserve of motoring correspondents, and receives little attention from the journalists and leader-writers concerned with broader social, economic and political questions. The problem of road casualties is rarely, if ever, the subject of a major campaign in the popular press or a wide-ranging and searching analysis in the quality newspapers. Nor does it feature in the prestigious current affairs programmes on television and radio.

10. The inference is clear: the subject of road safety appears, by and large, not to be regarded within 'opinion forming' circles - politicians, political observers, the pressure groups, the media - as a particularly interesting or important one. This phenomenon appears, insofar as we have evidence, to be parallelled - whether as a cause or consequence is impossible to say - by a lack of sustained interest in road safety on the part of the public at large, or at any rate by the absence of any obvious manifestations of serious public concern about the issue.

11. There are a number of possible explanations for this. One factor is probably a genuine failure to understand the real nature and scale of the problem - a failure to appreciate, for example, that, in terms of risk to individuals, a serious accident on the road is something to fear far more than one in the air or on sea or the railways. A second factor is almost certainly the fact that the vast majority of individual road accidents make so little impact as items of news. This (together with the absence of any suggestion that the problem as a whole is getting worse - indeed anyone taking the trouble to look at the evidence finds that the reverse is the case) inevitably deprives the media of any incentive to become involved in the subject in a way which so often proves to be the catalyst for interest and concern over a wider front. A third factor may well be an attitude of sheer fatalism - a feeling that accidents on the road

are a long-standing and inescapable feature of a motorised society and that we have simply no alternative but to continue to put up with the problem.

12. Changing this climate of opinion presents a real challenge. Ultimate success probably depends above all else on stimulating greater interest in road safety within national political circles; local government; the relevant professions (medical, engineering etc); industry; the voluntary sector (including consumer groups); and, most important of all, the national media, on the grounds that these groups (each one encouraging the others) are most likely to influence the perceptions of society as a whole. There is no simple way of setting about this task. Regular and well-publicised involvement in road safety questions by senior Ministers might make some impact. Promoting the cause of road safety within a party political context could also help. So also might arousing the genuine interest of prominent figures outside Government - especially those with regular access to the media. Creation of a small task force of such individuals - charged not with the dissemination of particular messages but simply with seeking to elevate the status of road safety as an issue on the national agenda - might be a step in this direction.

13. A quite separate requirement is to look more closely at the attitude of the general public. It is a fair criticism that central government has done too little to establish how the promotion of road safety is seen by the broad mass of the population and what further action, if any, it would be prepared to support. Well-planned opinion surveys, regularly conducted, should go some way towards remedying this defect, as well as possibly having the desirable bonus effect of stirring up greater awareness of and interest in the subject generally. Such surveys should be supplemented by the diffusion of appropriate material to bring home to the public more clearly and systematically the scale of the problem and the main factors which influence it.

14. The criticism that Government knows too little of the mood of public opinion can equally be levelled at the disparate components of the road safety lobby. Whether they act out of genuine zeal and charity, as some clearly do, or to maintain the perceived interests of their members (as often relating to their liberty as to their safety), their general practice is more to advocate revealed truth than to establish and reflect what those in their field of interest genuinely believe and want. Much earlier and wider consultation by Government, together with a clear indication to the various representative bodies that the weight accorded to their views would take account of the degree of support they could convincingly demonstrate for them, could further help to provide clearer insights into public opinion on road safety matters than have hitherto been available.

(c) Individual Values

15. We now look at the attitude taken by individuals to their own personal safety on the road, which - although clearly linked to the societal question - raises rather different considerations. Statistically, the average motorist will be involved in an injury accident once every ½m miles or once every 35 years. As individuals, in our life time, we run a 1 in 10 chance of being killed or seriously injured in a road accident. Road accidents make up 40% of all accidental deaths.

16. It seems safe to assume that very few individuals are wholly indifferent to the prospect of involvement in a road accident. If asked, the vast majority of people would doubtless readily admit to a concern for their own safety (and that of their dependants) on the road. This concern is, to a degree, borne out by their actual behaviour. For example, most pedestrians (other than perhaps very small children) generally have enough sense of self-preservation to make some effort - if not always enough - to look for traffic before stepping into the road; similarly drivers negotiating a junction or roundabout.

17. While no-one wants to have a road accident, the crucial question is how much people are prepared to pay in order to avoid one. For road safety ultimately comes at a price. So far as the

individual road user is concerned, the price may be a purely financial one, as for example when a decision is taken to fit extra safety features on a vehicle or to opt for transport on four wheels, rather than the cheaper, but more dangerous, two. But more often the price takes the form of a sacrifice in respect of the road user's mobility. Such a sacrifice might involve, for the motorist, a restriction on his speed of travel, a less direct route, a longer wait at a junction or foregoing the use of his car when he consumes alcohol. For the pedestrian, it might mean walking further in order to use a safe crossing. For the motorcyclist, it might mean confinement to a machine of limited power until training is taken and a test passed. The sacrifice may be made voluntarily by the road user, or it may be imposed on him by law. But in either case the effect is the same - mobility is circumscribed in the interests of safety.

18. The individual road user therefore has to decide how far he is prepared to accept limitations in mobility in order to use the roads in safety. To the extent that the decision is not already made for him by legal requirements (assuming these are strictly complied with) and physical factors such as road layout, the balance which the individual strikes between safety and mobility will be heavily dependent upon his assessment of the accident risk he personally faces. There is a good deal of evidence to suggest that people's perception of risk is often wildly distorted. Many are likely to believe, for instance, that they are more likely to be involved in an accident on a motorway, rather than an urban road. And even where there is a general perception of risk, the individual may well be reluctant to relate it to his own situation - the 'accidents only happen to other people' outlook.

19. But unwillingness to recognise risk is unlikely to be the sole determinant of the individual's valuation of his safety. Most people, if pressed hard enough, would probably not only acknowledge that use of the roads carries with it the risk of accident but also take the view that the risk is one which, up to a certain point, simply has to be accepted as the price of mobility. Such a view has already been referred to as a possible factor underlying society's apathy towards road safety. At the individual level, it may well help to explain why, for example, people continue to put up with the

dangers of motorcycling (often brought home to them very clearly by involvement in a succession of accidents) for the sake of the mobility it confers; why motorists find it so hard to break the habit of drinking and driving; or why indeed they use motorways, notwithstanding their (misplaced) belief that these involve more danger than other, less convenient, roads.

20. Trying to establish individual attitudes in this way is a task of immense difficulty which underlines the need for systematic opinion research of the kind mentioned in the previous section. But it is indisputable that - whether it be because the risk of accident is simply dismissed or because it is accepted fatalistically as the price of mobility or, most likely, because of both factors in combination - there are plenty of situations in which individual road users appear to place an appreciably lower value on their safety than on their mobility.

21. The consequence is that road safety measures of any kind cannot be assumed to meet with ready acceptance from the public if they are perceived as involving a significant sacrifice in mobility. (The issue is of course viewed solely in terms of the road user's <u>own</u> mobility; people are generally happy to contemplate restrictions on <u>other</u> road users' mobility in the interests of safety.) This phenomenon can be observed in virtually every area of road safety activity: in the everyday behaviour of road users, whether on wheels or on foot; in their reluctance to heed safety advice; in their readiness to infringe existing laws in the absence of strict enforcement and in their suspicion of proposed new measures.

22. The significance of all this for the Review is that any new road safety initiative which involves restrictions on road users - and this can apply in some cases to physical restraints (for example in the road layout) as well as to legal measures - will give rise to major problems of public acceptability. Any attempt to impose drastic limitations on mobility in the interests of safety (for instance, closing or severely limiting the option of riding motorcycles; legal restrictions on pedestrians or cyclists; a substantial reduction in the vehicle speed limit) is, for the foreseeable future, almost certainly doomed to failure. More modest proposals may justify careful consideration but their acceptance by

the public is likely to depend on the creation in advance of a favourable climate of opinion - a process which may take many years, as in the case of seat belt wearing (a measure which, moreover, involved no substantive loss of mobility).

23. Government (central and local) can contribute to the mobility versus safety issue in two ways. Firstly, it can take every opportunity to place the dilemma squarely before the public in order to encourage debate on, and understanding of, the arguments involved and the choices available. (This will include an attempt to improve public perception of accident risk, though the chances of making much headway do not seem very promising.) Secondly, and more importantly, Government can seek to ensure that - notwithstanding any political pressures to the contrary - its own policies do not include an automatic weighting in favour of mobility at the expense of safety in situations where the two are in conflict. This will be of particular importance where the mobility interests of the motorised road user group are at odds with the safety interests of the vulnerable non-motorised groups ie cyclists and pedestrians.

(d) Misconceptions

24. Stimulating wider interest in road safety - whether among individuals or in society as a whole - presents a big challenge. But wider interest is ultimately of little value if it only leads to false perceptions of the problem and the solutions needed.

25. As matters stand now, genuine understanding about road accidents and the means of preventing them is in short supply. As we have seen, individual road users have erroneous beliefs as to the actual risks they face. On those occasions when the media takes up the cause of road safety, it is only to emphasise atypical problems and peripheral solutions. Substantive progress in accident prevention thus comes across as depending on such factors as more rigorous eyesight tests for motorists, or improving standards of motorway driving, rather than - as is overwhelming the reality - an effective solution to the problem of vulnerable road user casualties on urban roads. Similar assumptions are apparent in other fora of debate, including Parliament, and in the international field.

26. Such misunderstandings are regrettable but no doubt predictable among those who lack the opportunity or inclination to study the problem of road accidents in depth. Less expected, and much more disturbing, is the lack of clear-sightedness displayed by many of those actually working in the field of road safety. The sad fact is that false perceptions and half-truths - both as to the causes of accidents and the solutions available - are deeply entrenched within sections of the road safety world at both national and local level.

27. Thus one aspect of the difficulty which has been of particular concern to the Review is the widespread failure to recognise the clear distinction which underlies the analysis set out in Part II of this report, namely, that between those measures which are of proven cost-effectiveness in the reduction of casualties and those which are not. Thus there remains a deeply entrenched belief - clearly apparent within the road safety world no less than among laymen - that substantive progress in road safety must ultimately depend on programmes of road-user education, training and publicity, notwithstanding the fact that such measures have not, by any objective standard, so far proved themselves as effective aids to casualty reduction, and indeed may well never admit of such proof. By contrast, the very real results that can be achieved by other measures, particularly in the field of safety engineering, are not sufficiently well understood, even within local authorities, who are in the best position to judge.

28. The problem is no doubt in part one of genuine ignorance of the facts. Too much of the detailed information on accident causation and solutions is confined to research literature that is not readily understood by some of those working in road safety, let alone a wider audience. But there are almost certainly psychological and institutional factors at work too. For instance, programmes of education, training and publicity constitute a major element in the role of the local road safety officer as it has evolved over the years. Some such officers are inevitably reluctant to come to terms with the idea that the work they have traditionally done may be of uncertain value, and that some at least of the resources they use might be more beneficially employed in the area of safety engineering - still a local activity but one of which they themselves often have little experience. Similar attitudes are

sometimes evident within other bodies whose activities have likewise been traditionally weighted towards road safety education and training.

29. Education and training of road safety practitioners is clearly necessary if the road casualty problem is to be properly understood and misconceptions set aside. The full facts on the means of reducing casualties must be made better known to those working in the field and expertise exchanged between them much more readily than at present. In particular, boundaries within local government, between planners, engineers, educationalists and road safety officers, need to be broken down and a more integrated approach adopted.

30. It is up to central Government to take the lead in this process, by issuing information on its own account; by encouraging parallel initiatives in other organisations, such as the local authority associations, professional bodies and political parties (for the benefit of local councillors); and by setting a direct example in the cost-effective use of its own resources.

31. All this will take time. But the Review is in no doubt that, until at least those who work in road safety achieve a deeper understanding of the problem and the solutions needed, the scope for substantial reductions in casualties will remain strictly limited.

PART IV : THE PROGRAMME

1. In Parts I to III we have sought to get the broad measure of the road casualty problem with which we are faced; outline the range of approaches at present available to deal with that problem; and make clear the principal constraints which have to be taken into account in determining the choice of approach. It is against the background of this analysis that the Review has attempted to formulate an effective programme of road casualty reduction for the remainder of the century.

2. In the light of the TRRL assessment of the potential casualty-savings available from alternative measures (described in Part II), the Review would propose an overall objective for the casualty reduction programme as follows:

a. to reduce casualties to two-thirds of their current level by the end of the century, through the sustained application of existing measures (including newly-developed measures not yet fully applied);

b. to seek further reductions beyond those in a., by the identification of new measures and by the creation of a climate of opinion and understanding which is more sympathetic to the effective promotion of road safety.

3. The Review is clear that the key task for the programme must be the substantive reduction of casualties among vulnerable road users (ie pedestrians, cyclists, motorcyclists) occurring on roads in urban areas. The task will involve the adoption of policies which apply exclusively to the vulnerable groups themselves, those which apply exclusively to the less vulnerable groups (ie. motorists) and those which apply equally to all groups.

4. The Review considers that the key strategy to be pursued is the redirection of available resources towards measures - existing and potential, national and local - which are demonstrably cost-effective in terms of casualty reduction. The concept of cost-effectiveness in road safety, it must be emphasised, does not rest upon a supposition that saving money is more important than

saving lives. Rather, it is simply a matter of ensuring that the maximum number of casualty savings are achieved by deployment of the resources at our disposal.

5. The Review recommends that implementation of the programme should proceed along the following lines:

A Knowledge

Establish (with the support of non-government finance to the maximum possible extent) an increased and sustained level of research and development in the field of road safety, covering in particular,

- relative accident liability among different road user groups;

- the relationship between mobility, traffic management, speed and accidents;

- the means of directly influencing road user behaviour (with particular emphasis on young drivers and riders);

- effective measures to counter drinking and driving;

- public attitudes towards: (i) road safety as it affects the individual road user; and (ii) road safety as an issue for society;

- the cost-effectiveness of alternative measures, existing and potential, for reducing casualties.

B Climate of Opinion

(1) Seek to raise awareness of and the status of road safety as an issue of national importance, especially within political circles and the media;

(2) Encourage debate and better understanding of mobility versus safety issue and what it means for (i) the individual road user; (ii) society as a whole; (iii) transport and road safety practitioners, at both central and local levels;

(3) Provide better information to road safety practitioners (especially in local government) about available casualty saving measures and their relative cost-effectiveness.

C Central Government Policies

(1) Seek to reduce - within the limits of practical and political possibility - the level of central Government resources devoted to road safety functions that are not demonstrably cost-effective in casualty reduction, of which the most immediate example will be the running down of the Department of Transport paid advertising programme and other resource-consuming promotional activities.

(2) Take up opportunities for further progress in the vehicle safety field, especially pedestrian-friendly car fronts and safer motorcycles;

(3) Promote the cause of low-cost safety engineering in every way possible, but especially by:

a. implementing schemes on trunk roads and publicising the results;

b. continued information, demonstration, exhortation and possible financial incentives for local authorities in respect of local roads;

(4) Enhance the importance attached to casualty savings as against time-savings (ie safety before mobility) in setting priorities for the national roads programme.

6. This is the broad outline of the programme which the Review believes offers the best chance of achieving continued progress in casualty reduction over the next fifteen years or so. Within the

framework of this general approach the Review has identified a series of specific measures relating to individual aspects of road safety which it recommends to Ministers. These are summarised below.

SUMMARY OF RECOMMENDATIONS

1 : Road Safety Education in Schools

There is a need for an in-service teacher training and support scheme for road safety education. As a first step, a pilot project - jointly supervised by Education and Transport Departments - should be established in one or more local education authority areas with the aim of increasing general road safety consciousness within the education service, testing the feasibility of in-service training for teachers and monitoring the results in terms of the level and quality of teaching within schools.

2 : Road User Training

Pedestrians:

(i) Development of traffic club for children aged 3 to 5 should go forward, either on a national basis if private sector funding can be obtained, or - failing that - in the form of a more limited regional or local pilot project run in conjunction with local authorities.

(ii) Research should take place on the means of training children aged 10 to 12 in safe crossing behaviour.

Cyclists:

(iii) The complete Cycleway scheme should be relaunched by RoSPA in conjunction with the local education authorities, backed by active support from Education and Transport Departments.

Motorcyclists:

See under 12.

Car Drivers:

(iv) There is a need to encourage driving instructors to develop better training methods and improve the quality of instruction. The prime purpose would be to teach driving as a life skill, not merely

as a means of passing the driving test. This should lead to a higher driving test pass rate and more interest in voluntary advanced training, and could be a precursor to the introduction of a more rigorous test;

(v) The scope for providing driver and rider training in schools should be explored in the context of the education pilot project referred to under 1.

3 : Road Safety Publicity

The Department of Transport should, as quickly and as far as practical and political restraints allow, withdraw from its traditional programme of paid advertising, other than for the purpose of disseminating essential information to the public (for example, on legislative changes). In its place there should be wider-ranging promotional activities with the emphasis on increasing public awareness of road safety generally, rather than on specific aspects of road user behaviour. Such activities should be undertaken in close co-operation with the local authority associations, road safety bodies and the private sector and should be funded primarily from outside Government. Public funds released as a result of this change of approach should be directed towards the implementation of demonstrably cost-effective methods of casualty reduction and towards research on effective means of influencing road user behaviour.

4 : Driver Licensing and Testing

(i) The long-term behavioural research programme (see under 18) should include work to identify means of improving drivers' attitude and roadcraft skills and of assessing these through a testing regime.

(ii) Continued effort must be made - if possible in conjunction with the motoring organisations and insurance companies - to increase the take-up of advanced driver training and testing schemes.

5 : Vehicle Licensing and Testing

(i) There is a need to explore the scope for using insurance company data to identify vehicles (and drivers) with above-average accident risk, both to assist in the development of road safety policy and to help reduce insurance costs.

(ii) The vehicle inspection systems should continue to be reviewed regularly, in order to ensure that they remain broadly effective and efficient.

(iii) The effect and effectiveness of the police vehicle defect rectification scheme should be monitored.

6 : The Effect of Age, Ill-Health and Drugs

(i) Links between the Department of Transport's Medical Advisers and the medical profession should continue to be improved in an effort to persuade high risk groups such as people with epilepsy to declare their condition to the Licensing Centre.

(ii) The long term possibility of adopting an international standard of Snellen wallchart vision testing as a statutory appeal standard where people fail the numberplate test should be considered once the international standard has been agreed. The numberplate test should be retained as a statutory screening measure particularly because it can be carried out at the roadside without expense and enable drivers and riders to self-test their vision.

(iii) The scope for giving advice and assistance to elderly drivers should be explored.

(iv) The Police and the Courts should be encouraged to make the fullest appropriate use of their powers to refer drivers with possible medical, eyesight and age problems for medical assessment.

7: Drinking and Driving

Research:

(i) Identification of effective measures to counter drinking and driving should continue to have high priority in the Department of Transport research programme.

Legislation:

(ii) Though there is no case for any change in the immediate future, a close watch should be kept on the experience of those countries which have introduced a lower limit for young or inexperienced drivers with a view to considering at a later stage whether such a measure might be adopted in Britain.

(iii) The effect of behavioural rehabilitation programmes for drinking and driving offenders should continue to be studied. The general issue of penalties for offenders, including the use of such programmes, will need to be further considered in the light of the report by the Review of Road Traffic Law.

Publicity and education:

(iv) Publicity strategies on drinking and driving should be reviewed in the light of the new approach to publicity generally, recommended under 3.

(v) There should be continuing contact between appropriate bodies at national and local level with the aim of maximising the scope for integrating measures against drinking and driving with activities relating to other aspects of alcohol misuse.

8 : The Law

Proposals in this area must await the outcome of the Road Traffic Law Review.

9 : The Role of the Police

The value of traffic law enforcement as an aid to casualty reduction needs to be better understood. A Home Office research project to assess the effect of different levels of traffic policing on accidents and driver behaviour within one or more force areas will be a useful step in this direction.

10 : Vehicle Construction Standards

Cars:

(i) The voluntary use of rear seat belts and child restraints should be actively encouraged and effectively monitored. Mandatory use should be kept in mind as a possibility for at least the long term - and sooner - if the general climate of opinion and the extent of voluntary use favour it.

(ii) Continued attention should be given to the scope for improved car design, eg side impact protection and steering wheel improvements.

(iii) High priority should be given to the introduction of the pedestrian-friendly car front as quickly as possible.

Motorcycles:

(iv) The safety of motorcycles should be improved, in particular by the use of anti-lock brakes, daytime running lights, leg guards and air bags;

New Technology:

(v) The possible safety benefits to be derived from new technology - especially in-car advice, semi-automation of driving decisions and speed controls - should be kept under constant review.

11 : Highway Engineering

The National Roads Programme:

(i) There is a strong case on accident reduction grounds for a shift in emphasis away from time savings towards casualty savings. This could be achieved by ranking schemes in such a way that those with the highest casualty reduction are handled first and/or by changing the value attached to human life in the economic assessment of schemes (see also under 19).

(ii) There should be established a system of formal safety checks in Regional Offices to establish the need for remedial measures and to assess whether expected casualty reductions from improved design standards have in practice been achieved.

Local Roads:

(iii) The local authority associations should be invited to take part, jointly with Transport Departments, in a major study on the promotion of local safety engineering. This would cover the availability of data and the need for exchange of information and advice between authorities. It would also explore the scope for financial incentives for authorities and for a more effective local contribution to the task of increasing public awareness of the casualty problem and of the most effective means of tackling it.

(iv) There is a need for more information on the relationship between the mobility and the safety of all road users to provide the basis for longer term future policy and operational techniques for traffic management for safety.

Safety Engineering:

(v) There is an urgent need for greater awareness among councillors and senior officers of the value of low cost/high return engineering work and for a pool of trained staff with expertise in the field. Central Government should respond by devoting specific resources to safety engineering on its own roads, by using local authorities as agents, and by making the results widely available.

12 : Motorcyclists

(i) There must be a continuing effort to improve riding standards by identifying more effective inducements for learners to take formal training (including the option of compulsion) and by exploring the possibility of a more demanding L test.

(ii) The possibilities for improving the safety of the machine should be exploited to the full (see under 10).

(iii) The substantial contribution which highway safety engineering can make to the reduction of motorcycle casualties should not be over-looked.

13 : Cyclists

(i) Research should be undertaken to produce new advice on the negotiation of roundabouts by cyclists.

(ii) The Cycleway scheme should be relaunched (see under 2).

(iii) Further information should be offered to cyclists on the relative effectiveness of conspicuity aids.

(iv) The possibility of formally advising cyclists to wear helmets should be considered once a new standard for helmets is agreed and its effectiveness established.

14 : Pedestrians

The Pedestrian Environment:

(i) Pedestrians should be recognised as co-equal road users and taken into account at the earliest stages of road building and improvement and traffic management schemes. This is particularly significant in urban areas. Steps to achieve this objective include the following.

(ii) Research should be undertaken on ways of measuring pedestrian activity.

(iii) The scope for establishing a clearer distinction between distributor roads and residential streets should be actively explored.

(iv) There should be a major programme of experiments into the use of techniques for improving pedestrian mobility and safety, perhaps culminating in a pedestrian safety project on the lines of the current urban safety project.

(v) There should be a joint local authority/Transport Department manual of advice on pedestrian safety, with particular emphasis on the scope for planning and engineering solutions.

(vi) Public debate should be stimulated on the case for using road engineering to reduce vehicle speeds in residential areas and on routes to schools.

(vii) Research should be undertaken on the possibility of relaxing the criteria for the provision, and providing new advice on the siting, of additional crossing points, including both refuges and zebra and pelican crossings.

Pedestrian Training:

(viii) The possibility of an experiment in the use of pupil crossing patrols should be explored with local education and highway authorities.

(ix) New initiatives on child pedestrian training should go forward, in particular a traffic club and research on road crossing skills for ten to twelve year olds (see under 2).

(x) The scope for enhancing awareness of pedestrian needs in driver and rider training and testing should be actively explored.

Other Aspects:

(xi) Development of the pedestrian-friendly car front should be a top vehicle engineering priority.

(xii) There is a need for additional research on the factors in pedestrian accident causation, conspicuity and the role of drink and drugs.

15 : Central Government

The planning processes within all Government Departments with an interest in road safety should include specific objectives in respect of their contribution to casualty reduction.

16: Local Government

(i) A new circular should be issued advising local authorities on the effective discharge of their road safety responsibilities and giving clear guidance on the casualty saving benefits of alternative measures.

(ii) Discussions should take place with the local authority associations on expanding the role of the road safety officer associations, in particular by taking over a greater share of responsibility for national publicity activity. A more active role for the professional associations representing local authority engineers should also be explored with the local authority assocations.

17 : Other Organisations

Although Government has no direct role in the creation of an effective road safety lobby, it can help prepare the ground for such a lobby by stimulating public awareness of and debate on the casualty problem. Possibilities to be explored include public briefing on the facts by all Departments; encouragement of voluntary groups; encouragement of companies to take in accident prevention within their management interests; and persuading insurers to adopt approaches which more directly encourage good driving and discourage bad.

18 : Future Research

(i) Total resources available for road safety research should be increased by about 40% - to undertake an expanded programme of road user, vehicle and traffic safety research.

(ii) In addition, major projects should be undertaken in two fundamental areas: the role of human behaviour in accidents and the means of influencing or constraining it; and the means of successfully exploiting urban traffic management to minimise casualties.

19 : Economic Assessment and the Value of Life

(i) The value of life should be increased coincident with and by the same proportion as the planned increases in the value of time.

(ii) Once research has established the scale of long-term disability and its costs both direct and in terms of pain, grief and suffering, the values attached to the cost of serious injuries should be increased.

(iii) Over the next two/three years the value of life should be increased to reflect both the empirical evidence from Britain and the USA and the commitment to casualty reduction proposed in this Review.

ROAD SAFETY FUNCTIONS: MAIN ORGANISATIONS

1. The key functions and the main organisations responsible are as follows:

Education

1.	Road Safety Education in Schools	Local education authorities (DES, SED, WEO, DOE(NI))
2.	Road User Training	Driving Schools Voluntary Organisations Local authorities
3.	Road Safety Publicity	DTp, DOE(NI), SDD Local authorities Voluntary organisations

Enforcement

4.	Driver Licensing and Testing	DTp and DOE(NI) Licensing authorities
5.	Vehicle Licensing and Testing	DTp and DOE(NI) MoT garages
6.	The Effect of Age, Ill Health and Drugs	DTp, DHSS, SHHD
7.	Drinking and Driving	DTp, DHSS, SHHD, Home Office
8.	The Law	Individual Courts (Home Office, LCD, SHHD, SCA, NIO)
9.	The Role of the Police	Chief Constables (Home Office, SHHD, NIO)

Engineering

10. Vehicle Construction	DTp and DOE(NI) Vehicle manufacturers
11. Highway Engineering	DTp, SDD, WO and DOE(NI) Local authorities

Research

Road Safety Aspects	TRRL

EXPENDITURE ON FUNCTIONS RELATED TO REDUCING ROAD CASUALTIES

The Cost of Road Accidents

1. The total cost of road accidents is estimated annually by the Department of Transport. The cost of a road accident is made up of a number of elements. Some can be quantified: ambulance costs and hospital treatment; damage to vehicles and property; police and insurance administration. Lost output - a measure of the reduction in the value of production caused by death or injury - can be estimated. A notional sum, based on economic and political judgements is also included for the costs of pain, grief and suffering. It is important to cost accidents because the amount and distribution of expenditure on road safety depends, to some extent, on the value of savings in accident costs estimated to follow such expenditure.

2. The total cost of road accidents was estimated to be £2,820m in 1985. The average costs per casualty and per accident were:

Casualty	£
Fatal	180,330
Seriously injured	8,820
Slightly injured	200
Average, all severities	4,940

Accident	£
Fatal	201,410
Seriously injured	11,260
Slightly injured	1,500
All injuries	7,780
Damage only	620

The average cost of road accidents by severity and element of cost was:

	Fatal Accident	All Injury Accidents
Lost output	142,060	3,240
Medical and ambulance cost	1,140	570
Police and insurance administration	330	220
Damage to property	1,860	1,180
Pain, grief and suffering	56,030	2,570
TOTAL	201,410	7,780

The Cost of Road Accident Reduction

3. Any analysis of expenditure on functions related to reducing road casualties covers a range of very specific costs, eg the national rolling publicity campaign; through a range of estimated costs, eg the cost of road traffic policing; to general estimates of private sector expenditure on, eg driver training. The analysis below is designed to be broadly comprehensive. Some small items are excluded, eg expenditure in areas with peripheral involvement in road safety (eg administrative costs in Departments other than DTp or health or education authorities' expenditure on road safety). On the other hand, the total costs of some very large functions which serve road safety and other objectives are included, eg the road programme: if an assessment can be made of the apportionment attributable to road safety this is recorded separately.

4. Figures are in £m for 1986/87 for Great Britain unless otherwise shown.

5. Direct Public Expenditure

1. Transport Departments: Road Safety only

a. Publicity

- includes DTp rolling publicity programme and promotional work, grant to RoSPA 5.8

b. Research	
- includes road user safety, vehicle safety and safety component of highways research	6.0
2. Transport Departments: Road safety among other functions	
National roads programme (England only)	895
- includes AIP/small schemes work	(total)
- it is estimated that 10-15% of the benefits of trunk road building come from casualty reduction	
- £815m capital; £80m current	
3. Policing (England and Wales only)	
- it has been estimated that about 8-9% of Police manpower is concerned with traffic work	about 3,000 (total)
4. Courts (England and Wales only)	
- about 50% of cases coming before Magistrates Courts relate to road traffic offences	240 (total)
5. Local authorities	
a. Local roads programmes (England only)	
- it is estimated that 10-15% of the benefits of local road building comes from casualty reduction	1,648 (total)
- £533m capital; £ ,115m current	
b. Publicity (England only)	
- local authority (estimated)	(11)
- included in a. above	

6. Other safety functions met through private expenditure

1.	To meet DTp legislative requirements	
	a. Driver testing - includes driving examiners for motor-cycles, cars, HGVs and PSVs	36
	b. Vehicle testing - includes vehicle examiners for HGVs and PSVs and supervision of MoT tests - includes MoT test costs (£20m)	40
	c. Driver licensing	22
	d. Vehicle registration and licensing - insurance and MoT checks are estimated to cost about £4m - personal costs of motor insurance	90 2,200
	e. Vehicle type approval	2
2.	Incidental to other activities, eg safety components in vehicle purchase	N/K
3.	Voluntary driving instruction	60-120
	- assuming between 5 and 10 lessons at £8 a lesson for $1^1/_3$ motorists a year	

CASUALTY REDUCTION POTENTIAL OF RECOMMENDATIONS

1. The figures below provide a broad overview of the likely casualty reduction potential of the recommendations in the Review. They assume that, despite continuing growth in traffic, existing activities in the field of road safety will be sufficient to ensure - as they have broadly over the past 10 years - that casualty levels are held at around the 300,000 to 350,000 mark. They also assume no significant changes in transport mode or unforeseen external changes, eg. oil crises, breakthroughs in technology.

2. For some functions (eg. motorcycle safety engineering) fairly accurate figures of casualty savings can be assessed. For some (eg. road engineering) figures will depend on the progress which is made in changing priorities between schemes offering time savings and casualty savings. For some (eg. traffic policing) results should be measurable after research. For others (eg. education) results are speculative and probably unmeasurable. To some extent, individual measures are competing for the same casualty savings. The overall benefit will therefore be less than the sum of the individual reductions. Underlying all the figures is a recognition that progress will depend as much on attitudes within the public and private sector and among individuals as on specific changes: one reinforces the other.

3. The base year is the average of the past 5 years: forecasts are for the year 2000.

FUNCTIONAL CHANGE	EXPECTED % CASUALTY REDUCTION BY 2000
A. Measurable Casualty Reduction	Estimate
Vehicle construction standards	
- car secondary safety	15% of car occupant casualties
- pedestrian friendly car front	10% of pedestrian casualties
	2-3% of motorcycle/cycle casualties
- motorcycle primary safety	10% of motorcycle casualties
- motorcycle secondary safety	10% of motorcycle casualties
Increase in highway schemes with casualty savings as primary objective	
- change in emphasis in national and local roads programmes	5%
- increase in low cost/high return engineering	5-8%
B. Possible Casualty Reductions	Tentative Estimate
1. Subject to research/development	
Road safety teaching	? 1%
Road safety training	
Drinking and driving	? 1%
Policing	? 1%
2. Subject to changing awareness	
Road safety promotion	? 1%
Attitudes to Driving	? 1%
Use of insurance company data and interests	? 1%
	Overall benefit up to 33%

1981 - 1985 Average annual total casualties
321,912

2000 Projected total casualties
220,000