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# Institute of Advanced Motorists

Social Impact Evaluation using Social Return on Investment



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## Institute of Advanced Motorists Chief Executive's Foreword

Through our advanced driving courses, commercial driver training and influential policy and research, the IAM saves lives.

While we can never put a value on the emotional cost of accidents, this report does give us a clear and robust assessment of the financial value of our work. It shows the impact that we have on road safety and gives us a firm platform on which to build.

The IAM contributes over £128 million to the UK every year.

The advanced test, driver training and support from our members contributes £39 million. More than 4,000 test passes this year will save more than £4 million in avoided collisions and reduced motoring costs. This is a tribute to the tremendous dedication of our groups and volunteers who are responsible for so much of this work.

Our corporate driver training reaches more than 19,000 professional drivers and riders, making them safer and helping businesses meet their health and safety obligations, contributing £35 million to the economy.

Our research team carries out vital work. Their work, from influencing road and vehicle design to analysing driver behaviour and psychology, is put into context in this report. They increase awareness of road safety issues among road users and key decision-makers, resulting in savings last year of more than £54 million.

In the future we will continue to increase the numbers of drivers and riders who take the advanced test and concentrate on improving skills for younger drivers. We will build our membership and continue to keep them up-to-date with best practice. With one in three crashes involving commercial drivers it is vital that we build IAM Drive & Survive as the UK's number one provider of commercial driver training. And our policy and research division will continue at the centre of road safety policy, providing stakeholders with vital information to enable decision-making on road safety.

This report shows that our efforts to improve motoring skills and increase awareness of road safety issues make a significant difference. The IAM is an organisation with a £6 million income and a £128 million impact.

To our members, and in particular those local volunteers who play such a vital role in delivering the advanced motoring courses and tests, I would like to take this opportunity to thank you for your loyal support, but also to encourage you to continue that support in future: it really is worth it.

Simon Best

Chief Executive

The Institute of Advanced Motorists

## Institute of Advanced Motorists Introductory Comments from Jim Clifford

The Institute of Advanced Motorists (“IAM”) is one of a number of high quality and forward-thinking Third Sector organisations that is taking seriously the need to explain its social impact: what it is doing for the Big Society.

The results of this work are striking, not only because of the significance of the value that the IAM achieves for society, but also for the human consequences of the IAM’s work: improving the safety of drivers through the advanced test, corporate driver training and the use of research to influence policy is saving lives.

This study shows that the IAM achieves Social Impact of over £128m each year, set against turnover of £6.5m per annum. This leads the reader to enquire further: ‘what is the IAM doing that it achieves so much?’ Such enquiry highlights the varied activities undertaken by the IAM, but also highlights that this is only a partial evaluation of the wider gains from its activities. These wider gains (New Philanthropy Capital describe several of these as “social wellbeing”) are nonetheless of significant value and should not be disregarded for their not being attributed financial measures in this study.

Following the work by new economics foundation over the past decade, and latterly the Scottish Enterprise-sponsored work, the Social Return on Investment methodology was published in a Cabinet Office paper in 2009. Leading commentators and researchers, including nef, New Philanthropy Capital, SROI Network, and ourselves together with Cass Business School recognise that, although there are some wrinkles to be ironed out, this is a practical and workable solution to demonstrating social impact. With such a need to focus on this during times of cuts in public funding, and increased social pressures, this is needed now more than ever. It is rightly described by NPC in their April 2010 position statement as “an incredibly useful tool.”

The methodology used in this research project, and indeed the majority of similar projects we are undertaking, is Action Research, also known as Action Science. This allows the organisation to be supported by the researcher in learning about itself. In this context, it gathers quality information, from those that best understand it, building in relevant, validated third party data, and giving the organisation the knowledge to be able to embed it in its performance monitoring systems: all in one go. The theory of change as the SROI methodology terms it, firmly embedded in feedback from third parties, is allowed to emerge through this process too. As a whole, it works, and delivers results cost-effectively.

SROI can become a process-driven exercise in which the answer emerges as a function of the process. It can also suffer from the use of financial proxies that have a poor correlation with the outcomes they attempt to measure, or are based on over-enthusiastic assumptions, and a lack of robustness in linking outcomes to the activities in which they originate. It can also be presented as a series of spreadsheets, unfathomable to many readers. This is not the case here. The evaluations have been developed with real thought, care and prudence, and are soundly based on validated underlying data, with conservative assumptions where such are necessary. They are presented clearly and as a readable document. It fairly represents the very valuable contribution of the IAM to individual members and the wider UK economy in the fields evaluated.

This is a carefully-constructed, conservative, informed and exciting piece of work that adds to our understanding of social impact. I look forward to it both informing the ongoing development of the SROI methodology, and becoming the foundation for more focussed development of the IAM’s mission.

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**Jim Clifford** is Head of Non Profit Advisory Services, and Chairs the Public Sector Group at Baker Tilly. He was the lead author of the Social Impact protocol for Sector Skills Councils, published in 2010, as well as the study of Domestic Adoption and Fostering at PACT that has been so widely referenced in the developing policy debate in that field. He is undertaking research into evaluative protocols for transactional decision making (linking Social Impact with conventional valuation and brand valuation) with Professors Palmer and Bruce at Cass Business School’s Centre for Charity Effectiveness, where he is a Visiting Fellow. He has recently been appointed as a director of the Centre for Public Scrutiny.

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# Definitions of Terms

The following definitions apply throughout this document, unless the context requires, otherwise:

Term	Definition
<b>ABS</b>	Anti-lock Braking System
<b>DCF</b>	Discounted Cash Flow
<b>DFT</b>	Department for Transport
<b>DSA</b>	Driving Standards Agency
<b>DVLA</b>	Driver and Vehicle Licensing Agency
<b>GDP</b>	Gross Domestic Product
<b>IAM</b>	The Institute of Advanced Motorists
<b>KSI rate</b>	The number of motorists Killed or Seriously Injured
<b>RTC</b>	Road Traffic Collision
<b>SROI</b>	Social Return on Investment

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# 1. Executive Summary and Key Findings

## Background to this report

- 1.1 The Institute of Advanced Motorists (“IAM”) is a leading road safety charity in the UK. Its objects are:
  - ▶ To improve the standards of driving (and riding) on the roads;
  - ▶ The improvement and promotion of road safety; and
  - ▶ The administration of a nationally recognised advanced test.
- 1.2 The IAM’s advanced driving test was launched in 1956 and an advanced riding test for motorcyclists was introduced in 1976. The skills taught and tested have been constantly updated since inception to take account of the ever-changing face of the UK’s roads and vehicle technologies. The IAM’s advanced driving and riding tests are quality assured by the Driving Standards Agency (“DSA”).
- 1.3 Over 200 local IAM groups exist across the UK, with volunteers delivering the support and training to drivers and riders seeking to pass the advanced test, making the test available and achievable for anyone who has an interest in improving their driving or riding skills. The test is delivered by a further 300 volunteer examiners.
- 1.4 The IAM has over 100,000 subscribing members in the UK and overseas, with over 400,000 successful test passes achieved since inception. It is conservatively estimated that some 200,000 drivers and riders are currently on the UK’s roads having achieved an advanced test pass.
- 1.5 Research into road safety issues is a key feature of the IAM’s work to promote road safety. This work affects not only those drivers/riders who seek to improve their own skills through undertaking training, but also the ‘average’ driver/rider who benefits from the impact that IAM research has on local policies, such as the specific risks and issues associated with, to name a few recent examples: rural roads, young drivers, roadside furniture and older drivers. The IAM’s annual Motoring Facts reports are a vital ‘one-stop’ source of road safety information for key stakeholders.
- 1.6 In October 2010, the IAM won a Prince Michael International Road Safety Award for the contribution its research has made to road safety improvements.
- 1.7 The IAM offers corporate driver and rider training for companies whose workforce is regularly on the road and, therefore, at greater risk. IAM Drive & Survive Limited was voted ‘Driver Training Company of the Year’ at the GreenFleet Awards 2010, a clear endorsement of the value it adds to clients through improving awareness and perception among corporate drivers and riders. The IAM’s training in this area typically falls into the following categories:
  - ▶ Risk assessments: to highlight drivers and riders in the workforce who regularly find themselves in high risk environments;
  - ▶ E-Learning: a package of training delivered via a computer system designed to increase driver awareness and perception of safety and risk issues for those drivers not exposed to high risk environments; and
  - ▶ On road training: for those drivers and riders most frequently exposed to high risk environments, on road instruction is available to support them in dealing with situations in a practical context.

## The context of road safety

- 1.8 Road safety in the UK has seen clear improvements in the last twenty years: the result of the introduction of government targets during the 1980’s and work done by various road safety organisations, including

the IAM, to support the achievement of them. Since 1970, road traffic has more than doubled, but road deaths have fallen by around two-thirds. Some key recent indicators of safety improvements include:

- ▶ Over 31,000 lives have been saved since 1990, saving the UK economy around £50 billion. Further targeted reductions could save around 2,500 lives between 2010 and 2020, saving the economy around £4 billion.
- ▶ The UK has moved up to number one in the world league table of safest roads (compared to sixth in 2007), with a death rate half that observed in Austria, Belgium, Portugal and Luxembourg.
- ▶ In the last ten years, UK deaths on motorways have fallen by 35%, deaths on urban roads have fallen by 30% and deaths on rural roads have fallen by 40%.

1.9 However, despite these clear improvements, the annual cost to the economy of all deaths and injuries remains significant at around £13 billion (i.e. around 1% of GDP), with damage-only accidents costing a further £5 billion. It has been estimated that, on average, the economic damage caused by a fatal Road Traffic Collision (“RTC”) amounts to nearly £1.8m and that the damage from a serious injury amounts to over £200k. There still remains much work for road safety organisations such as the IAM to do.

1.10 The IAM’s recent research report, *Contributory factors in accidents*, used Stats 19 data to highlight the fact that the majority of RTCs are the result of human error or inexperience<sup>A</sup>. The most commonly reported contributory factors are “failed to look properly” (38% of RTCs), “failed to judge other person’s path or speed (20% of RTCs) and “careless, reckless or in a hurry” (15% of RTCs), all of which show poor skills on the part of a driver/rider as a key contributory factor. Improvements in road and vehicle safety play a part in reducing the frequency of RTCs, but at the heart of achieving an improvement in road safety must be a drive to ensure improvements in the standard of driving and riding, which fits with the IAM’s key focus.

## Areas of work included in this evaluation

1.11 The purpose of this report is to evaluate the benefits to key stakeholder groups of the key activities undertaken by the IAM, including:

- ▶ The IAM’s influence on road safety through research and communications;
- ▶ The advanced driver and rider training and test (including the activities of IAM local groups); and
- ▶ Corporate driver and rider training.

1.12 For the purposes of this evaluation, we have focused on the following key outcomes of the above areas of the IAM’s work, which are discussed in detail throughout the body of this report:

- ▶ Reduction in the number of RTCs;
- ▶ Reduction in the severity of RTCs; and
- ▶ Reduction in the costs of motoring.

1.13 There may also be some environmental saving due to the application of advanced driving techniques, in that a reduction in fuel consumption and the more sparing use of tyres and brakes (which should be possible for any driver/rider who has received IAM training) results in a reduction in the amount of carbon emissions and a reduction in the depletion of fossil fuel resources. However, for the purposes of this evaluation, it was felt that this may result in a delay to the usage of such resources rather than avoiding it completely. This was felt to be an unknown quantity in that it is not clear, and many other factors may influence, how long such a delay might be achieved for. Hence, this outcome is noted but not evaluated in this report.

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<sup>A</sup>Department for Transport (2010), Reported Road Casualties Great Britain 2009, London, Department for Transport



## Approach to this project

- 1.14 An SROI Project Team of IAM staff was convened, including representatives of each area of work, using Action Research (see Appendix A) as a methodology for gathering and testing data and assumptions.
- 1.15 This report includes:
- ▶ An overview of social impact and other key methodologies used in this work;
  - ▶ An analysis of the activities and outcomes of the above activities;
  - ▶ An overview of how those outcomes may be measured using financial proxies;
  - ▶ An overview of the results of the evaluation; and
  - ▶ A detailed presentation of the models and assumptions used in the evaluation.
- 1.16 To the greatest extent possible, Baker Tilly has obtained evidence to support inputs and assumptions used in evaluation models. Where no evidence was available, the IAM has used assumptions that they believe to be reasonable as inputs to the model and Baker Tilly has reviewed and challenged those assumptions during the course of the research.
- 1.17 Members of the IAM action research group have reviewed the contents of this report and the models and have agreed that, to the best of their knowledge and belief, the assumptions used for the purposes of this report are accurate and/or reasonable for the purposes of this SROI Project.

## Results of the evaluations

- 1.18 In this exercise, a smaller number of key assumptions have been identified. Representatives from each area of activity have been worked with to develop a prudent result at a high level. It has been considered important to present a prudent analysis rather than one which is overly complicated and risks overstatement.
- 1.19 Detailed models and commentary thereon are included as Appendix B to this report. The overall findings by area of work are summarised below:

Summary	Evaluated benefits (£'000)
Economic impact of IAM advanced training and test and local groups	39,376
Economic impact of corporate driver training	34,960
Economic impact of influence on road safety through research and communications	54,437
<b>Total evaluated economic impact</b>	<b>128,773</b>

- 1.20 This evaluation therefore does not extend to specific funded areas of work other than those identified in §1.11. The IAM believes that the evaluated services represent the vast majority of its activities.
- 1.21 These benefits take reasonable account of the key areas of deduction required in SROI evaluations (three standard areas plus risk, which is also needed). These are:
- ▶ Deadweight - gains that would have happened anyway;

- ▶ Alternative attribution - where part of the gain is more reasonably attributable to a partner or third party; and
  - ▶ Displacement - where the gain is tempered by a lesser dis-benefit.
- 1.22 Based on the SROI Project scope and the specific areas of the IAM's activities / services provided, the table above highlights that the IAM areas of work evaluated in this report generate benefits of some £128.8m per annum. Of particular interest is the gains attributable to IAM local groups in the training they deliver to achieve test passes. This equates to between £862 and £999 per test pass over the assumed five year half-life of the training (see p.63).
- 1.23 The IAM's total turnover for the year ended 31 March 2011 was £6.5 million. On this basis, the impact of the benefits evaluated exceeds its total annual funding by at least £122 million.
- 1.24 In common with most SROI evaluations, it is not practicable or cost-effective to evaluate every aspect of the effect of the areas of work. This relates often to the wider well-being and less proximate benefits from the IAM's work. Hence the areas of work shown above may not reflect full evaluations of benefits including:
- ▶ Gains achieved by pre-existing test passes of less than five years standing (these gains would be attributed to prior years using this methodology);
  - ▶ The value of environmental savings arising from reduced carbon emissions due to improved driving/riding techniques. Vehicle usage and the nature of the vehicle used is a matter of personal choice for the driver/rider which will influence the extent of any saving achieved; hence it was not felt to be appropriate to seek to measure a saving in this way;
  - ▶ Improvements to vehicle safety and design as a result of the IAM's contribution to road safety research;
  - ▶ The positive effects of training delivered to test candidates who did not pass the advanced test;
  - ▶ Positive effects on the insurance industry such as lower claim rates and payout values;
  - ▶ The IAM's impact on the shelf-life of licence acquisition training;
  - ▶ Influence of advanced drivers/riders on the skills of others; and
  - ▶ The brand value of the IAM, which is a vital membership promotion tool.
- 1.25 Where specific evidence exists, the action research team have sought to evaluate these benefits as noted in the report. However, many of these outcomes which could be considered as attributable to the IAM were perceived to be either too remote or subject to uncertainties to be evaluated reliably and as such have not been included.
- 1.26 As this evaluation does not seek to measure the value of the further benefits listed at §1.24, the value of these outcomes would be incremental to the value shown above. Hence the evaluations shown above are lower than the full value of the outcomes potentially generated by the IAM.

## Conclusions from the evaluations

- 1.27 In the words of New Philanthropy Capital in their recent positioning statement on SROI, it is an "incredibly useful tool." This is apparent here as a significant financial value, based on sound and researched third party data, emerges, even with only part of the specifically funded work being evaluated.
- 1.28 The totals shown above of £128.8 million per annum of economic and social gain set against around 5% of total funding. They provide a fascinating insight into the wider social impact of improved standards of driver/rider training and road safety, and draw the reader into wanting to know how it is done: what is the IAM doing that it achieves so much?

1.29 That enquiry not only tells us more about its activities, but also highlights that this is only a partial evaluation of the wider gains from the IAM's work. These wider gains (New Philanthropy Capital describe several of these as "social wellbeing") are nonetheless of significant social value and should not be disregarded for their lacking financial measures.

## 2. Introduction

### The context of road safety

- 2.1 Road safety in the UK has seen clear improvements in the last twenty years: the result of targets by government and work done by various road safety organisations, including the IAM, to support the achievement of them. Since 1970 road traffic has more than doubled, but road deaths have fallen by around two-thirds. Some key recent indicators of safety improvements include:
- ▶ Over 31,000 lives have been saved since 1990, saving the UK economy around £50 billion. Further targeted reductions could save around 2,500 lives between 2010 and 2020, saving the economy around £4 billion.
  - ▶ The UK has moved up to number one in the world league table of safest roads (compared to sixth in 2007), with a death rate half that observed in Austria, Belgium, Portugal and Luxembourg.
  - ▶ In the last ten years, deaths on UK motorways have fallen by 35%, deaths on urban roads have fallen by 30% and deaths on rural roads have fallen by 40%.
- 2.2 It has been estimated that, on average, the economic damage caused by a fatal Road Traffic Collision (“RTC”) amounts to nearly £1.8m and that the damage from a serious injury amounts to over £200k. Despite the clear improvements in road safety shown above, the annual cost to the economy of all deaths and injuries remains significant at around £13 billion (i.e. around 1% of GDP), with damage-only accidents estimated to cost a further £5 billion. There still remains much work for road safety organisations such as the IAM to do.
- 2.3 Stats 19<sup>B</sup> data indicates that the majority of RTCs are the result of human error or inexperience. The most commonly reported contributing factors are “failed to look properly” (38% of RTCs), “failed to judge other person’s path or speed (20% of RTCs) and “careless, reckless or in a hurry” (15% of RTCs), all of which show poor skills on the part of a driver/rider as a key contributory factor. Improvements in road and vehicle safety play a part in reducing the frequency of RTCs, but at the heart of achieving an improvement in road safety must be a drive to ensure improvements in the standard of driving and riding, which fits with the IAM’s key focus.

### Reliance on data from Stats 19

- 2.4 In this study, we have used data from Stats 19. This is highly regarded, ‘industry standard’ data used by road safety organisations. It is gathered by the police when attending an RTC. Its quality as a measure of the number of deaths and injuries is felt to be as good as is possible. The data summarised above on contributory factors to RTCs is the subject of a judgement by the investigating officer. Whilst there may be a risk that this gives a subjective view, this is felt to be modest given that the officer’s judgement is based on some investigation of the facts surrounding the incident. For the purposes of this study, the use of Stats 19 primarily relates to outcomes data (i.e. death or injury), which can be objectively observed. The Stats 19 evidence on contributory factors to RTCs is used to show the extent to which driver/rider error is a contributing factor: it does not rely on the specific contributory factors assigned to RTCs as a basis for evaluation.

### Overview of the IAM

- 2.5 The Institute of Advanced Motorists (“IAM”) is a leading road safety charity in the UK. Its objects are:
- ▶ To improve the standards of driving and riding on the roads;
  - ▶ The improvement and promotion of road safety; and

<sup>B</sup> Department for Transport, Scottish Government and Welsh Assembly (2010), ‘Reported Road Casualties Great Britain, London, the Stationery Office

- ▶ The administration of a nationally recognised advanced test.
- 2.6 The IAM advanced driving test was launched in 1956 and an advanced riding test for motorcyclists was introduced in 1976. The skills taught and tested have been constantly updated since inception to take account of the ever-changing face of the UK's roads and vehicle technologies. The IAM's advanced driving and riding tests are quality assured by the Driving Standards Agency ("DSA"). By improving the awareness of drivers and riders of hazards and risk and teaching best practice techniques, the IAM reduces the likelihood that a trained driver/rider will put themselves into a position of danger as a result of an error or omission.
- 2.7 Over 200 local IAM groups exist across the UK, with volunteers delivering the support and training to drivers and riders seeking to pass the advanced test and more than 300 volunteer examiners make the test available and achievable for anyone who has an interest in improving their driving or riding skills.
- 2.8 The IAM has over 100,000 full and associate subscribing members in the UK and overseas, with over 400,000 successful test passes achieved since inception. It is conservatively estimated that some 200,000 drivers and riders are currently on the UK's roads having achieved an advanced test pass.
- 2.9 Research into road safety issues is a key feature of the IAM's work to promote road safety. This work affects not only those drivers seeking to improve their own skills through undertaking training, but also the 'average' driver who benefits from the impact that IAM research has on local policies, such as the specific risks and issues associated with, to name a few recent examples: rural roads, young drivers, roadside furniture and older drivers. The IAM's annual Motoring Facts reports are a vital 'one-stop' source of road safety information for key stakeholders.
- 2.10 In October 2010, The IAM won a Prince Michael International Road Safety Award for the contribution its research has made to road safety improvements. The IAM also offers corporate driver and rider training for companies whose workforce is regularly on the road and, therefore, at greater risk. IAM Drive & Survive Limited (an IAM subsidiary company) was voted 'Driver Training Company of the Year' at the GreenFleet Awards 2010, a clear endorsement of the value that it adds to clients through improving awareness and perception among corporate drivers and riders. The IAM's training in this area typically falls into the following categories:
- ▶ Risk assessments: to highlight drivers and riders in the workforce that regularly find themselves in high risk environments;
  - ▶ E-Learning: a package of training delivered via a computer system designed to increase driver awareness and perception of safety and risk issues for those drivers not exposed to high risk environments; and
  - ▶ On road training: for those drivers and riders most frequently exposed to high risk environments, on road instruction is available to support them in dealing with situations in a practical context.
- 2.11 The key aim of the IAM's work is to achieve an improvement in road safety through better standards of driving and riding among the individuals they influence and for the wider population through improving awareness of road safety issues. We set out below how the IAM's activities may lead to road safety improvements for several groups of beneficiary:
- ▶ The IAM can improve the safety of all road users through its work to promote safety and risk awareness, helping any road user to hit a 'base line' standard of road safety.
  - ▶ The IAM's research and campaigns inform and influence the strategic direction of local and national policy on road safety. A good example of this is the IAM's work on rural roads, which has led to a shift in Government focus towards the areas in which the majority of fatalities occur. The IAM's communications team has achieved substantial press coverage for the issue of rural roads based on this research, which has served to raise awareness of this issue among the wider motoring public. This work therefore contributes towards ongoing improvements in road safety.

- ▶ The IAM supports drivers/riders who wish to undertake further training to achieve 'best practice' driving standards, thereby increasing their safety on the road, as well of those around them.
- ▶ The IAM's consistency in maintaining the standard of the advanced driving and riding test, against the background of changes in technology and traffic conditions affecting the driver/rider, ensures that the 'best practice' standard is maintained in line with such changes.

2.12 By helping drivers/riders to meet the basic and best practice standards of driving, and then continually working to raise expectations, the IAM contributes, along with other agencies, to the improvements in road safety that have been observed in statistics gathered between 2007 and 2009 (see above). The evidence of historical improvement is clear (§2.1). The challenge the IAM sets itself is to continue to drive improvements in road safety for the future.

2.13 The table below shows data from Stats 19<sup>C</sup> on the most frequently cited contributory factors (clearly, any RTC has more than one contributory factor, hence the total percentage does not sum to 100%):

Contributory factor reported in RTC	2009: number of RTCs for which the contributory factor was cited	2009 % of RTCs
Failed to look properly	48,313	38%
Failed to judge other person's path or speed	26,176	20%
Careless, reckless or in a hurry	19,265	15%
Loss of control	19,190	15%
Poor turn or manoeuvre	17,402	14%
Slippery road (due to weather)	14,382	11%
Pedestrian failed to look properly	12,084	9%
Travelling too fast for conditions	11,479	9%
Sudden braking	9,740	8%
Following too close	8,315	6%
<b>Memo: total RTCs</b>		<b>128,185</b>

2.14 Arguably, with the exception of 'pedestrian failed to look properly', each of the above is within the control of the driver/rider and the IAM's training seeks to persuade drivers that even the pedestrian who fails to look properly is something they should be able to manage safely. Hence it seems reasonable to conclude that almost all RTCs arise because of a lack of risk awareness and skill or poor awareness of the safe limits of the vehicle in light of the road conditions. The IAM's driver/rider training:

- ▶ improves skills such as observation and maintaining proper following distance behind other vehicles;
- ▶ teaches car control and awareness of driving techniques in hazardous conditions;
- ▶ supports journey planning techniques including allowing sufficient time to complete a journey safely and planning for the road conditions that will be encountered;
- ▶ teaches forward planning and awareness of other road users to mitigate the risk of an unexpected hazard occurring (such as the vehicle in front braking suddenly); and
- ▶ develops skills and attitudes in deciding how to deal with risk situations.

2.15 Detailed commentary on the nature of the IAM's driver/rider training is provided later in this report.

<sup>C</sup> Department for Transport, Scottish Government and Welsh Assembly (2010), 'Reported Road Casualties Great Britain, London, the Stationery Office



- 2.16 By addressing the above (amongst other) issues, the IAM's teaching significantly reduces the risk that an advanced driver/rider will be susceptible to the most common contributory factors to RTCs and is, therefore, likely to result in a significantly lower KSI rate among advanced test passes.

## Scope and purpose of this report

- 2.17 Baker Tilly has been engaged by the IAM to support it in investigating the social impact of activities relating to three areas of work. The areas selected for study, which are considered to be representative of the spread and depth of the IAM's activities, are:

- ▶ Local IAM groups and the advanced driver and rider training and test;
- ▶ Corporate driver and rider training; and
- ▶ Influence on road safety through research and communications.

- 2.18 This project has been undertaken with an SROI Project team of IAM staff, including representatives of each of the three areas of work, using Action Research (see Appendix A) as a methodology for gathering and testing data and assumptions. Action research has been used as it:

- a. Enables the research to stay close to the data;
- b. Enables the theory – that is the answer to the research – to emerge from the data as it is gathered;
- c. Promotes a cyclical revisiting of the data through the research process which promotes internal validity and triangulation of the results: that is the data gathered and the conclusions drawn are better tested;
- d. Through encouraging the organisation itself to learn from the process of the research, its staff are better able to embed the results and benefit from them in developing future strategy: the work can be more useful.

- 2.19 This report includes:

- ▶ An overview of social impact and other methodologies used in this work;
- ▶ An analysis of the activities and outcomes of the above programmes and centres;
- ▶ An overview of how those outcomes may be measured using financial proxies;
- ▶ An overview of the results of the evaluation; and
- ▶ A detailed presentation of the models and assumptions used in the evaluation.

## Reliance on work by the IAM

- 2.20 During the course of the work, information and explanations from the IAM have been relied upon, including:

- ▶ The nature, outcomes and beneficiaries of their activities; and
- ▶ The assumptions used in evaluating the impact of their services.

- 2.21 Where possible, assumptions from the IAM have been validated based on independent data or data extracted from the IAM's management information systems. Nevertheless, the IAM is responsible for

making the assumptions used in this report and has confirmed that they are, to the best of their knowledge and belief, accurate and reasonable.

### **Aim of this report**

- 2.22 The aim of this report is to evaluate the economic benefits generated by the services set out above, and, where possible, to provide guidance on the use of these models and results to measure the social impact of the IAM's remaining activities.

# 3. Concepts and methodologies used

## Social Return on Investment (SROI)

- 3.1 The SROI methodology has been developed in order to help organisations to “...[measure and quantify] the benefits they are generating” (per Lawlor, Neizert & Nicholls writing in the SROI guide, 2008). This approach was piloted in the UK through the Measuring What Matters programme during 2002 and has evolved since then as further work has been done to develop the framework around it.
- 3.2 It is increasingly being seen as an “incredibly useful tool”<sup>D</sup> by a number of organisations and key commentators within the Third and Public sectors in the push to measure and evaluate social impact.
- 3.3 There are three ‘bottom line’ aspects of social return:
- ▶ *Economic*: the financial and other effects on the economy, either macro or micro;
  - ▶ *Social*: the effects on individuals’ or communities’ lives that affect their relationships with each other; and
  - ▶ *Environmental*: the effects on the physical environment, both short and long term.
- 3.4 Our primary focus has been on economic and social benefits, rather than environmental benefits, as any environmental benefits generated would appear, for the IAM, to be too far removed from the intended purpose of the original services provided and appear to be too difficult to measure reliably.
- 3.5 We have considered, wherever relevant, potential savings to the cost of motoring, including items such as fuel and tyres, which may be used more sparingly if advanced driving techniques are used. In these cases we have measured the cost saving for the driver/rider but have not sought to evaluate the further impact on the environment due to the saving of resources, as to do so would be to assume that the usage of the resources in question would be avoided altogether. It is regrettably likely that the use of these materials is delayed rather than avoided, and as such a similar amount of environmental damage would arise, but over a longer timescale: any value of this delay is excluded for prudence.
- 3.6 Where environmental benefits arise from the work of the IAM, the nature of the benefit has been noted and recorded as an unmeasured additional benefit.
- 3.7 The benefits of using SROI include:
- ▶ *Accountability*: organisations are able to give both the numbers and the story that supports them;
  - ▶ *Planning*: SROI provides a change management tool to assist in the direction of resources towards the most effective services and to assess the viability of potential additional services;
  - ▶ *Cost and time effectiveness*: the measures produce an analysis of the most cost and time effective activities; and
  - ▶ *Simplicity*: impacts can be reduced to a simple comparison of the cost of funding the IAM and the benefits that flow from its core activities to facilitate analysis and give a clear indicator of types and ranges of success.
- 3.8 SROI takes total measurable outcomes, discounted to present value where the benefits occur in the future or are recurring over a period of time, and deducts:

<sup>D</sup> Copps, J. and Heady, L. 2010. *Social Return on Investment: Position Paper, April 2010*. London. NPC. From [www.philanthrocapital.org](http://www.philanthrocapital.org)

- ▶ *Deadweight*: Outcomes that would have occurred regardless of the intervention;
- ▶ *Alternative attribution*: Outcomes that arise as a result of intervention by others; and
- ▶ *Displacement*: Outcomes that are negated or compromised by disadvantages arising elsewhere either in terms of social, economic or environmental damage.

3.9 A review of academic work and practical examples of SROI in use by the Third Sector suggests that the measures fall into three patterns, which have been used in this work:

- a. *Economic benefit created*: where there is an impact on earning capacity or productivity;
- b. *Costs saved or not wasted*: where the intervention results in a saving, either in the cost of another intervention or in a consequential cost (e.g. introducing prevention to save on the cost of a cure). This may be seen in either removing the need for or increasing the effectiveness of an alternative intervention; and
- c. *Alternative or cheaper sourcing*: where one intervention directly replaces another more expensive one.

3.10 In identifying these benefits, a key underlying requirement is to consider not only the positive contribution that the IAM makes, but also the economic damage that is avoided by its activities. Much of our report involves the quantification of the damage to stakeholders that would result if the IAM did not exist. By avoiding this damage, the IAM contributes to the economy just as meaningfully as where the effect is an incremental benefit.

## The case for political support for SROI

3.11 Further support for SROI's adoption by the third sector has been seen in the recent report 'Outcome-Based Government', published by the Centre for Social Justice ("CSJ")<sup>E</sup>. This report considers the need to link funding of interventions with the expected outcomes (and their associated value). It suggests that funding should be focused on those interventions that are likely to achieve the highest value outcome: "Improving life outcomes should be the ultimate goal of a government's social policy: if policy makers can better identify failing initiatives, and shift spending toward programmes that effectively deliver sustainable, long-term outcomes, the social and financial returns to society and the public sector will be very great indeed."

3.12 CSJ strongly advocates a shift towards evidence-based government, in which funding decisions are based on clear, high quality evidence of impact value, with SROI cited as a "more rigorous approach to performance management while attempting to capture the social and environmental impacts of public spending."

3.13 The rationale for adopting SROI may be applied equally strongly to donors, who may rightly expect charities such as the IAM to demonstrate that their support is delivering real value to society.

## Addressing issues concerning the use of SROI

3.14 Overall, it is felt that SROI is a vital tool to provide the Third Sector with a means to evaluate its wider contribution to Society. However, there are several issues to consider when applying this, that are worthy of mention:

<sup>E</sup> Brien, S., 2011, Outcome-Based Government, London, Centre for Social Justice

- a. SROI, as it is typically presented, tends to ignore the risks associated with the benefits generated. In the course of our work with the IAM, the SROI group members were encouraged to consider the achievable benefit created, and to build in reductions to assumptions to account for risks, where necessary;
- b. A robust SROI analysis must consider the proximity of the benefit created to the actions of the organisation that is seeking to claim ownership of that benefit. The working group members were encouraged to focus only on outcomes that are directly attributable to their activities and, where necessary, obtain evidence of the link between the outcome and the IAM's activities;
- c. SROI is typically presented as a ratio of the value of the benefits achieved per pound spent to achieve those benefits. This may be useful internally to each organisation as a measure of performance relative to prior periods. However, the use of this ratio to compare organisations is inherently flawed due to sector and organisation-specific factors that reduce the level of comparability between organisations. Hence, the results of this report are not presented in the form of a ratio;
- d. There is a danger that organisations seeking to evaluate their impact using SROI may create calculations that are extremely granular to the extent that they become open to accusations of 'spurious accuracy'. In this exercise, a smaller number of key assumptions have been identified and worked with the working group members to develop a prudent result at a high level. It is considered important to present a more defensible, prudent analysis than one which is overly complicated and risks overstatement; and
- e. SROI does not take account of the interrelationship of Social Impact and brand value. By creating greater Social Impact, the recognition and perceived quality of an organisation's brand is likely to improve, thus increasing the value of that brand. In turn an entity with a stronger brand may use that to enhance the social impact of its work. Of note is that the IAM believes that it has a strong, well-recognised brand that gives it enhanced credibility in the road safety arena. This brand value is believed to augment its ability to deliver positive outcomes.

## Research methodologies

- 3.15 We have worked with an SROI Project team from the IAM to carry out an Action Research process (see Appendix A). In this a meeting with the SROI Project team was held to determine the key services that the relevant areas of the IAM's work provide, the outcomes of these services and the beneficiaries. Three further meetings were held, interspersed with the SROI Project team testing out the conclusions from each interview by practical application in their work, then reporting the results back to the next meeting.
- 3.16 Based on this research, the SROI Project team was consulted on potential means of evaluating the impact of these services by substituting financial measures (proxies) for the outcomes described. Data and assumptions provided by staff at the IAM have been relied upon in our analysis; Baker Tilly have acted to facilitate the IAM's understanding of the methodologies used to evaluate the impact but Baker Tilly are not responsible for the assumptions used in the evaluations shown in this report.

## 4. Overview of evaluated activities

### Understanding the services

- 4.1 For the purposes of this report, it was not set out to evaluate the impact of all IAM activities. Rather, our focus has been on the key areas of work and outcomes that the IAM believes to be representative of the majority of its work.
- 4.2 This evaluation therefore does not extend to specific areas of work other than those listed earlier in this report.
- 4.3 For each area of work, discussions were held with the IAM around:
- a. The nature of the service(s) provided;
  - b. The identification of the direct and indirect beneficiaries;
  - c. The nature of the benefits derived from the service;
  - d. Where relevant, the identification of other agencies or companies that could provide a similar service; and
  - e. The likely cost of providing equivalent services through alternative sources.
- 4.4 This discussion was developed to consider how financial measures can be substituted into the place of service outcomes, so that they can be measured. The results of this discussion are shown below for each area of work.

### Overview of evaluated services

#### Research and communications

- 4.5 The IAM research team reviews and provides commentary on key issues around road safety. A full list of reports published since 2007 is included as Appendix E to this report to highlight the wide range of issues on which the IAM has reported.
- 4.6 Typically, the reports that the IAM produces are based on public statistics sources such as the Stats 19 Road Traffic Collision ("RTC") statistics. The IAM's reports add value to the statistical sources to which they refer by:
- ▶ Reviewing the data in new ways to identify trends and key themes; and
  - ▶ Providing interpretation on these trends and themes and offering recommendations and potential solutions to deliver improvements.
- 4.7 A recent example of the IAM's contribution to road safety may be seen from the work done around the risks for young and newly qualified drivers and on rural roads. The rural roads work is a clear example of influence by the IAM on road safety: its work, showing that rural roads account for a significant proportion of all road fatalities in the UK, has influenced a shift in Government focus towards rural roads as a key area for improvement. The IAM communications team's work to publicise this work through press coverage may have raised awareness of the wider motoring population and influenced their behaviour on rural roads given the increased risks that they pose.



- 4.8 The IAM also produces the annual 'Motoring Facts' report, which is regarded by the road safety 'industry' and other key stakeholders such as journalists as a 'one-stop' source of information.
- 4.9 Reports published by the IAM are well-publicised, making it a well known voice on road safety issues. As a result, the IAM's staff are frequently called upon by media organisations to provide advice on issues such as winter driving and car care.
- 4.10 The argument that the IAM has significant influence beyond its membership base is supported by the presentation in October 2010 of a Prince Michael International Road Safety Award in recognition of the "vital" work the IAM's research team has done to provide evidence to road users and decision makers, thereby contributing to the improvements in road safety in the UK observed since 2007.
- 4.11 Rather than basing an assumption on the extent of the IAM's influence on a specific number of motorists (which might risk appearing to be spuriously accurate), the IAM has assumed that its influence has equated to 2.5% of the overall improvement in road safety from 2007 to 2009. The IAM believes this to be a conservative view of its work, given the warmth of the reception its work has been given by policy makers and the extent of the coverage it has achieved in national media for these issues. The IAM's ongoing presence in the road safety arena has built up the profile of a 'centre of excellence' to which media sources frequently refer for advice and comment. This profile leads to significant influence over a wide proportion of the motoring population who see, hear or read advice from the IAM, based on issues raised in the IAM's research and analysis work. On this basis, the claim that such a minority of the improvement achieved is attributable to the IAM appears to be reasonable and, indeed, prudent.
- 4.12 Recent road safety changes that fit with issues identified by the IAM are suggestive of the influence of its research work. These include the adoption of bike-friendly motorway crash barriers (which may partly be due to the IAM's work on roadside furniture) and the shift in Government focus on road safety towards addressing the issue of rural roads (influenced by the IAM's findings). The IAM's campaigning and lobbying activities to encourage a culture of continuous learning among drivers and riders appears to be contributing to a shift in Government road safety strategy, based on recent announcements.

Area of work	Overview	Outcomes
Research reports	<p>The IAM analyses publicly available data in new ways to identify key themes and trends and produces reports that include recommendations to drive forward improvements.</p> <p>The IAM's staff are a recognised source of advice on road safety in motoring and other media, allowing the benefit of research to reach beyond the readership of its reports. This is evidenced by the fact that journalists regularly contact the IAM for commentary on road safety issues.</p>	<ul style="list-style-type: none"> <li>▶ The IAM's reports are presented to Government agencies and are, therefore, accessed by policy makers. The IAM believes its reports are, therefore, an influencing factor on strategic decision-making by those charged with delivering improvements in road safety. Funding for road safety improvement can, therefore, be directed to areas of greatest risk where it is most needed.</li> <li>▶ Reports highlight key risks for drivers/riders such as rural roads, leading to increased awareness of risk and improvements in the standard of basic driver/rider training in these areas.</li> <li>▶ Advice provided through media content to drivers/riders may help to increase awareness of key risks and improve the standard of the response to those risks.</li> <li>▶ Provides data and analysis that informs the IAM's other areas of work.</li> </ul>

## Corporate driver/rider training

4.13 The IAM provides a driver/rider training service to corporate clients whose workforce is regularly on the road for their jobs. It has long been acknowledged that motorists engaged in the course of business are at greater risk of involvement in an RTC than other motorists<sup>F</sup>. By addressing issues faced by this high-risk group, the IAM is making a significant contribution to improving road safety for all road users. The corporate training service typically covers any or all of the following areas (depending on the needs and risk profile of the individual candidate):

- ▶ **Driver/rider risk assessments:** a driver/rider will complete an analysis of key indicators of risk including the types of road they are using and times of day they are driving. The immediate impact of the risk assessment is twofold: first the driver/rider may become more aware of the risks they are faced with, and second the assessment may indicate a need for further training to combat these risks. The majority of candidates for other forms of training will have completed the risk assessment first;
- ▶ **E-Learning:** for many drivers the computer-based training package provided by the IAM provides a grounding in identifying and managing risk situations that they regularly encounter; and
- ▶ **On road training:** for those drivers/riders whose risk profile shows the greatest exposure, an on road session with an IAM trainer is provided to support other training. The session combines a driver/rider assessment with training on day-to-day advanced driving techniques and approaches to managing key risk situations.

4.14 IAM corporate clients regularly give feedback that improvements have been achieved, typically seen in a reduction in the incident rate among their drivers/riders. For many clients, this has led to a reduction in their insurance premiums and has the potential to reduce other costs of motoring, such as fuel and tyre consumption.

4.15 Corporate driver/rider training raises standards above the standard of an average motorist, as it builds on the training already received for licence acquisition, but it does not necessarily reach the standard of an

<sup>F</sup> Broughton, J., Baughan, C., Pearce, L., Smith, L. & Buckle, G. (2003), London, Transport Research Laboratory

advanced test pass. Corporate training may increase awareness of the benefits of advanced driving and encourage corporate drivers and riders to progress to take the advanced test.

Area of work	Overview	Outcomes
Corporate driver/rider training	A suite of driver/rider training products is provided based on a risk assessment, with the intention of improving day-to-day driving standards and the awareness of and response to risk situations.	<ul style="list-style-type: none"> <li>▶ A reduction has been observed by many clients in the frequency and severity of RTCs among their drivers/riders. As a result of a reduction in the frequency of incidents, clients frequently see a reduction in their insurance premiums. One substantial client (which self-insures) observed a 50% reduction in the value of insurance payouts, which it attributes to the use of the IAM's corporate training.</li> <li>▶ There is also potential to achieve savings in day-to-day motoring costs such as fuel consumption and tyre wear (albeit this is not necessarily a focus of all driver/rider training products).</li> </ul>

## The advanced test and local groups

- 4.16 Since 1956, the IAM has offered advanced driver tests with advanced rider tests for motorcyclists introduced in 1976. Training ahead of the advanced driver tests was introduced in 1959-60. The training is delivered by local volunteer 'observers' who are members of a local IAM group (the impact of local groups is included in this evaluation - see later).
- 4.17 Unlike other forms of training, the IAM's advanced test is voluntary and is, therefore, believed to result in higher knowledge retention rates following completion than compulsory training. This is because IAM members are more likely to be motivated to maintain standards, given that it was their personal initiative to undertake training to improve their driving. The advanced test pass enables drivers and riders to reach the best practice standard of driving. The IAM's ongoing work to update the skills training to ensure standards are maintained against the backdrop of vehicle technology changes and increasingly challenging conditions on the roads ensures that advanced drivers are equipped with the skills they need to achieve this standard. Dissemination of updates to existing members via regular magazines, local group meetings, skills days and member conferences ensures that all members are able to adapt to the latest best practice changes.
- 4.18 Driver/rider training consists of a series of observed sessions delivered using the trainee's own car/bike and designed to highlight areas for improvement in their technique, to improve their awareness of risk situations and to develop their skills and attitudes in deciding how to deal with them. The driver/rider training was originally based on the police driver's manual ('Roadcraft'), but the IAM now publishes its own, more accessible, manuals "*How to be a better driver*" and "*How to be a better rider*". Following the course of training, the advanced test is booked and conducted by an examiner (always a police-trained advanced driver/rider). An advanced test pass entitles the trainee to become a member of the IAM nationally (thereby benefitting savings by using the IAM's member insurance policy) and locally by joining a volunteer group.
- 4.19 Observers are required to pass a test to qualify as an observer and are regularly re-tested. Informal feedback from observers suggests that they are required to maintain the highest possible standards of driving, as trainees may (rightly) ask them to demonstrate techniques they are describing. Certainly, the

issues involved in driving are more frequently pushed to the forefront of their thinking by the observing activity. Given that the majority of RTCs are attributed to driver/rider error (§2.13), the higher the standard of driving, the lower the likelihood of making such errors; observers may, therefore, be less likely to be involved in an RTC than other advanced drivers/riders. It is also likely that an observer would be better able to maximise the potential motoring cost savings open to them due to their advanced driving skills.

- 4.20 To date, the IAM has trained around 400,000 drivers and riders, of whom around 200,000 are assumed to be active on the road (the remainder are assumed to be no longer driving/riding). Of these, some 6,100 are active members of their local groups (either as committee members or observers), with the remainder subscribing annually but choosing not to take an active role.
- 4.21 The influence of the IAM may, however, be broader still, in that advanced test passes represent a driver/rider who has chosen to adopt best practice, but also is likely to influence the driving practices of those around them. In particular, it is likely that a parent with an advanced test pass will pass on some of these techniques to their children when they learn to drive. This wider influence is clearly of value, but has been excluded from the evaluation of the advanced test as it appears to be too far removed from the work of the IAM to quantify meaningfully using SROI at this juncture.
- 4.22 For the purposes of evaluating the benefits of the advanced test, we have used the number of advanced test passes in 2010 as the basis for the annual number of beneficiaries to evaluate. The ongoing benefits from previous tranches of advanced test passes are evaluated and taken into account in part in the work on IAM local groups (see later).

Area of work	Overview	Outcomes
The advanced test	Drivers and riders undergo voluntary tuition provided by local volunteer observers and take the advanced test, which entitles them to IAM membership. Some receive this training through their employers.	<ul style="list-style-type: none"> <li>▶ Driving standards, risk and hazard awareness and emergency responses are improved among advanced test passes, thereby reducing the frequency and severity of RTCs;</li> <li>▶ By applying advanced driving techniques to everyday driving, advanced test passes may be able to achieve motoring cost savings (albeit it is anticipated that this may be eroded over time as some drivers/riders may re-develop bad habits).</li> </ul>

- 4.23 The IAM's network of local groups (many of which are independent charities that have opted to be part of the network) provides several key functions:
- ▶ It encourages local participation in the promotion of road safety. In particular, it gives a local voice to the findings of the IAM's national research. As is apparent from the regular reports to the IAM of its local groups' activities, group members may often be found contributing to road safety debates or may be consulted as experts by local highways departments;
  - ▶ Observers who deliver the advanced driver/rider training are members of local groups. Without their involvement, the IAM would need to co-ordinate a national observer network itself; and
  - ▶ The local group provides a social activity for members, with the opportunity to meet regularly with like-minded drivers/riders.

- 4.24 Local groups represent the ongoing membership of the IAM. As a member of the IAM, the driver/rider clearly shows an interest in adopting advanced driving techniques. For some, this will result in a reduction in the cost of motoring, but for all the risk avoidance techniques they have been taught are likely to reduce the likelihood or impact of being involved in an RTC. Local groups also provide an opportunity to ensure that advanced test passes are kept up to date with changes in best practice, particularly in light of changes in vehicle technology. For example, the emergency braking techniques taught before cars had an Anti-lock Braking System (“ABS”) are very different from the techniques now taught. The opportunity to ensure that updates are disseminated to members ensures the long-term value of the IAM’s work.
- 4.25 As a member, a driver/rider demonstrates their level of interest in maintaining good standards and is more likely to do so being regularly in contact with like-minded others. In particular, for those drivers/riders who become observers, there is an additional incentive to maintain best practice, as a candidate may legitimately ask the observer to demonstrate a technique in practice.

Area of work	Overview	Outcomes
Ongoing membership	Members have received tuition and show an ongoing interest in adopting best practice, therefore being more likely to achieve a reduction in their incident rate and a reduction in the costs of motoring.	<ul style="list-style-type: none"> <li>▶ Reduction in the likelihood or severity of being involved in an RTC due to improved risk and hazard awareness and emergency responses.</li> <li>▶ Potential reduction in the cost of motoring, due to the application of advanced driving techniques that may reduce fuel consumption and tyre and brake wear.</li> </ul>
Local involvement	Local groups may be involved in influencing local road safety decision-making to bring about improvements to specific locations or stretches of road. In some cases, this may be related to research done by the IAM nationally.	<ul style="list-style-type: none"> <li>▶ Reduction in the likelihood or severity of RTCs in the local area: this is taken to be included within the national improvements observed to avoid double counting (see later).</li> </ul>

## Summary of outcomes measured

- 4.26 For the purposes of this evaluation, we have considered four key outcomes of the IAM’s activities:
- ▶ *A reduction in the number of RTCs:* given that the majority of RTCs are attributed (at least in part) to driver/rider error (see earlier), it is felt to be reasonable to assume (supported by evidence from insurers) that improved driver/rider skills will result in improved forward planning and anticipation of dangerous situations, increasing the likelihood that an RTC will be avoided altogether;
  - ▶ *A reduction in the severity of RTCs:* given that the majority of RTCs are attributed (at least in part) to driver/rider error (see earlier), it is felt reasonable to assume that improved driver/rider skills will result in mitigation of the severity of an RTC;
  - ▶ *Less costly motoring:* advanced driver/rider training includes techniques that will minimise costs arising from fuel consumption, tyre wear and brake wear (amongst others). It is assumed that the advanced driver/rider training provided by the IAM will allow drivers/riders to access savings to the average cost of motoring. Furthermore, an advanced test pass demonstrates a higher level of skill compared to the average driver/rider and may, therefore, result in a saving on motor insurance; and
  - ▶ *Less environmental damage:* the above noted cost reductions arise from more sparing use of oil-derived resources including fuel and tyres. This may be seen as delivering an environmental saving, though we have not measured this in financial terms, given the likelihood that the use of the resources in question is delayed rather than avoided altogether.

## Mapping driver/rider training to outcomes achieved

4.27 The extent to which these are achieved is assumed to be related to the nature of training received. A driver/rider who has passed the IAM's advanced test is assumed to be more likely to achieve these outcomes and for a longer period than training received by a corporate driver/rider. This is because:

- ▶ An IAM test pass undertook the process voluntarily and paid for tuition. This demonstrates an interest in improving their standard of motoring for the longer term; and
- ▶ A corporate driver/rider is, to some extent, compelled to undertake training. They are, therefore, assumed to have a lower level of interest in maintaining a long term improvement in their skills, giving this training a relatively short 'shelf life' unless refresher courses are delivered.

Primary outcome	Secondary (long term) outcome	Beneficiary
Driver/rider receives training and adapts their approach to driving in line with the skills and techniques that they have been taught.	Advanced driver/rider achieves a reduction to running costs including fuel, tyres and brakes. Advanced driver/rider passes skills on to others including their children, who go on to achieve similar savings (not measured). Advanced driver/rider less likely to be involved in an RTC, thereby reducing costs to the state of treating injuries and of police investigation. A loss of personal productivity relating to those involved in fatal or severe RTCs is avoided <sup>6</sup> .	Advanced driver/rider – cost savings Other drivers/riders influenced by the advanced driver/rider – cost savings  Advanced driver/rider – avoid injury/death Other drivers/riders that would otherwise be involved in an RTC – avoid injury/death The State – avoid costs of RTC Employers – avoid loss of productivity
Advanced driver/rider applies training to mitigate the seriousness of an RTC.	Costs of treatment for injuries received during the RTC are reduced in line with the reduction in severity. A long term loss of productivity may be converted to a short term (or no) loss of productivity due to the reduction in severity of injuries received.	Advanced driver/rider – reduce severity of injuries Other drivers/riders that would otherwise be involved in an RTC – reduced severity of injuries The State – reduced treatment costs Employers – avoid loss of productivity

## Mapping research to outcomes achieved

4.28 The IAM's research work improves awareness of key risks to drivers/riders by providing analysis of and insight on data gathered by the Police and other agencies. This serves several functions:

- ▶ Raise awareness of specific safety issues among strategic policy makers who receive the IAM's reports;
- ▶ Raise awareness in the media of safety issues, leading to advice and comment in the press which raises awareness among drivers/riders; and

<sup>6</sup>Reported Road Casualties Great Britain (2009) defines the outcome of an RTC according to the most severe outcome, but factors the impact on other road users involved in the RTC. For 2009, the figures used for a fatal accident include 1.08 fatalities, 0.33 serious injuries and 0.48 slight casualties (in line with the average outcomes of a fatal RTC). Therefore, the value the report attributes to a fatal RTC (£1.8m) is greater than the value of a single fatality (£1.6m). For the purposes of this report, we have taken the value attributed to the RTC as a whole in order to reflect the wider outcomes on all road users rather than only a single driver/rider. Detail on the basis for the calculation of these numbers is available from Department for Transport, Scottish Government and Welsh Assembly (2010), 'Reported Road Casualties Great Britain, London, the Stationery Office (at section 2).



- ▶ The IAM follows up its research with involvement in creating solutions to the issues it has identified.

4.29 The improvement in road safety between 2007 and 2009 noted above (§2.1) is the result of the work of many agencies that have identified, commented on and sought to implement solutions to road safety issues. The IAM's involvement in raising awareness and identifying solutions may be summarised:

Primary outcome	Secondary (long term) outcome	Beneficiary
Road safety policy makers receive copies of the IAM's research reports, giving them fresh insight into safety issues.	Policies to improve road safety are, to some extent, informed by the work of the IAM (along with other safety organisations), leading to a reduction in the number and severity of RTCs.	The State – reduced costs of RTCs Drivers/riders – road safety improvements reduce the risk of death or injury Employers – fewer and less severe RTCs reduce the risk of lost productivity
Journalists and media use the IAM's work as a basis for coverage that raises awareness of safety issues among drivers/riders.	Drivers/riders may become more aware of specific risk areas (e.g. rural roads), and may modify their behaviour to account for that risk, reducing the number and severity of RTCs.	The State – reduced costs of RTCs Drivers/riders – road safety improvements reduce the risk of death or injury Employers – fewer and less severe RTCs reduce the risk of lost productivity Journalists – access material upon which to base their coverage

## 5. Summary of evaluation approaches

- 5.1 Section 4 provides an overview of the outcomes of the areas of work to be evaluated. In conjunction with the working group, it was considered how these outcomes may be measured using the evaluation approaches discussed above in section 3.
- 5.2 In section 2 (§2.13) we highlight the most frequently cited contributory factors to RTCs and note that the vast majority of these are within the control of the driver/rider (i.e. the RTC is a result of driver/rider error or omission). The IAM's training (both corporate and the advanced test) is intended to increase a driver/rider's ability to identify and respond appropriately to risk situations so that they do not place themselves in a position of potential danger. Both corporate and advanced driver/rider training packages support journey planning, including the importance of allowing sufficient time to complete the journey and ensuring that the vehicle is in good condition for the journey, thereby reducing the risk of a mechanical failure contributing to an RTC.
- 5.3 The IAM's research serves to increase awareness at a strategic planning level of key risk areas and has contributed, for example, to changes to roadside furniture and improvements in awareness of key risk areas such as rural roads. The road safety strategies in place in the UK have led to a significant improvement in the number and severity of RTCs. The IAM's contribution to this improvement is, rightly, recognised in this evaluation report.
- 5.4 From the above, it is clear that the outcomes generated fall into four broad categories, subject to minor variations in the nature of specific assumptions for each area of work. These categories are:
- ▶ Economic damage avoided by reducing the number of RTCs;
  - ▶ Economic damage avoided by reducing the severity of RTCs;
  - ▶ Reduction in the cost of motoring; and
  - ▶ Reduction in the value of insurance payouts due to RTCs.

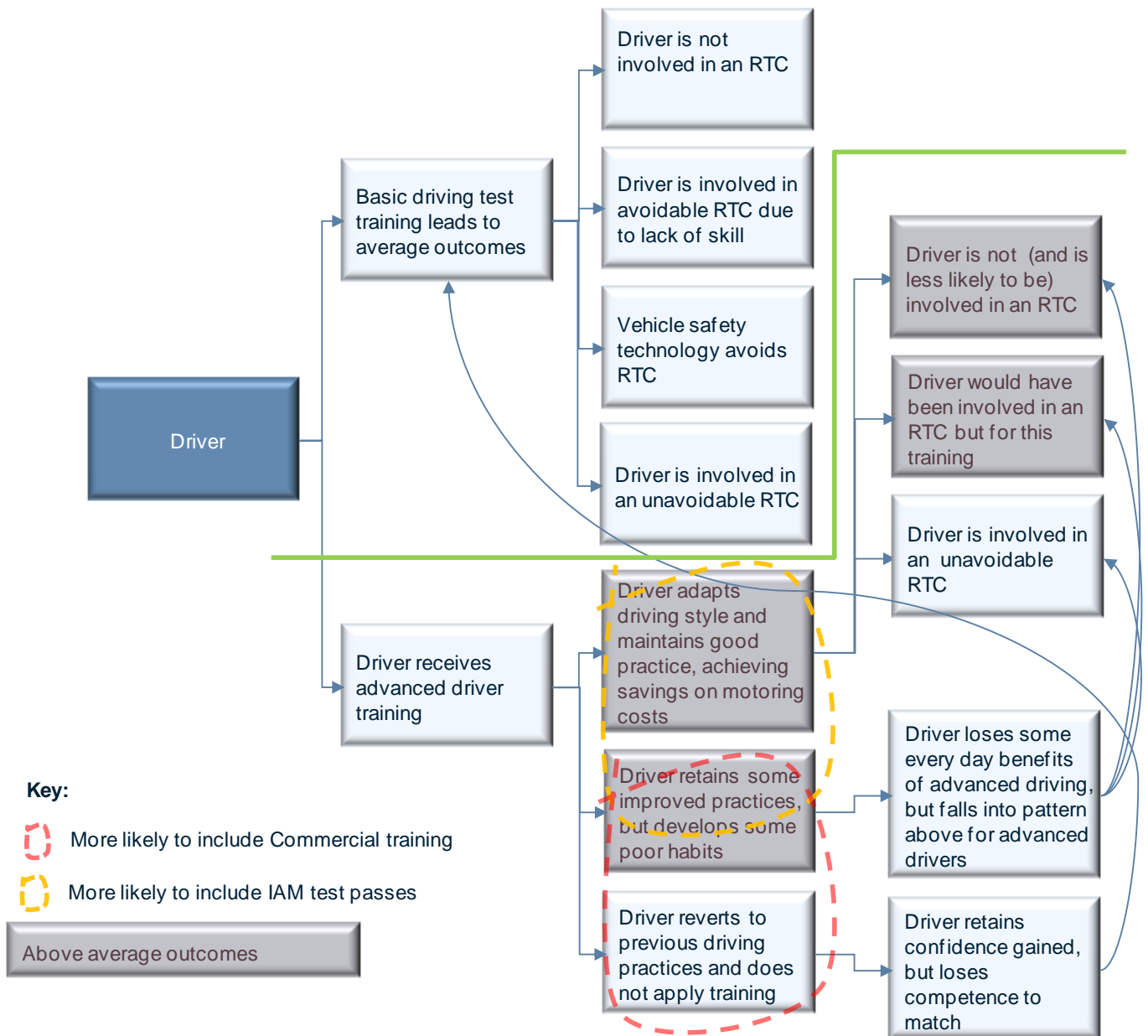
### Mapping measurable outcomes

- 5.5 For the purposes of this study, it is not reasonable to measure the impact of all potential outcomes for a driver/rider: only outcomes that the IAM is able to influence should be measured. For this purpose, we have split drivers/riders into two broad categories:
- ▶ Those who do not receive IAM training (i.e. drivers/riders that conform to the wider averages shown in sources such as Stats 19); and
  - ▶ Those that receive additional IAM training (i.e. drivers/riders who are taught skills that will allow them to achieve better-than-average outcomes, assuming that such skills are applied).
- 5.6 The IAM has a broad effect on the 'average' driver/rider by way of its research and communications functions, which have an influence on the focus of Government and may, through media coverage of the IAM's findings and advice given through media outlets, have an influence on the behaviours and risk awareness of individual drivers/riders. This can be measured by evaluating the overall impact of improvements in road safety and attributing a portion of this to the IAM.
- 5.7 For drivers/riders who have received further IAM training, there is an increased likelihood that they will achieve better-than-average outcomes than those who have not received further training post-licence acquisition. For these drivers/riders, the extent to which they achieve improved outcomes is influenced by:
- ▶ The extent to which their age and other personal factors influence the likelihood that they will achieve some improvement compared to the average in any case;

- ▶ Their personal choice as to whether they apply the skills they have learned in everyday motoring; and
- ▶ The extent to which recall of training diminishes over time.

5.8 Drivers/riders who choose not to apply the training they have received are assumed to revert to 'average' outcomes (i.e. no gain in excess of the average improvement is to be measured).

5.9 In order to show the outcomes that are deemed to be measurable in this study, we have plotted outcomes for both average and advanced drivers/riders onto a 'decision tree' diagram, and highlighted the outcomes that are deemed to be attributable to training provided by the IAM in this study:



5.10 For the purposes of evaluating the social impact of the IAM's training, this study evaluates only gains achieved for drivers/riders with outcomes that are above average (highlighted in the dark shaded boxes in the above diagram).

5.11 The diagram above highlights:

- ▶ The IAM has some direct influence on the ‘average’ driver/rider (i.e. those who do not undertake further training provided by the IAM) due to its regular provision of advice in its research and media coverage. Its research influences broader road safety improvements that may, in turn, influence the likelihood or severity of an RTC occurring for these drivers/riders;
  - ▶ For those drivers/riders who do receive further training, the three broad potential outcomes are:
    - ▶ A long-term change in approach to driving/riding occurs through the use of ‘best practice’ techniques and remaining up-to-date with future developments. The driver/rider retains the skill required to achieve above average outcomes in respect of motoring cost savings and is more likely to avoid an RTC than the ‘average driver’; or
    - ▶ A medium-term change in driving/riding habits occurs, but is either forgotten or not updated, but some of the training is retained and used; or
    - ▶ A short-term change in driving/riding habits occurs, but both this and the emergency response training is quickly forgotten (i.e. the driver/rider reverts to the average outcomes).
- 5.12 The Action Research Group’s view was that the placing of drivers/riders within the range of potential outcomes following training depends on their motivation for undertaking the training. For corporate drivers/riders, for whom training is compulsory, the duration of retention is likely to be shortened compared to advanced test passes who have undertaken (and paid for) training voluntarily and are, therefore, likely to have an interest in maintaining best practice. Corporate drivers/riders may undertake refresher courses at regular intervals that would prolong the benefits of training.
- 5.13 The IAM provides several opportunities for its members to undertake refresher training, which would be expected to prolong the shelf-life of training received or update previously received training for current best practice. By accessing these services, IAM members are more likely to achieve the long term outcomes described above. These opportunities include:
- ▶ Driver/rider skills days;
  - ▶ Member’s driving assessments;
  - ▶ Member forums; and
  - ▶ The members’ magazine.
- 5.14 The fundamental assumption underlying several of the evaluation models used is that, in the absence of the IAM’s driver/rider refresher training, advanced test passes would revert to the average observed for the wider population.
- 5.15 The table below matches the broad outcome categories described above to the three evaluation approaches discussed earlier in this report (§3.9) and describes, in general terms, the approach that has been taken in evaluating these outcomes:

Outcome	Model(s) used	Approach
Economic damage avoided by reducing the number of RTCs	<ul style="list-style-type: none"> <li>▶ Economic gain</li> <li>▶ Wastage avoided</li> </ul>	<p data-bbox="692 273 1145 306"><b>Number of RTCs avoided/mitigated</b></p> <ul style="list-style-type: none"> <li>▶ For the Research model we have used data gathered by the police in the UK on the number and severity of RTCs in 2009 compared to 2007, and the proportions of RTCs that result in either death, serious injury or minor injury (as recorded by the police investigation). From this we have derived the improvement in the number of fatalities and serious injuries over the period.</li> <li>▶ For models that consider the IAM's membership base, we have assumed a proportion of IAM members likely to be involved in an RTC that results in death or injury (i.e. excluding damage only). This is based on the total number of insurance claims made by members, less a deduction of 75% for damage only claims (which the IAM believes account for the vast majority of all claims made and are likely to be even more prevalent among IAM member claims). This is then compared to the fatality and injury rates among the wider population to derive the extent to which IAM member outcomes are better than average. A number of incidents avoided by IAM members is then calculated based on the above comparison and is applied to the pattern of outcomes (i.e. death, serious injury and minor injury) observed for the wider population between ages 40 to 49 (i.e. the age at which typical IAM new members join). The use of data for this age bracket implicitly accounts for the issue of demographic comparability of IAM members with the wider population.</li> <li>▶ For corporate training models, the number of trainees for the most recent year for each type of training is multiplied by the improvement in incident rate from 50% to 10% observed based on client feedback. For prudence, the starting rate of 50% has been reduced to 33.3% to account for the possibility that the client feedback in question might relate to an abnormally high risk group. This deduction is believed to be prudent.</li> </ul> <p data-bbox="692 1352 1139 1386"><b>Deduction for knowledge retention</b></p> <ul style="list-style-type: none"> <li>▶ In the view of the Action Research group, the time span of knowledge retention from corporate training is likely to be shorter than that for the advanced driver training. This is due to the perceived differential in longevity of knowledge retention arising from the techniques used with corporate clients compared to the advanced test training. The group also felt that compulsory training is likely to have reduced effectiveness compared to voluntary training (i.e. the benefits of corporate training must be discounted compared to those for the advanced test). In the absence of empirical data from which a robust assumed deduction may be derived, a deduction of 50% to 99.5% has been applied. The Action Research group believes this to be prudent.</li> </ul> <p data-bbox="692 1800 1018 1834"><b>Value of damage avoided</b></p> <ul style="list-style-type: none"> <li>▶ We have used The Department for Transport's 2009 Annual report<sup>H</sup> as a source of values to represent the economic damage arising from an RTC. This shows the average damage arising from an RTC that results in a fatality, serious injury and minor injury. The values derived from this report are broadly based averages. In particular, we note that the</li> </ul>

<sup>H</sup> Department for Transport (2009), 'Reported Road Casualties Great Britain: 2009 Annual Report, London, Department for Transport

definition of serious injury is very broad and as such the value of c£205k is significantly lower than we would expect to see for the most serious injuries. On that basis, the value attributed to serious injury appears to be prudent.

- ▶ By multiplying the discounted number of RTCs of each level of seriousness avoided by the value of damage avoided, it is possible to derive a value of the total economic damage avoided through improvements in road safety in the UK between 2007 and 2009.

#### ***Deductions for alternative attribution and deadweight***

- ▶ Clearly the wider improvement in road safety is not all due to the research work of the IAM, and as such an assumed deduction of 97.5% has been made for deadweight and alternative attribution. This deduction is felt to be a reasonable, and indeed, prudent, assumption of the impact of the IAM's work on road safety. This takes account of the innovative work that the IAM carries out, the prominence of its voice in the media as a commentator and source of advice on key issues, but also of the large number of organisations that are involved in promoting road safety.
- ▶ However, for models that consider the benefits to the IAM's membership base, a lower deduction is required, given that the IAM has been more actively involved in the improvement observed (as evidenced by the reduction in claim ratio for members compared to others).
- ▶ We are not aware of any robust analysis to quantify the number of RTCs that have been avoided due to a driver's natural ability. In the absence of empirical data, a deduction of 20% is made for deadweight (i.e. drivers/riders that would have avoided an RTC in any case due to natural ability or good luck). Given that very few RTCs are entirely attributed to factors other than driver/rider error (see §2.13), the IAM believes this assumption to be prudent. This takes account of an apparently unexplained improvement in road safety statistics across the developed world in recent years, which has not been attributed to specific interventions or policy change.
- ▶ A deduction of 25% is assumed to account for alternative attribution to recognise the impact of improvements in vehicle technology and other road safety initiatives. In the absence of empirical data, this is based on the judgement of the Action Research group and is felt by them to be prudent. Given that driver/rider error is given by investigating officers as the underlying reason for the majority of RTCs, improvements in vehicle technology are felt to be a factor in mitigating rather than avoiding an RTC.
- ▶ The Action Research group did not feel that any social or environmental harm arose from the IAM's activities, and as such no deduction for displacement was felt to be necessary:
  - ▶ There is a cost associated with the training (currently £139 per advanced driver's/rider's course) and membership; this is, however, included in the IAM's income against which the evaluations shown in this report are to be compared.
  - ▶ It may be argued that motoring creates environmental damage due to carbon emissions of vehicles. The IAM's techniques are, however, likely to result in a reduction in fuel consumption (and, therefore, emissions) and as such do not result in damage. The

frequency of vehicle use is a factor outside the IAM's control and as such any damage arising from an individual driver/rider's choice to use (or not) their vehicle should not be included as displacement against the value of the IAM's activity.

Economic damage avoided by reducing the severity of RTCs

- ▶ Economic gain
- ▶ Wastage avoided

- ▶ This model is used to evaluate the impact of the adoption of improved driving techniques among recent advanced test passes. It has not been used for an evaluation of the wider population, as the number of incidents across all levels of seriousness has been observed to fall between 2007 and 2009 (i.e. an increase in the number of less serious injuries due to mitigation is outweighed by the reduction in the number incidents at the lower level of seriousness). To include this for the wider population would be to risk double counting or overstating benefits achieved, given that data can never be collected to show how serious an incident would have been.

#### ***Number of RTCs with mitigated impact***

- ▶ We have derived an incident rate among IAM members from the total number of claims made (821), adjusted for the assumption that the vast majority (75%) are damage only, and do not therefore fit with the Stats19 categorisation. The resulting RTC rate implies that 8 RTCs occurred for current year test passes at the level of seriousness shown in Stats19.
- ▶ Stats 19 data highlights the proportion of RTCs that fall into the three key categories (fatality, serious injury, slight injury). We have compared these rates (for motorists aged 40 to 49) with assumptions to reflect a modestly reduced proportion of IAM member claims at the two higher levels of seriousness (with a corresponding increase in minor injuries as 'displacement'). Based on this comparison, we have measured the reduction/increase in the number of incidents at each level of seriousness.
- ▶ The assumed adjustments to Stats19 trends in relation to IAM members are as follows:
  - ▶ The fatality rate is assumed to be 0.9% compared to 1.1% for the wider population;
  - ▶ The serious injury rate is assumed to be 10.75% compared to 11.5% for the wider population; and
  - ▶ The slight injury rate is assumed to be 88.35% compared to 87.4% for the wider population (i.e. there is assumed to be a greater frequency of slight injury but a reduction in more serious outcomes as a result of the application of appropriate driving techniques to mitigate the impact of an RTC). It is likely that some of these incidents would have been reduced to 'damage only', and as such the assumption that they are reduced to minor injuries is believed to be prudent.

#### ***Value of damage avoided***

- ▶ We have derived the value of damage avoided from Stats 19 data (see above).

#### ***Deductions for deadweight and alternative attribution***

- ▶ Given that displacement is included as the increase in slight injuries, no further deduction was felt to be necessary.
- ▶ In the absence of empirical data on the number of RTCs avoided due to drivers'/riders' natural skill or reactions. a



deduction for deadweight of 20% has been made to reflect the likelihood that a driver/rider might instinctively apply appropriate techniques in the absence of formal training. The Action Research group believes this to be prudent given the high proportion of RTCs which are attributed to driver/rider error rather than external factors (§2.13).

- ▶ A deduction for alternative attribution of 25% is made to reflect the value of improvements in vehicle technology and the impact of other road safety initiatives. Given that the value of work by other agencies is primarily reflected in the evaluation of the IAM's research work, the Action Research group did not feel it necessary to include further significant deductions to account for alternative attribution, and believe that the deduction of 25% is prudent (i.e. the IAM is claiming 55% of the gain after deducting alternative attribution and deadweight).

Reduction in the cost of motoring

▶ Wastage avoided

#### ***Estimating the cost of motoring***

- ▶ According to a well-known cost of motoring survey in 2010, the cost of motoring (excluding depreciation but including running costs, insurance and tax) for a family car used for c15,000 miles per annum is £3,881. This is felt to be representative of a hypothetical 'average' car user.
- ▶ An assumed running cost per mile for motorcycles has been derived from the latest available cost of motoring survey for motorcycles (2003), taken from the same source as that used for cars above, adjusted for inflation at 2.5% per annum and the cost of fuel used for cars in the 2010 cars survey. An assumed usage level of 5,000 miles per annum has been used (based on typical IAM member feedback) to derive an average cost of motoring of £2,537 per annum.

#### ***Estimating the saving achieved by members***

- ▶ Clearly, not all of these costs will be controllable by the driver/rider (e.g. tax), although to some extent many of them are (e.g. fuel consumption, tyre and brake wear and insurance). To reflect the impact of advanced driving techniques on those that are controllable, the IAM has assumed that a 5% saving may be achieved by its members (i.e. £194 p.a for drivers and £127 p.a. for riders).
- ▶ This assumption may be justified given the reduction in insurance costs and feedback from members indicating that they have observed improvements in these costs.
- ▶ We have assumed that these savings are achieved over a period of five years for recent advanced test passes, by which time only 50% of the members are achieving these savings due to the formation of bad habits or reduced knowledge retention (i.e. a five year half-life). This is believed by the IAM to be prudent, given that members are more likely to be motivated to achieve such improvements having sought further training voluntarily.

#### ***Deductions for deadweight and alternative attribution***

- ▶ A deduction of 5% for deadweight is allowed for to account for the likelihood that a driver/rider might naturally adopt good techniques to reduce motoring costs. This is felt to be relatively unlikely, given that most advanced driver/rider trainees see a change in their habits as a result of tuition.

Reduction in the value of insurance payouts

▶ Wastage avoided

- ▶ A deduction of 40% for alternative attribution is included to account for the role played by the driver/rider in choosing to maintain the advanced techniques they have been taught.
- ▶ Given that several of these savings will lead to an environmental benefit (which is not measured in this evaluation), it was not felt to be necessary to include an adjustment for displacement.

- ▶ We have used the case study of corporate driver/rider training 'client A', which self-insures. It has maintained a constant vehicle user base of some 2,500 drivers/riders from before the IAM's involvement to the present time, and has observed a 50% reduction in payout costs over that period (from £1.2m to £600k).
- ▶ This equates to a saving of £240 per driver/rider ( $£600k \text{ saved} \div 2,500 \text{ drivers/riders} = £240$ ).
- ▶ The IAM's corporate driver/rider training team delivered training to 19,374 drivers/riders. Assuming the average saving per driver/rider at 'client A' applies as a broad average, this equates to a saving of £4.6m.
- ▶ From this, we have deducted: 20% as deadweight to account for the likelihood that the employer might put some other form of training in place; and 30% for alternative attribution to recognise the value due to the employer for paying for this provision to be put in place and encouraging improved driving/riding standards among its employees.

5.16 A detailed analysis of the individual models used to evaluate each of the areas of work listed in section 4, together with a detailed description of the assumptions and sources used, is provided at Appendix B.

## Avoidance of double-counting

5.17 The models that consider the reduction in the number of RTCs on the roads might be seen as presenting a risk of double counting, in that the models that use data for the motoring population as a whole implicitly include IAM members. However, the models that are used present two separate arguments:

- ▶ The model for the wider population considers the general improvement achieved by road safety developments over the period from 2007 to 2009. It is intended to reflect the value of the IAM's work spread across the entire population of 'average' drivers/riders. The total evaluated benefits from this model of £54.4m equates to a benefit of £1.81 per licence holder per annum (assuming 30 million licence holders); whereas
- ▶ The model for IAM members considers the incremental reduction in excess of the average that has been achieved by IAM members.

5.18 It is felt to be reasonable to assume that 2.5% of the motoring population may have been affected by the influencing work of the IAM, given that its work has contributed to changes in emphasis of Government thinking as regards road safety strategies (e.g. on rural roads). The IAM's communications work has resulted in significant media coverage of key findings of its research, thereby increasing risk awareness among the wider population. Communications work also includes matters not directly linked to research output, where the IAM's advice is sought by the media in its capacity as a 'centre of excellence' on road safety: such coverage has a wide reach and may therefore have some influence over the behaviour of many road users. On this basis, the 2.5% assumed attribution to the IAM is felt to be prudent.

5.19 Hence, it is felt that the risk of double counting has been adequately mitigated in this evaluation.

## 6. Conclusion

### Results of this evaluation

- 6.1 Based on the results of our discussions with the IAM as summarised above and on the results of the evaluation models (Appendix B), the evaluated benefits of the selected IAM activities may be summarised:

Summary	Evaluated benefits (£'000)
Economic impact of IAM advanced training and test and local groups	39,376
Economic impact of corporate driver training	34,960
Economic impact of influence on road safety through research and communications	54,437
<b>Total evaluated economic impact</b>	<b>128,773</b>

- 6.2 The table above shows total benefits from the areas of work included in this evaluation to be c£128.8 million per annum. The IAM believes that this represents the vast majority of its activities.
- 6.3 Of particular interest is that the gains attributable to IAM local groups in the training they deliver to achieve test passes equate to £862 to £999 per test pass over the assumed five year half-life of the training (see p.63).
- 6.4 The IAM's turnover for the year ended 31 March 2011 was c£6.5 million. On this basis, the impact of the benefits evaluated exceeds the IAM's annual turnover by at least £122 million.
- 6.5 It should be noted that this report only includes the benefits evaluated from the relevant areas of the IAM as shown in the report. If all areas of the IAM's work were to be evaluated, the total impact would be likely to increase.

### Sensitivity analysis

- 6.6 We have performed a sensitivity analysis in respect of key assumptions to the models, the detail of which is shown at Appendix C. The conclusion from this analysis is that even if certain key assumptions to each of the models were materially under or overstated, the gains from the IAM's work would still be significantly in excess of its turnover of £6.5 million. Hence, the conclusion drawn from this study would not be materially altered under this sensitivity analysis.

### Deadweight and alternative attribution

- 6.7 As is discussed above in section 5, deductions for deadweight (i.e. the gains that would have been achieved in any case in the absence of any intervention) and alternative attribution (i.e. the gains attributable to the contributions of third parties) have been accounted for in each of the evaluation models.
- 6.8 The IAM does not believe that its work creates displacement (i.e. a negative impact on society or the environment associated with its work). Of particular note is the issue that no incremental environmental damage is associated with the IAM's work with drivers/riders, given that the frequency of vehicle use is a matter of personal preference for the driver/rider and is, therefore, outside the control of the IAM.

- 6.9 The residual gains attributed to the IAM vary according to the nature of its involvement in each area of work, hence for each area of analysis a different assumption is made on gains attributable to the IAM after deducting deadweight and alternative attribution:
- ▶ Research and communications: 2.5% of the total gain is attributed to the IAM;
  - ▶ Corporate driver/rider training: 45% of the total evaluated gain arising from training carried out by the IAM is attributed to the IAM; and
  - ▶ The IAM's driver/rider training and the advanced test and local groups: 55% of the total gain is attributed to the IAM.
- 6.10 In arriving at assumed deductions for deadweight, the IAM has factored in typical outcomes for motorists as highlighted by statistical sources such as Stats 19, but has sought to take a conservative view of the potential for a driver/rider to improve their ability without intervention. No robust analysis was found to assess the reasons for RTCs being avoided, which may include, amongst others, 'luck', driver/rider natural ability and vehicle technology. The perceived value of such factors has been taken into account by the IAM in arriving at assumed deductions for each evaluation model;
- 6.11 In arriving at assumed deductions for alternative attribution, the IAM has taken into account the extent of its influence over the beneficiaries of each area of its work and has reflected on the importance of the contributions of other parties to achieve the gains shown (both in financial and non-financial terms). This includes the value of beneficiaries choosing to commit to undertake further training and then the choice to apply or ignore it in future.
- 6.12 The deductions made have been discussed in detail by the Action Research group during this project. The IAM believes that they are reasonable and, indeed, prudent.

## Other outcomes not evaluated

- 6.13 During the course of our meetings with the IAM, it has become clear that certain key outcomes of its work could not be reliably evaluated in financial terms or were not sufficiently proximate to the work of the IAM to be attributed to it. The key areas of benefit associated with the evaluated areas of work that have not been included are as follows:
- ▶ Gains achieved by pre-existing test passes of less than five years standing (these gains would be attributed to prior years using this methodology);
  - ▶ The value of environmental savings arising from reduced carbon emissions due to improved driving/riding techniques. Vehicle usage and the nature of the vehicle used is a matter of personal choice for the driver/rider which will influence the extent of any saving achieved; hence it was not felt to be appropriate to seek to measure a saving in this way;
  - ▶ Improvements to vehicle safety and design as a result of the IAM's contribution to road safety research;
  - ▶ The positive effects of training delivered to test candidates who did not pass the advanced test;
  - ▶ Positive effects on the insurance industry such as lower claim rates and payout values;
  - ▶ The IAM's impact on the shelf-life of licence acquisition training;
  - ▶ Influence of advanced drivers/riders on the skills of others; and
  - ▶ The brand value of the IAM, which is a vital membership promotion tool.
- 6.14 Where specific evidence exists, it has been sought to evaluate these benefits as noted in the report (e.g. reduced motoring costs, reduced incidence of RTCs etc.). However, it is difficult to evaluate reliably in financial terms the value of, for example, increased well-being among beneficiaries.

- 6.15 As this evaluation does not seek to measure the value of the further benefits listed at §6.13, the value of these outcomes would be incremental to the value shown above. Hence the evaluations shown above are lower than the full value of the outcomes potentially generated by the IAM.
- 6.16 Further to the above un-measured benefits, it is noted that the following IAM activities have been omitted from this work. Any value attached to these would be incremental to the value shown above:
- ▶ The IAM's work with cyclists; and
  - ▶ Young Driver Assessments.

# Appendices

# A. Notes on Action Research

Action Research, or Action Science as some, including Gummerson<sup>1</sup> prefer to call it, is a recognised and respected research approach originating in the social sciences arena, which involves the researcher and the researched jointly learning in and investigating the research area. Whilst primarily a qualitative methodology, it can be constructed in such a way as to gather and test data with levels of validity that would constitute scientific research (as opposed to casual enquiry) whilst retaining the proximity to that data that best comes from working with those who are involved with it.

The researcher works with the researched jointly to investigate an issue of common interest. Together they gather data, test and validate it, and draw interpretations and conclusions from it.

Action research is hence an iterative research methodology that is intended to bridge the gap between theoretical research and the practical realities of the real world. As Gustavsen puts it:

*“The point is to understand the world as it is by confronting it directly; by trying to grasp the phenomena as they really are.”<sup>2</sup>*

Reason and Bradbury (2001) define Action Research as *“a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview... It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities.”* (2001, p.1).

In simplistic terms, Action Research is collectively learning from experience by sharing that experience with others and taking action to bring about change by building on that experience.

In our work with the IAM, it has been vital that an understanding was gained, not just of how its activities could *theoretically* be benefiting the local area, but of how it creates benefit in practice. Theoretical research on SROI methodologies gives us a view on where the benefits may lie, but only through an iterative process of discussing, developing and refining our understanding can a true picture be obtained of where the benefits of the IAM's activities actually lie.

The process of conducting Action Research may be summarised using the diagram shown below:

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<sup>1</sup> Gummerson, E. 2000, *Qualitative Methods in Management Research*. 2<sup>nd</sup> Ed. Thousand Oaks, Ca. Sage Publications

<sup>2</sup> ‘New Forms of Knowledge Production and the Role of Action Research’, Bjorn Gustavsen, *Action Research* 2003; volume 1 at p.153





The diagram shows an iterative five stage approach to Action Research. The way in which our approach fits with this model is described as follows:

1. **Observation:** from our initial discussions with the IAM, it is clear that a lack of understanding of its Social Impact may weaken its position when negotiating with funders, thus damaging its ability to continue its work. However, it is also clear that by improving awareness of the extent of its impact on the retail sector, the IAM can further improve its brand recognition and, therefore, potentially its membership base;
2. **Reflection:** by using Social Impact measurement tools such as SROI, it is believed that it is possible to begin to increase the understanding of the benefits the IAM generates among key stakeholders;
3. **Data gathering:** the services the IAM provides were discussed with a working group of IAM staff from each area of work included in the evaluation and the outcomes these activities produce and identified the key beneficiaries. A range of possible methods of evaluating these services were discussed using the three models described at §3.9 of this report to cover the concept of value from the perspective of all key stakeholders;
4. **Test claims and conclude:** many of the assumptions used in the evaluation models (Appendix B) are based on data gathered by the IAM's management information systems. Copies of the supporting records for such data were obtained. Where, an assumption was required, the IAM were encouraged to be prudent in order to avoid overstating benefits. In some cases, assumptions have been informed by data from external sources combined with the use of judgement. Copies or records of any research were obtained;
5. **Monitor improvements:** it is hoped that this work will result in improved awareness of the IAM's activities among stakeholders (including potential funders), and therefore address the risks identified at stage 1 of the process.

Having reached a stage where an improvement is expected, the iterative nature of Action Research allows for further studies to be carried out in future to build on the work presented in this report, including ongoing measurement of benefits and the use of similar methodologies to assess proposed future projects.

Clearly, wherever data already exist to quantify a benefit, they are to be used. However, in the absence of observed data, Action Research allows us to gain an accurate perspective on the real benefits that are generated.

In some cases it will be impossible to observe the impact, as to do so would require a comparison between a world in which the IAM exists and one in which it does not, all other factors being equal. Clearly, such comparison will never be possible and so reliance must be placed on the common-sense and judgment of the IAM, based on their real-world experience.

Where data may be, but is not currently, observed, our work allows us to refine the list of useful data that may be gathered in future as a basis for refining the measurement of the economic benefit that is generated. This project may therefore act as a platform for identifying further Action Research projects that will develop detailed measurement tools.

Any outline of a research methodology would be incomplete without looking at broader criticisms of it in management science circles. Criticisms of action research are several, but most emanate from proponents of statistical sampling and questionnaire-based research methodologies. In brief, these tend to surround the following areas, each of which is shown with a brief response related both to theory and to this research in particular.

### **How can you assert validity when all the data is of internal origin?**

Bypassing the theoretical debates about the validity of different data sources and the extent to which all are, to some degree, partly objective and partly partisan, the key point here is that the data is not all of internal origin.

Many of the measurement criteria within the financial proxies are:

- ▶ from publicly available data sources, often validated Government data;
- ▶ from appropriately structured pilot studies;
- ▶ from research appropriately undertaken by the subjects' own research team; or
- ▶ separately sense-checked or reviewed by the research team.

### **It is not true research because the researcher influences, and is involved in the outcome....?**

It is true that the researcher is involved in the sense that “the action researcher... may help clients make more sense of their practical knowledge and experience...”<sup>K</sup>.

This is consistent with the second of the seven principles of SROI: Measurement with people.


If the researcher facilitates the better collection and interpretation of data from the researched and leaves them with an understanding and knowledge to enable them to embed that in future action, then this active involvement must be seen as a virtue and not a weakness. It improves the understanding of data gathered and at the same time, seeks to embed the results in the organisations (the final stage of the SROI process).

Berg<sup>L</sup> summarises the strengths of action research in these fields as follows:

- ▶ “a highly rigorous, yet reflective or interpretative, approach to empirical research;
- ▶ the active engagement of individuals...in the research enterprise;
- ▶ the integration of some practical outcomes related to the actual lives of participants in this research project;
- ▶ a spiralling of steps...”.

<sup>K</sup> Gill, J. And Johnson, P. 2002. Research Methods for Managers. 3<sup>rd</sup> Ed. London, Sage. p.92.

<sup>L</sup> Berg, B. 2009. Qualitative Research Methods for the Social Sciences. 7<sup>th</sup> Ed. Upper Saddle River, NJ. Pearson. .248.



It has found, in this study and other similar ones, that Action Research provides an ideal foundation approach for developing a Social Impact Evaluation and embedding it in the organisation.

## B. Detailed Evaluation Models Used

### Summary of evaluations

The table below shows a summary of the detailed evaluation models presented in this Appendix:

Summary	Evaluated benefits (£'000)	Page ref.
<b>IAM training and test passes and local groups</b>		
Economic damage from RTCs avoided (latest year test passes)	2,929	p.56
Economic damage from RTCs mitigated (latest year test passes)	48	p.58
Motoring cost savings achieved (latest year test passes)	1,042	pp.60-61
Economic damage from RTCs avoided (pre-existing members)	34,564	p.63
Motoring cost savings achieved (pre-existing members)	793	pp.64-66
	<b>39,376</b>	
<b>Corporate driver training</b>		
Economic damage from RTCs avoided	32,868	pp.48-52
Reduction in value of insurance payouts	2,092	p.53
	<b>34,960</b>	
Influence on road safety through research and communications		
<b>Value of IAM impact on road safety improvement</b>	<b>54,437</b>	<b>p.46</b>
<b>Total evaluated impact</b>	<b>128,773</b>	

Source: Evaluation models

## Research and communications

### Background to the models

As noted above, the IAM's research provides key stakeholders in the area of road safety with insight and analysis of key issues upon which they may base strategic decisions on future developments. To date, the IAM has been instrumental in drawing attention, along with other agencies, to key risks facing road users (a list of research reports published by the IAM is included at Appendix E to this report).

The impact of road safety improvements may be seen most clearly from the reduction in the number of RTCs of any kind, and in particular those involving a fatality or serious injury. Whilst it cannot, and does not seek to, claim full credit for the improvement achieved, the IAM rightly believes that its work has contributed to the improvement in UK road safety.

This belief was corroborated in October 2010, when the IAM was awarded a Prince Michael International Road Safety Award for the contribution its research has made to road safety improvements.

Rather than consider improvements over the life of the IAM, during which time the face of UK motoring has changed so much as to be incomparable with motoring today, this report focuses on improvements between 2007 and 2009. The IAM's work has been carried out over a far longer period, but much of this has been excluded from the evaluations shown in order to avoid the risk of overstatement. This period matches the time over which the IAM's research reports have been published, and hence equates to the period during which the IAM may be expected to have had the greatest impact in this regard.

The economic harm done by a death on the road is significant. The Department for Transport's ("DFT") estimate of c£1.8 million per fatal RTC includes damage ranging from the cost to emergency services of attending the scene of the RTC, investigating its cause and treating the victims to the future economic damage from the lost productivity of the deceased and the long-term emotional and financial effects on their family<sup>M</sup>. Serious injury may often have similar cost implications to death, and in some cases, greater cost implications from the need for long-term care for the victim. DFT's report estimates the damage arising from an RTC involving a serious injury as £205k and £21k for a minor injury.

The model shown below seeks to evaluate the total economic damage avoided from the improvement in road safety between 2007 and 2009, and then seeks to attribute the IAM's share of this benefit. In order to view the incremental difference in 2009 compared to 2007, it is necessary to estimate the number of fatalities or serious injuries that would have occurred in 2009 at the rates prevalent in 2007. A comparison of the absolute number of people killed or injured on the roads would ignore the impact of changes in the number of miles travelled during the period. In simple terms, the greater the number of miles travelled, the greater the exposure to risk of an RTC, hence a change in the number of RTCs may be due to a change in the volume of traffic as well as safety initiatives and other factors. We have adjusted for this in the evaluation of the improvement achieved (see below).

### Results of the models

#### *Reduction in the number of RTCs*

The table below shows the evaluation of the IAM's work to improve road safety through its research and communications work:

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<sup>M</sup> Department for Transport (2009), 'Reported Road Casualties Great Britain: 2009 Annual Report, London, Department for Transport

Impact of research on road safety (2007 to 2009)	Assumption	Calculation	Evaluated benefits (£)
Vehicle miles travelled (2009)	316,000,000,000		
KSI rate per 1 billion vehicle miles (2007)	96		
Therefore implied KSI number (for 2009 at 2007 KSI rate)	30,336		
Actual KSI number for 2009	26,912		
<b>Therefore improvement in KSI numbers achieved</b>		<b>3,424</b>	
2007 proportion of fatalities	9.6%	2,909	
2009 proportion of fatalities	8.3%	2,222	
<b>Therefore incremental reduction in fatalities achieved</b>		<b>687</b>	
<b>Therefore incremental reduction in serious injuries achieved</b>		<b>2,737</b>	
Economic damage from a fatal RTC	1,790,200		1,230,199,876
Economic damage from a serious injury	205,060		561,211,136
<b>Total economic damage avoided from reduction in KSI rate</b>			<b>1,791,411,012</b>
Slight injury rate per 1 billion vehicle miles (2007)	675		
Therefore implied slight injury number (for 2009 at 2007 rate)	213,300		
Actual slight injury number for 2009	195,234		
<b>Therefore improvement achieved</b>		<b>18,066</b>	
Economic damage from a minor injury	21,370		
<b>Total economic damage avoided from reduction in slight injury rate</b>			<b>386,070,420</b>
<b>Total economic and other damage avoided from improved road safety and driving standards</b>			<b>2,177,481,432</b>
Deadweight	10.0%		(217,748,143)
Alternative attribution	87.5%		(1,905,296,253)
<b>Saving due to IAM research and awareness raising</b>			<b>54,437,036</b>

#### Key assumptions

- *Improvement in Killed or Seriously Injured (“KSI”) numbers:* the improvement in KSI numbers is based on the number of vehicle miles travelled, KSI rate for 2007 and KSI number for 2009 per Stats 19. Had the 2007 KSI rate continued to apply in 2009, the KSI number would have been 30,336 (i.e. 316 billion ÷ 96 KSI per 1 billion vehicle miles = 30,336). This adjustment is made for comparability as there was a change in the number of vehicle miles travelled between 2007 and 2009. The actual KSI

number for 2009 was 26,912, hence a reduction of 3,424 was achieved in 2009 compared to KSI numbers as they would have been had no improvement occurred to the KSI rate.

- ▶ *Incremental reduction in fatalities:* this is calculated based on the proportion of fatalities within the KSI numbers for 2007 and 2009 per Stats 19. The difference between the number of fatalities as it would have been at 2007 rates (i.e.  $30,336 \times 9.6\% = 2,912$ ) and the actual number of fatalities for 2009 of 2,222 gives the incremental reduction in fatalities of 679 ( $2,912 - 2,234 = 687$ ).
- ▶ *Incremental reduction in serious injuries:* Given that the reduction in KSI numbers is estimated at 3,424 over the period shown, the difference between the incremental number of fatalities avoided of 687 and the total KSI reduction represented the reduction in serious injuries (i.e.  $3,424 - 687 = 2,737$  incrementally avoided serious injuries).
- ▶ *Economic damage from fatality, serious injury and minor injury:* these are derived from the values presented in the DFT's Annual Report for 2009<sup>N</sup>, which includes the costs of investigation, treatment (where applicable), lost productivity and long term damage to families of victims (where applicable). This is believed by the IAM to be the best available estimate of the short and long term damage arising from RTCs at each level of severity.
- ▶ *Reduction in the number of slight injuries:* this is calculated based on slight injury rates data from 2007 and 2009 and the number of vehicle miles travelled for 2009 per Stats 19 (i.e. 675 slight injuries per 1 billion vehicle miles (2007 rate)  $\times$  316 billion vehicle miles (2009 mileage) = 213,300 slight injuries). The reduction in slight injuries in 2009 is therefore calculated as 18,066 (i.e. 213,300 at 2007 rates – 195,234 actual slight injuries for 2009 = 18,066). The reason for using the 2007 slight injury rate to determine an implied of injuries for 2009 is the same as that discussed above for KSI numbers.
- ▶ *Deductions for deadweight and alternative attribution:* a deduction of 10% for deadweight has been made to account for the likelihood that some improvement might have occurred naturally in the absence of any intervention to improve safety. Given that the majority of RTCs are attributed to human error (see §2.13), this appears to be prudent. 87.5% is deducted for alternative attribution, reflecting the work of other agencies including policy makers and safety organisations. Deductions for deadweight and alternative attribution also account for a wider improvement in death and injury rates across the developed world in recent years: it is assumed that part of this is deadweight and part is due to the work of others including vehicle manufacturer safety improvements. This leaves 2.5% as attributable to the IAM's work on influencing road safety through research and communication of issues.
- ▶ The IAM's influence is shown by the shift in Government thinking to focus on rural roads in the wake of the IAM's study on this issue. The presentation in October 2010 of a Prince Michael International Road Safety Award to the IAM to recognise the impact of its work also highlights the recognition of the value of its work. Communications work by the IAM is often related to issues on which it has carried out some research, although the IAM is frequently asked to comment and advise on other issues in its capacity as a known 'centre of excellence' on road safety. Resulting media coverage may have influenced the behaviour of many motorists. On this basis, the attribution of 2.5% of the observed improvement in safety to the IAM is believed to be reasonable and, indeed, prudent.
- ▶ *Displacement:* the IAM does not believe that its work in the area of road safety research has given rise to any damage elsewhere in society, and hence no deduction for displacement is felt to be required.

<sup>N</sup> Department for Transport (2009), 'Reported Road Casualties Great Britain: 2009 Annual Report, London, Department for Transport



## Corporate driver/rider training

### Background to the models

The IAM's work to improve risk awareness and training on how to respond to risk situations is delivered using a variety of different approaches, designed to fit the needs of the client organisation and the risk profile of the individual driver/rider. The work starts with a risk assessment which encourages the driver/rider to consider their motoring habits including the types of road that they typically use and the times of day at which they use them, which generates a risk profile.

The risk profile may be sufficient to increase awareness of the risk to the driver/rider, but is generally supplemented either by online training or, for those whose risk profile shows the greatest need, an on road training session.

Feedback from the IAM's clients indicates that a marked improvement in incident rates and costs has been observed. We have noted that some clients have indicated that they have noticed an improvement in motoring costs, in particular in the cost of fleet insurance.

The models shown below reflect first (and using a similar structure to that used above for research and communications) the value of a reduction in the incident rate among drivers/riders and second the value of a reduction in insurance payouts, based on case study data from a client that self-insures (and hence has access to the required data). The value of reducing insurance payouts is felt not only by the client in question, but also by other drivers/riders whose premium might otherwise have further increased, had incident rates not improved. It is, therefore, appropriate to recognise a value beyond the reduction in insurance premium for the client.

In order to reflect the varying impact of different types of training on the drivers/riders in question, we have used three models to evaluate the reduction in incident rates observed following training:

- ▶ Incident rate reduction achieved through risk assessments;
- ▶ Incident rate reduction achieved through E-Learning; and
- ▶ Incident rate reduction achieved through on road training.

The models work on the basis that on road training has greater impact and longevity than online training. Several IAM clients run regular refresher courses in order to maintain the longevity of this training. The benefits associated with this updating are to be recognised in the year in which the update is delivered, and so are not included in the evaluation shown below.

## Results of the models

### Reduction in number of RTCs

The table below shows the evaluation of the benefits from reducing the number of RTCs among corporate drivers/riders due to the use of risk assessments (which may serve to increase awareness of risks among corporate drivers/riders):

RTC cost savings - RTC avoided due to risk assessment	Assumption	Calculation	Evaluated benefits (£)
Number of Drivers/Riders assessed (latest year)	5,870		
Incident rate observed among untrained Drivers/Riders	50.0%		
Deduction for prudence and adjusted pre-training incident rate	-16.7%	33.3%	
Incident rate observed among trained Drivers/Riders	10.0%		
Improvement in incident rate		23.3%	
Deduction for lack of retention post-training	-99.5%		
Residual improvement		0.1%	
Therefore number of incidents avoided		7	
Proportion of RTCs that involve a fatality	1.0%		
Proportion of RTCs that involve a serious injury	11.1%		
Proportion of RTCs that involve a minor injury	87.9%		
Economic damage from a fatal RTC	1,790,200		122,453
Economic damage from a serious injury	205,060		155,857
Economic damage from a minor injury	21,370		128,436
<b>Total economic and other damage avoided</b>			<b>406,747</b>
Deadweight	25.0%		(101,687)
Alternative attribution	30.0%		(122,024)
<b>Economic and other damage avoided due to IAM</b>			<b>183,036</b>

### Key assumptions

- ▶ *Number of drivers/riders trained (latest year):* the IAM's records show that 5,870 individuals undertook an online risk assessment during the 12 months to February 2011 but did not progress to further training.

- ▶ *Incident rates:* the incident rates used are based on qualitative feedback from clients that have observed a reduction in incident rates pre- and post-training from 50% to 10%. The road safety industry acknowledges that around one third of road fatalities are motorists driving in the course of business (Dyke Report). During discussion, the IAM working group felt that there was a possibility that the 50% starting point might be reflective of an abnormally high risk group, and that a deduction was required for prudence to bring this into line with their expectation of incident rates.
- ▶ *Deduction for retention post-training:* given that the risk assessment serves primarily to highlight those individuals that are at greatest risk and require further training (either E-Learning or on road), its impact is deemed to be relatively slight on candidates. However, it is felt to be possible that some candidates may be made more aware of key risks and may modify their behaviour to some extent as a result. The deduction of 99.5% for retention is felt to be a prudent reflection of this impact.
- ▶ *Proportion of fatalities, serious injuries and minor injuries:* these proportions are derived from the Stats 19 data for 2009<sup>o</sup>. In the absence of empirical data, as it is impossible to observe RTCs that were avoided, it is assumed that the incidents would fall into the 'average' profile of incidents observed across the entire population.
- ▶ *Value of economic damage caused by RTCs:* the economic damage caused by RTCs is based on Stats 19 data.
- ▶ *Deduction for deadweight:* feedback from clients indicates that the improvements they have observed have been attributed to the use of the IAM's services. In the absence of training, it is felt to be likely that any improvement in driving standards would be relatively minimal, but that vehicle safety technology might have led to some improvement by mitigating the effects of an RTC. Whilst the conclusion from this feedback is that deadweight is likely to be relatively low, a deduction of 25% has been assumed, which is felt to be prudent.
- ▶ *Deduction for alternative attribution:* in order for the training to have effect, it is necessary for the driver/rider to choose to put the lessons learned into practice. Credit is also due to the employer for choosing to provide (and pay for) training to be delivered. However, given that the improvement achieved is due to the IAM's service provision and its efficacy, the IAM has assumed that 30% of the gains should be attributed to the drivers/riders and employers. This is felt to be a reasonable reflection of their contribution to the outcomes achieved.

The table below shows the evaluation of the benefits from reducing the number of RTCs among corporate drivers/riders due to E-Learning (the IAM's online driver training software):

<sup>o</sup> Department for Transport, Scottish Government and Welsh Assembly (2010), 'Reported Road Casualties Great Britain, London, the Stationery Office

RTC cost savings - RTC avoided due to E-Learning	Assumption	Calculation	Evaluated benefits (£)
Number of Drivers/Riders trained (latest year)	6,044		
Incident rate observed among untrained Drivers/Riders	50.0%		
Deduction for prudence and adjusted pre-training incident rate	-16.7%	33.3%	
Incident rate observed among trained Drivers/Riders	10.0%		
Improvement in incident rate		23.3%	
Deduction for lack of retention post-training	-75%		
Residual improvement		5.8%	
Therefore number of incidents avoided		352	
Proportion of RTCs that involve a fatality	1.0%		
Proportion of RTCs that involve a serious injury	11.1%		
Proportion of RTCs that involve a minor injury	87.9%		
Economic damage from a fatal RTC	1,790,200		6,304,164
Economic damage from a serious injury	205,060		8,023,871
Economic damage from a minor injury	21,370		6,612,137
<b>Total economic and other damage avoided</b>			<b>20,940,172</b>
Deadweight	25.0%		(5,235,043)
Alternative attribution	30.0%		(6,282,052)
<b>Economic and other damage avoided due to IAM</b>			<b>9,423,077</b>

**Key assumptions:**

- ▶ *Number of drivers/riders trained (latest year):* the IAM's records show that 6,044 individuals undertook E-Learning training during the 12 months to February 2011 but did not progress to on road training (i.e. this excludes candidates who progressed from E-Learner to on road training).
- ▶ The reduction in incident rate is based on the approach set out above (p.47-48), but with a lower deduction for lack of post-training retention of 75%, which is intended to reflect the 'risk' that a driver/rider might not implement the training or that it might have a short shelf-life before it is forgotten and replaced by bad habits (albeit to a lesser extent than for the risk assessment). This is to reflect the perceived improvement in efficacy of training software in achieving behavioural change compared to a risk assessment due to the increased interactivity and the likelihood that a learner will engage more effectively with directed training. This assumption also reflects the perceived reduction in efficacy compared to on road training (for which a lower deduction is applied – see below).
- ▶ The sources of data on RTC outcomes and economic damage are discussed above (p.45-46).
- ▶ Deductions for deadweight and alternative attribution are as discussed above (p.45-46).

The table below shows the evaluation of the benefits from reducing the number of RTCs among corporate drivers/riders due to on-the-road training:

RTC cost savings - RTC avoided due to on the road training	Assumption	Calculation	Evaluated benefits (£)
Number of Drivers/Riders trained (latest year)	7,460		
Incident rate observed among untrained Drivers/Riders	50.0%		
Deduction for prudence and adjusted pre-training incident rate	-16.7%	33.3%	
Incident rate observed among trained Drivers/Riders	10.0%		
Improvement in incident rate		23.3%	
Deduction for lack of retention post-training	-50%		
Residual improvement		11.7%	
Therefore number of incidents avoided		869	
Proportion of RTCs that involve a fatality	1.0%		
Proportion of RTCs that involve a serious injury	11.1%		
Proportion of RTCs that involve a minor injury	87.9%		
Economic damage from a fatal RTC	1,790,200		15,562,231
Economic damage from a serious injury	205,060		19,807,438
Economic damage from a minor injury	21,370		16,322,483
<b>Total economic and other damage avoided</b>			<b>51,692,152</b>
Deadweight	25.0%		(12,923,038)
Alternative attribution	30.0%		(15,507,646)
<b>Economic and other damage avoided due to IAM</b>			<b>23,261,468</b>

*Key assumptions:*

- ▶ *Number of drivers/riders trained (latest year):* the IAM's records show that 7,460 individuals undertook on road training during the 12 months to February 2011.
- ▶ The reduction in incident rate is based on the approach set out above (p.45-46), but with a lower deduction for lack of post-training retention of 50%, which is intended to reflect the 'risk' that a driver/rider might not implement the training or that it might have a short shelf-life before it is forgotten and replaced by bad habits (albeit to a lesser extent than for E-Learning). This is to reflect the assumption that on road training is more likely to be effective than other forms as it involves learning through practice rather than theory and is, therefore, perceived to be more memorable. However, the Action Research group believes that compulsory training is likely to be less effective than voluntary training, due to increased learner engagement in voluntary training (unless a refresher course is delivered, which would be evaluated using the above model in the year in which the refresher training occurs).

- ▶ The sources of data on RTC outcomes and economic damage are as discussed above (p.45-46).
- ▶ Deductions for deadweight and alternative attribution are as discussed above (p.45-46).

#### *Reduction in value of insurance payouts*

The table below shows an evaluation of the saving to insurers from reduced claim rates and values among corporate drivers/riders:

Reduction in value of insurance payouts	Assumption	Calculation	Evaluated benefits (£)
Client 'a' number of drivers/riders	2,500		
Client 'a' pre-training insurance payout cost	1,200,000		
Client 'a' post-training insurance payout cost	600,000		
Payout reduction per motorist achieved		240	
Total number of Drivers/Riders trained (latest year)	19,374		
<b>Therefore saving achieved</b>			<b>4,649,760</b>
Deadweight	25.0%		(1,162,440)
Alternative attribution	30.0%		(1,394,928)
<b>Economic and other damage avoided due to IAM</b>			<b>2,092,392</b>

#### *Key assumptions*

- ▶ *Client 'A' driver/rider numbers and payout data:* this is based on data provided to the IAM by its client 'A', which self-insures. The client's name has not been disclosed in order to preserve confidentiality. Due to the sensitivity of the information provided, we have not obtained a copy the original documentation from client 'A'. The IAM has reviewed the assumptions used in this model and has confirmed that they are consistent with the data provided by client 'A'.
- ▶ *Reduction in payout per motorist achieved:* This is based on data provided to the IAM by client 'A' as a case study. It shows that a 50% reduction in the annual value of insurance payouts has been achieved since the IAM training services started. The number of drivers/riders at the organisation has remained broadly constant at around 2,500 during this period. Hence a reduction in payout per driver/rider of £240 (i.e. £600k ÷ 2,500 drivers/riders = £240).
- ▶ *Number of drivers/riders trained:* the IAM's data shows that 29,238 drivers/riders undertook corporate training of whatever kind during 2010. Given that the average payout reduction calculated above is based on a client that uses mainly online training, the average appears to be prudent, given that other clients may make more use of the even more effective classroom and on the road training.
- ▶ *Deductions for deadweight and alternative attribution:* These are consistent with the deductions used above (p.45-46) in order to reflect the likelihood that improvements in vehicle technology might mitigate the impact of RTCs and the value of the contribution of employers in choosing to undertake the training.

# The IAM's driver/rider training, the advanced test and local groups

## Background to the models

The probability tree shown at §5.9 highlights the outcomes that may (or may not) be measured as part of this study. For the purposes of this work, our focus has been on those drivers/riders for whom training delivered by the IAM is likely to result in outcomes that are above average (i.e. where the improvement in safety is incremental to that observed for the wider population). To identify the extent of such improvement, we have taken information provided by the IAM on the total number of insurance claims made by members. A deduction of 75% is made from this total to account for 'damage only' RTCs that do not result in any injury (and are therefore not included in Stats19). This deduction is felt to be prudent based on the experience of the IAM working group, who believe that the vast majority of claims made to insurers are for damage rather than injury. The adjusted number of RTCs that involve a minor injury or worse is then used to compute the number of RTCs per member and this ratio may be compared to the equivalent data for the wider population to assess the extent of the improvement achieved.

For the purposes of this comparison, we have used the Stats19 data specifically relating to motorists aged between 40 and 49, being the age at which the IAM believes the most typical of its members choose to undertake the test. The use of this subset of the Stats19 data is felt to take reasonable account of the perceived age/demographic variance among IAM members compared to the wider population.

For those members that are unfortunate enough to be involved in an RTC, it is assumed that their training might mitigate the severity of the outcomes. This has been achieved by comparing the outcomes of RTCs for the wider population with those assumed for IAM members. This highlights a reduction in more severe RTCs but proportionately higher numbers of minor RTCs (i.e. the saving from avoiding a serious injury or fatality is partially countered by an increase in the number of minor RTCs).

IAM members have been taught best practice driving techniques which, if applied properly, are expected to result in savings in motoring costs including fuel, brake wear and tyre wear. IAM members' enhanced skills allow them to achieve an insurance saving via the IAM's member insurance policy.

Local IAM groups form a national network of organisations whose function is to promote road safety, specifically through encouraging improvements in the standard of motoring skills in their local area. Many groups are invited to be involved at a strategic level in local road safety planning, which gives a local voice to the IAM's national research work and helps local authorities to make better decisions on strategic matters such as road layout changes, the identification of risk areas and the mitigation of such risks.

Local groups also provide the network of qualified observers to deliver tuition for the advanced test, without whom the IAM's ability to deliver driver/rider training would be impaired.

The benefits of local group membership include regular meeting with other like-minded people with a focus on road safety and maintaining the highest possible standards of driving. This encourages members to maintain the techniques they have been taught and, therefore, increases the longevity of gains achieved by advanced driver/rider training. Groups also provide a forum for updates to best practice to be disseminated: for example, changes to emergency braking techniques following the introduction of ABS on vehicles could be passed on to members via local groups, thereby allowing members to keep up with best practice (see above §2.11).

There is, however, a distinction between 'active' members of groups (those that become observers or committee members) and 'passive' members (those who join, but do not take an active role in, the local group). The IAM has assumed that active members are more likely to maintain best practice than passive members. In part, this is because observers may be required to demonstrate advanced driving techniques during lessons and in order to pass regular re-testing that is in place to ensure that observers are maintaining a high standard. The incentive for passive members to maintain standards is less strong than for active members and the evaluation models have been developed to recognise this distinction.





## Results of the models

### *Reduction in the number of RTCs*

The table below shows an evaluation of the reduction in the number of RTCs among IAM test passes:

RTC cost savings - RTC avoided	Assumption	Calculation	Evaluated benefits (£)
Number of IAM test passes (latest year)	4,223		
Total KSI and minor injury incidents per Stats19	222,146		
Total UK Licence holders	30,000,000		
Therefore average incident ratio for wider population (incidents per licence holder)	0.7%		
Total IAM member claims (exc. Theft, fire and malicious damage)	821		
Proportion assumed to be 'damage only'	75.0%		
Total IAM members (inc. latest year test passes)	102,218		
Therefore IAM claim ratio (claims per motorist)	0.2%		
Therefore improvement in RTC rate vs. average		0.5%	
Therefore number of RTCs/claims avoided		23	
Proportion of RTCs that involve a fatality (age 40 to 49)	1.1%		
Proportion of RTCs that involve a serious injury (age 40 to 49)	11.5%		
Proportion of RTCs that involve a minor injury (age 40 to 49)	87.4%		
Economic damage from a fatal RTC	1,790,200	448,807	
Economic damage from a serious injury	205,060	537,458	
Economic damage from a minor injury	21,370	425,678	
<b>Total economic and other damage avoided per annum</b>			<b>1,411,944</b>
Discount rate	3.5%		
Total economic and other damage avoided (Yr 1)	45.0%	635,375	635,375
Total economic and other damage avoided (Yr 2)	80.0%	1,129,555	1,054,452
Total economic and other damage avoided (Yr 3)	70.0%	988,361	891,445
Total economic and other damage avoided (Yr 4)	60.0%	847,166	738,256
Total economic and other damage avoided (Yr 5)	50.0%	705,972	594,409
<b>Total economic damage avoided over five year half-life</b>			<b>5,325,881</b>
Deadweight	20.0%		(1,065,176)
Alternative attribution	25.0%		(1,331,470)
<b>Economic and other damage avoided due to IAM</b>			<b>2,929,234</b>

#### Key assumptions

- ▶ *Number of IAM test passes:* the IAM's records show that 4,223 drivers/riders passed the advanced test in the 12 months to February 2011. This excludes the 616 candidates that undertook training but failed the advanced test during that period. Whilst test fails have been excluded, we note that any training is likely to confer a benefit on these drivers, and as such this evaluation is felt to be a prudent reflection of the impact of driver/rider training.

- ▶ *Incident rates for the IAM and the wider population:* the RTC rate for IAM members is based on the total number of incidents (per the IAM's member records) less a deduction of 75% to reflect the likelihood that the vast majority of claims are for damage only (rather than injury or fatality) incidents. This is in line with the IAM working group's knowledge of insurance claims for the wider population, and is felt to be prudent in light of the observed claim values assigned to these incidents (typically below £1,500). The resulting incident rate of 0.2% is derived from the adjusted number of claims (205) divided by the number of members (102,218). For the wider population, the number of RTCs in 2009 involving an injury or fatality (222,146) is divided by the number of licence holders assumed still to be actively motoring (approximately 30 million of 34 million total licence holders are assumed to be active) to give an RTC rate of 0.7%. Hence, a reduction in incident rate of 0.5% (i.e. an improvement of c71% compared to the wider population) is observed among IAM members.
- ▶ *Severity of RTCs and economic damage caused:* the data on the proportions of RTCs by severity and the economic damage associated with each level is taken from Stats 19 data.
- ▶ *Future benefits of training:* given that the claim ratio used is the annual rate, the probability that an RTC will be avoided due to improved driver/rider skill continues to have an impact in future years. For advanced test passes in the latest year, it is assumed that this benefit will continue to flow in future years, subject to attrition due to likelihood of a gradual adoption of bad habits over time. It is assumed that advanced driver/rider training confers benefits with a 'half-life' (i.e. the time taken for a 50% reduction in efficacy to occur) of five years, with proportions of advanced test passes benefiting from their training in this way restricted by attrition rates of:
  - ▶ *Year 1:* 10%. This is to reflect the assumption that advanced test passes occur evenly throughout the year, hence, on average, half of the test passes may be expected to benefit. The 45% assumption implies a full-year rate of 90% (i.e. 10% of the test passes would revert to the average within a year). This is felt to be a prudent assumption.
  - ▶ *Year 2:* 20% (i.e. 100% - 80% assumed to continue to benefit from training)
  - ▶ *Year 3:* 30% (i.e. 100% - 70% assumed to continue to benefit from training)
  - ▶ *Year 4:* 40% (i.e. 100% - 60% assumed to continue to benefit from training)
  - ▶ *Year 5:* 50% (i.e. 100% - 50% assumed to continue to benefit from training)
- ▶ *Discount rate:* a discount rate of 3.5% has been used to evaluate the future benefits (subject to the assumed attrition rates). Discounted Cash Flow ("DCF") methodology is discussed in detail at Appendix C. The rationale for a discount rate of 3.5% is as follows:
  - ▶ It is broadly consistent with a typical risk-free rate for project appraisal (in line with the returns on UK Government Stock);
  - ▶ It equates to the long term average annual inflation rate in the UK economy (calculated over 20 years per the Bank of England); and
  - ▶ It is the project appraisal rate recommended for use by HM Treasury for projects lasting up to 30 years.
- ▶ *Deadweight:* A deduction of 20% for deadweight is felt to be a prudent reflection of the 'risk' that there might be a natural improvement in driving standards. It also reflects the possibility that a driver/rider might apply the appropriate evasive techniques to avoid an RTC due to 'luck' or inherent skill.
- ▶ *Alternative Attribution:* Given that the majority of RTCs are attributed to driver/rider error (see §2.13), it seems logical to conclude that the reduction in claim ratios is primarily due to driver/rider skill arising from better training. To the best of the IAM's knowledge, the only likely source of further training in this regard would be an IAM advanced test pass. Some value is to be attributed to the driver/rider, who has taken the initiative to seek further training. However, the IAM has assumed that the majority of this benefit is attributable to the training it has provided, given that a desire to improve does not of itself give rise to any improvement, although it may contribute to the sustainability of the benefit derived from training. In the absence of empirical data from which an assumption could be reliably derived, a deduction of 25% was felt by the Action Research group to be a reasonable reflection of the sustainability of the value created arising from the commitment of the driver/rider.

## Reduction in the severity of RTCs

The table below shows an evaluation of the reduction in severity of RTCs among IAM members:

RTC cost savings - RTC mitigated	Assumption	Calculation	Evaluated benefits (£)
IAM test passes (latest year)	4,223		
IAM RTC rate	0.2%		
Therefore number of RTCs		8	
Assumed IAM claim fatality ratio	0.90%		
Assumed IAM claim seriously injured ratio	10.75%		
Assumed IAM claim minor injury ratio	88.35%		
Fatality ratio variance compared to average	0.2%		
Serious injury ratio variance compared to average	0.8%		
Minor injury ratio variance compared to average	-0.9%		
Economic damage from a fatal RTC	1,790,200		30,360
Economic damage from a serious injury	205,060		13,041
Economic damage from a minor injury	21,370		(1,721)
<b>Total economic and other damage avoided (p.a.)</b>			<b>41,680</b>
Discount rate	3.5%		
Total economic and other damage avoided (Yr 1)	45.0%	18,756	18,756
Total economic and other damage avoided (Yr 2)	80.0%	33,344	31,127
Total economic and other damage avoided (Yr 3)	70.0%	29,176	27,236
Total economic and other damage avoided (Yr 4)	60.0%	25,008	23,345
Total economic and other damage avoided (Yr 5)	50.0%	20,840	19,454
<b>Total economic damage avoided over five year half-life</b>			<b>119,919</b>
Deadweight	20.0%		(23,984)
Alternative attribution	40.0%		(47,968)
<b>Economic and other damage avoided due to IAM</b>			<b>47,968</b>

### Key assumptions

- ▶ *Number of test passes:* the IAM's records show that 4,223 drivers/riders passed the advanced test in the 12 months to February 2011. As noted above, this excludes the 616 candidates that failed their advanced test during the year, for whom there is likely to be some improvement.
- ▶ *Number of claims made:* This is based on the claim rate calculated above (p.53 to 54), from which an implied number of RTCs involving injury (or worse) for current year test passes of 8 is derived.
- ▶ *Variance in RTC severity:* using the IAM insurer's data on the severity of IAM member RTCs and comparing this to the severity of RTCs for the wider population based on Stats 19 data, a modest

reduction in the number of fatalities and serious injuries is countered by those more severe outcomes being replaced by minor injuries. The additional cost of minor injuries is treated as displacement, although the benefits of avoiding fatalities far outweigh the additional cost from minor injuries.

- ▶ *Economic damage of RTCs*: this data is taken from the Stats 19 report, as discussed earlier.
- ▶ *Future benefits of training*: given that the claim ratio used is the annual rate, the probability that an RTC will be avoided due to improved driver/rider skill continues to have an impact in future years. For advanced test passes in the latest year, it is assumed that this benefit will continue to flow in future years, subject to attrition due to likelihood of a gradual adoption of bad habits over time. It is assumed that advanced driver/rider training confers benefits with a 'half-life' (i.e. the time taken for a 50% reduction in efficacy to occur) of five years, with proportions of advanced test passes benefiting from their training in this way restricted by attrition rates of:
  - ▶ *Year 1*: 10%. This is to reflect the assumption that advanced test passes occur evenly throughout the year, hence, on average, half of the test passes may be expected to benefit. The 45% assumption implies a full-year rate of 90% (i.e. 10% of the test passes would revert to the average within a year). This is felt to be a prudent assumption.
  - ▶ *Year 2*: 20% (i.e. 100% - 80% assumed to continue to benefit from training)
  - ▶ *Year 3*: 30% (i.e. 100% - 70% assumed to continue to benefit from training)
  - ▶ *Year 4*: 40% (i.e. 100% - 60% assumed to continue to benefit from training)
  - ▶ *Year 5*: 50% (i.e. 100% - 50% assumed to continue to benefit from training)
- ▶ *Discount rate*: a discount rate of 3.5% has been used to evaluate the future benefits (subject to the assumed attrition rates). Discounted Cash Flow ("DCF") methodology is discussed in detail at Appendix C. The rationale for a discount rate of 3.5% is discussed earlier.
- ▶ *Deadweight*: The IAM has assumed that in the absence of a training intervention, the risk of a natural improvement in driving standards would be low. However, it is possible that a driver/rider might instinctively apply appropriate techniques. It is therefore felt to be prudent to include a deduction of 20% for deadweight.
- ▶ *Alternative attribution*: RTC severity may be mitigated by factors including driver/rider reactions but also by vehicle technology. A deduction of 40% has been assumed, to reflect the likelihood that mitigation may be due to both the natural ability and/or 'luck' of a driver/rider (see §0) and improvements in vehicle safety technology. This deduction is higher than that used above for the impact of avoiding an RTC (p.51-52). The rationale for a higher deduction in this case is that in situations where an RTC is 'inevitable', more external factors may affect the severity of outcome whereas avoiding the RTC is more likely to be solely due to driver/rider skill. The external factors that may influence the outcome of an RTC may include the nature of the vehicles involved, the nature of roadside furniture including safety barriers, the safety technology installed in the vehicles involved and the behaviour of the advanced motorist prior to the RTC (i.e. whether they apply their advanced training or not).

## Reduction in motoring costs among IAM members

The tables below show evaluations of the reduction in motoring costs achieved by applying advanced driving techniques for cars and motorcycles:

Motoring cost savings - car	Assumption	Calculation	Evaluated benefits (£)
Number of IAM test passes (most recent year)	2,756		
Proportion achieving a saving during year 1 post-training	45.0%	1,240	
Proportion achieving a saving during year 2 post-training	80.0%	2,205	
Proportion achieving a saving during year 3 post-training	70.0%	1,929	
Proportion achieving a saving during year 4 post-training	60.0%	1,654	
Proportion achieving a saving during year 5 post-training	50.0%	1,378	
Average cost of motoring (£ per annum)	3,881		
Saving achievable for IAM test pass	5.0%		
Therefore saving per test pass (£ per annum)		194	
Discount rate	3.5%		
Discount factor - year 1	0.97		
Discount factor - year 2	0.93		
Discount factor - year 3	0.90		
Discount factor - year 4	0.87		
Discount factor - year 5	0.84		
Total saving - year 1			232,493
Total saving - year 2			399,343
Total saving - year 3			337,609
Total saving - year 4			279,593
Total saving - year 5			225,115
<b>Total saving in motoring costs for IAM test passes</b>			<b>1,474,153</b>
Deadweight	5.0%		(73,708)
Alternative attribution	40.0%		(589,661)
<b>Economic and other damage avoided due to IAM</b>			<b>810,784</b>

Motoring cost savings - bike	Assumption	Calculation	Evaluated benefits (£)
Number of IAM test passes (most recent year)	1,467		
Proportion achieving a saving during year 1 post-training	45.0%	660	
Proportion achieving a saving during year 2 post-training	80.0%	1,174	
Proportion achieving a saving during year 3 post-training	70.0%	1,027	
Proportion achieving a saving during year 4 post-training	60.0%	880	
Proportion achieving a saving during year 5 post-training	50.0%	734	
Average cost of motoring (£ per annum)	2,537		
Saving achievable for IAM test pass	5.0%		
Therefore saving per test pass (£ per annum)		127	
Discount rate	3.5%		
Discount factor - year 1	0.97		
Discount factor - year 2	0.93		
Discount factor - year 3	0.90		
Discount factor - year 4	0.87		
Discount factor - year 5	0.84		
Total saving - year 1			80,897
Total saving - year 2			138,954
Total saving - year 3			117,473
Total saving - year 4			97,286
Total saving - year 5			78,330
<b>Total saving in motoring costs for IAM test passes</b>			<b>512,941</b>
Deadweight	5.0%		(25,647)
Deduction for members that increase mileage due to IAM activities	10.0%		(51,294)
Alternative attribution	40.0%		(205,176)
<b>Economic and other damage avoided due to IAM</b>			<b>230,823</b>

#### Key assumptions

- ▶ *Number of IAM test passes:* the IAM's records show that 2,756 drivers and 1,467 riders (i.e. 4,223 drivers/riders in total) passed the advanced test in the 12 months to February 2011.
- ▶ *Assumed drop-off rate:* As noted above, it is felt to be prudent to assume that best practice techniques taught during the advanced driver/rider training may be replaced by bad habits over time. To reflect this, we have assumed that the driver/rider training has a five year half-life (i.e. the benefit has reduced by 50% in year five). The attrition rate used for this half-life working is as discussed above for the benefits of advanced training in relation to RTC avoidance and mitigation.



- ▶ *Average cost of motoring - cars:* For cars, this is derived from the AA's petrol car running costs basic guide for 2010<sup>P</sup>. The cost of £3,887 takes into account Road Tax, insurance and breakdown cover as standing charges (excluding cost of capital and depreciation, which are not cash running costs) plus running costs per mile (petrol, tyres, servicing costs and parking charges). For a car that cost between £12k and £16k the above standing charges amount to £684. With running costs of 21.31 pence per mile, and assuming an annual mileage of 15,000 miles, the running costs for the year are calculated as £3,197 per annum. Hence a total motoring cost for cars of £3,881 (£684 + £3,197 = £3,881). This data assumes petrol costs of 115.2 pence per litre. Current petrol prices are significantly higher than this, hence the cost of motoring used in this evaluation is felt to be prudent.
- ▶ *Average cost of motoring – bikes:* the latest available AA running cost data for bikes was issued in 2003<sup>Q</sup>. We have updated the costs to account for an increase in petrol prices in line with the petrol price used for cars above of 115.2 pence per litre. We have increased all other costs to account for inflation assumed at 2.5% per annum over seven years. On this basis standing charges of £819 are restated to £974 per annum. Running costs of 22.3 pence per mile increase due to petrol price rises and inflation to 31.3 pence per mile. Assuming an average mileage of 5,000 miles per annum, this equates to an annual running cost of £2,537 (i.e. £974 standing charges + running costs of 0.313p per mile x 5,000 miles = £2,537). This is felt to be prudent, given the more frequent servicing intervals required for more powerful bikes, which IAM members tend to be more likely to own.
- ▶ *Assumed saving achievable:* feedback from IAM members suggests that some significant savings are achievable if best practice driving techniques that are taught by the IAM are adopted. Typically, a member adopting such techniques is felt likely to observe a clear improvement in fuel consumption and reduction in tyre and brake wear. In addition to these points, members achieve a reduction in insurance costs as the training they have received places them in a lower risk category. The assumed savings of £127 to £194 per annum are felt to be prudent.
- ▶ *Discount rate:* the rationale for the use of a discount rate of 3.5% is discussed earlier. Further information on Discounted Cash Flow methodology is shown at Appendix C.
- ▶ *Deadweight:* in the absence of training it is felt to be unlikely that a driver/rider would instinctively apply best practice techniques, which are not included within the basic driver/rider training prior to the driving licence acquisition test. It is therefore felt to be reasonable to include a relatively low deduction of 5% to account for the 'risk' that a natural improvement might occur.
- ▶ *Increased mileage due to IAM activities:* for riders, IAM social activities tend to involve riding out to meetings or social events and as such may involve an increase in mileage compared to the rider's normal habits. A deduction of 10% is included in this model to account for those members for whom a saving is, to some extent, negated by such increases in mileage.
- ▶ *Alternative attribution:* improvements in running costs are due in part to the choice of the driver/rider to adopt these techniques, and their choice to seek advanced training. As such, part of the value is rightly to be attributed to the driver/rider. It was also noted that improvements in vehicle engine efficiency and safety technology may lead to, or make it easier to achieve, a reduction in motoring costs. Hence a deduction of 40% for alternative attribution is felt to be reasonable.

#### *Evaluation of total gain per test pass*

From the above models that consider the gains to test passes from the latest year, it is possible to evaluate a gain per test pass as follows:

<sup>P</sup> Accessed at [http://www.theaa.com/allaboutcars/advice/advice\\_rcosts\\_petrol\\_table.jsp](http://www.theaa.com/allaboutcars/advice/advice_rcosts_petrol_table.jsp)

<sup>Q</sup> Accessed at [http://www.theaa.com/allaboutcars/advice/advice\\_rcosts\\_petrol\\_table.jsp](http://www.theaa.com/allaboutcars/advice/advice_rcosts_petrol_table.jsp)

	Evaluated gain (£)	No. Of test passes	Gain per test pass (£)
KSI rate reduction	2,929,234	4,223	694
Incident mitigated	47,968	4,223	11
Running cost savings - car	810,784	2,756	294
Running cost savings - bike	230,823	1,467	157
<b>Total gain per test pass - bike</b>			<b>862</b>
<b>Total gain per test pass - car</b>			<b>999</b>

The table above shows that a gain of £862 (for riders) and £999 (for drivers) is derived over the five year half life of the training. This arises from the reduction or mitigation in fatalities or serious injuries (£705 per test pass) plus the running cost savings (£157 for riders and £294 for drivers).

*Reduction in the number of RTCs among pre-existing IAM test passes*

The table below shows an evaluation of the reduction in the number of RTCs among pre-existing IAM test passes (all of whom were trained by local groups whether or not they have maintained their membership):

RTC cost savings - RTC avoided	Assumption	Calculation	Evaluated benefits (£)
Number of IAM test passes trained by local groups (exc. Latest year test passes)	195,777		
Average RTC rate	0.7%		
IAM RTC rate	0.2%		
Therefore improvement in RTC rate vs. average		0.5%	
Therefore number of claims (and therefore RTCs) avoided		1,057	
Proportion of RTCs that involve a fatality	1.0%		
Proportion of RTCs that involve a serious injury	11.1%		
Proportion of RTCs that involve a minor injury	87.9%		
Economic damage from a fatal RTC	1,790,200		18,919,664
Economic damage from a serious injury	205,060		24,080,741
Economic damage from a minor injury	21,370		19,843,934
<b>Total economic and other damage avoided</b>			<b>62,844,339</b>
Deadweight	20.0%		(12,568,868)
Alternative attribution	25.0%		(15,711,085)
<b>Economic and other damage avoided due to IAM</b>			<b>34,564,387</b>

### Key assumptions

- ▶ **Number of pre-existing test passes:** Since inception, local IAM groups have observed some 400,000 drivers/riders through to their advanced test pass. Of these, some will have retired from driving, but it is assumed that some 200,000 are still actively motoring (i.e. current central IAM membership of 108,577 + 91,423 that have allowed their central membership to lapse). Whilst lapsed members may not necessarily achieve savings in the cost of motoring (and are excluded from the models that evaluate such savings), they are believed to be more likely to retain their hazard perception skills and therefore may be less likely to become involved in an RTC than the 'average' driver/rider (see above §0). From this total, we have deducted the number of test passes for the most recent year (for whom the gains achieved in this regard are evaluated in models shown above). This leaves 195,777 pre-existing test passes.
- ▶ **Claim rates:** the claim rates for IAM members and for the wider population are derived from data and calculations shown earlier in this appendix.
- ▶ **RTC severity and economic damage:** As noted earlier, this data is derived from Stats 19.
- ▶ **Deadweight:** As noted above, the likelihood that an improvement might occur in the absence of any intervention is perceived to be low, given that the majority of RTCs are attributed to human error despite improvements in vehicle technology. It is, however, possible that a driver/rider might apply the correct techniques either as a result of 'luck' or judgement. The IAM have assumed a deduction of 20% for deadweight, which is felt to be prudent.
- ▶ **Alternative attribution:** part of the value achieved from reducing RTCs is rightly attributed to the driver/rider for choosing to undertake further training and then choosing to maintain the high standards that they were taught. However, given the importance of the role played by the IAM in delivering and developing the advanced driver/rider training, a deduction of 25% is felt to be reasonable.

### Reduction in motoring costs for pre-existing IAM group members

The tables below show evaluations of the reduction in motoring costs achieved by pre-existing IAM members (i.e. those trained prior to 2010). For the purposes of identifying those members most likely to be making a saving, a distinction has been made between 'active' members (those members that are observers or committee members) and passive members (those members that do not take an active role in the group) . This reflects the perception that observers, in particular may be called upon by associates to demonstrate a particular technique at any time and are regularly re-assessed as observers (i.e. they cannot continue to act as an observer unless they are maintaining their driving standards to the appropriate level). It is felt that similar pressures to maintain standards may be felt by committee members. The tables below show the results of the evaluations for 'active' and 'passive' bike and car members:

Sustained motoring cost savings for active group members - car	Assumption	Calculation	Evaluated benefits (£)
Number of Group members affected	3,100		
Proportion for whom a saving in motoring costs is achieved	50.0%		
Therefore number of members achieving a saving		1,550	
Average cost of motoring (£ per annum)	3,881		
Assumed saving achievable by sustaining best practice	5.0%		
Cost saving achieved (£ per annum)		194	
<b>Total annual saving achieved due to group membership</b>			<b>300,739</b>

Sustained motoring cost savings for passive members - car	Assumption	Calculation	Evaluated benefits (£)
Number of Group members affected	9,200		
Proportion for whom a saving in motoring costs is achieved	10.0%		
Therefore number of members achieving a saving		920	
Average cost of motoring (£ per annum)	3,881		
Assumed saving achievable by sustaining best practice	5.0%		
Cost saving achieved (£ per annum)		194	
<b>Total annual saving achieved due to group membership</b>			<b>178,503</b>

Sustained motoring cost savings for active members - bike	Assumption	Calculation	Evaluated benefits (£)
Number of Group members affected	3,000		
Proportion for whom a saving in motoring costs is achieved	50.0%		
Therefore number of members achieving a saving		1,500	
Average cost of motoring (£ per annum)	2,537		
Assumed saving achievable by sustaining best practice	5.0%		
Cost saving achieved (£ per annum)		127	
<b>Total annual saving achieved due to group membership</b>			<b>190,249</b>

Sustained motoring cost savings for passive members - bike	Assumption	Calculation	Evaluated benefits (£)
Number of Group members affected	9,700		
Proportion for whom a saving in motoring costs is achieved	10.0%		
Therefore number of members achieving a saving		970	
Average cost of motoring (£ per annum)	2,537		
Assumed saving achievable by sustaining best practice	5.0%		
Cost saving achieved (£ per annum)		127	
<b>Total annual saving achieved due to group membership</b>			<b>123,028</b>

#### Key assumptions

- ▶ *Number of group members:* Local IAM groups have 25,000 members, split between:
  - ▶ 3,000 bike members that are observers or committee members;
  - ▶ 9,700 other bike members that do not take an active role in the local group ;
  - ▶ 3,100 car members that are observers or committee members; and
  - ▶ 9,200 other car members that do not take an active role in the local group.
- ▶ The tables above exclude advanced test passes that have allowed their membership to lapse, but who may still be achieving some level of saving by applying advanced driving techniques, although their lapsed membership may indicate a partial loss of interest. Excluding these drivers/riders in this analysis is felt to be prudent.
- ▶ *Proportion of active members achieving a saving:* it is assumed that 50% of active members are achieving a saving on their motoring costs. Given that all IAM test passes should be able to obtain insurance at a reduced rate, this is felt to be prudent, but reflects the likelihood that after several years the benefit of the training they have received has diminished to some extent. This fits with the assumed half-life of benefits used for latest year advanced test passes, which ceases to measure after year five when 50% of the benefits has been eroded.
- ▶ *Proportion of passive members achieving a saving:* the IAM has assumed that 10% of passive members have maintained their best practice driving techniques and are therefore achieving a saving on their motoring costs. Again, this is felt to be prudent, given that they should all be eligible for reduced insurance costs by virtue of their possession of the IAM test pass.
- ▶ *The average cost of motoring for cars and bikes is discussed above (p.55-57).*
- ▶ *Saving achieved:* the IAM has assumed that a saving of 5% of motoring costs may be achievable by applying advanced driving techniques. The Action Research group believe this assumption to be reasonable based on informal feedback from IAM members and their own experience. Furthermore the Action Research group believes that 5% is likely to be prudent given the potential level of savings on insurance costs that IAM members are able to access.
- ▶ Given that the vast majority of associates are believed to report a change in their driving habits and attitudes following their observation sessions and the advanced test and the relatively prudent assumption as to the level of saving achieved, no deductions are felt to be required in the models for deadweight or alternative attribution.

# C. Sensitivity analysis

## Sensitivity to changes in key assumptions

In order to present the sensitivity of the models to changes in key assumptions, we have made the following changes to the models:

	Research £'000	IAM training, test and groups £'000	Corporate driver training £'000	Total £'000
Per Appendix B	54,437	39,376	34,960	128,773
Reduce half life of training to three years	54,437	38,003	34,960	127,400
Reduce motoring cost saving to 2.5%	54,437	38,459	34,960	127,856
Increase motoring cost saving to 7.5%	54,437	40,293	34,960	129,690
Reduce attribution to IAM research work by 50%	27,219	39,376	34,960	101,554
Reduce improvement in corporate incident rates by 50%	54,437	39,376	18,526	112,339

On this basis, the conclusion derived from this work (i.e. that the IAM's work generates gains for society significantly in excess of its turnover) would not be materially altered, even if certain key assumptions were subject to a material change.

## D. Discounted Cash Flow methodology

Our analysis takes into account, where necessary, the premise that the value of money changes over time. The value of future cash flows is subject to the risk that those cash flows will not in fact occur for any number of reasons.

For the purposes of this report, assumptions provided by the IAM have been taken to be reflective of any risks associated with the likelihood of benefits actually flowing to the stakeholder concerned. This leaves the risk that the value of the benefit will fluctuate due to economic factors that are beyond the control of the IAM or stakeholder. This can be measured using a long term average rate of inflation. Where necessary a discount rate of 3.5% has been used, which equates to the average rate of inflation in the UK measured over the past twenty years, per the Bank of England. It is also consistent with the discount rate typically used by the UK Government for project appraisal (for projects lasting for between 0 and 30 years)<sup>R</sup>

For benefits only during the year in which they are funded no discounting is used as both the funding and the benefit are released during the year and the timings are therefore already matched.

Where a benefit occurs in a future year, the value of the benefit is multiplied by a discount factor to allow comparison with the cost of funding. The discount factor is calculated using the formula below:

$$DF = \left( \frac{1}{1+r} \right)^t$$

Where:

- ▶ 'DF' is the discount factor by which a future benefit is multiplied to restate it in current terms;
- ▶ 'r' is the discount rate used; and
- ▶ 't' is the time, stated in years, between the date at which value is measured and the date at which the benefit is achieved.

To measure benefits that occur at a fixed value over a period of time, the IAM was asked, where applicable, to assume that any future benefits occur in the form of a constant annuity over a fixed period. The expected annual cash flow is then multiplied by an annuity factor to give the value in present day terms of the benefit. The annuity factor is calculated using a modified discount formula, as shown below:

$$AF = \left( \frac{1}{r} \right) \times \left[ 1 - \left( \frac{1}{1+r} \right)^t \right]$$

Where:

- ▶ 'AF' is the factor by which a constant annuity is multiplied in order to obtain the present value of that annuity over a given period of time;
- ▶ 'r' is the discount rate used; and
- ▶ 't' is the number of years the annuity is expected to occur over.

Where an annuity is to be deferred for a number of years (e.g. a project is being developed now but the savings will not be realised for several years), an annuity factor is used to calculate the present value of the incremental benefits in the future which is then multiplied by a discount factor to restate it in present day terms.

<sup>R</sup> Lowe, J., 2008, Intergenerational wealth transfers and social discounting: Supplementary Green Book guidance, London, HM Treasury



## E. List of the IAM's research reports since 2007

Rural Roads – Britain's Biggest Killer (2007)

Star Rating of Roads in the UK (2007)

Barriers to Change (2007)

IAM Facts (2007)

Young Drivers – Where and When they are unsafe (2008)

16 – The Dangerous Age for Moped riders (2008)

IAM Motorcycling Facts (2008)

IAM Facts (2008)

Cycling Motorists (2009)

IAM Facts (2009)

Older Drivers: Safe or unsafe? (2010)

IAM Facts (2010)

Gender differences in driving attitudes and behaviour (2010)

Contributory factors in accidents (2011)

Annual Safety Camera Survey (2011)

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