The 4th International Safer Roads Conference
Cheltenham, UK, 18 – 21 May
Saving lives through safer roads
Please share this report, extract every ounce of value you can from it, use it as a reference guide to the papers and presentations available on the website www.saferroads.org.uk We look forward to seeing you in 2017 with fantastic stories on how we can save lives through improved road safety activities.

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Introduction

This report aims to summarise key findings and issues from 55 presentations, over 3 days of conference proceedings and includes 5 key note speakers.

The 4th International SaferRoads conference was held in Cheltenham, England from 19-21 May 2014. This gathering of technical experts from around the world provides a forum every three years for the latest expertise and knowledge to be shared and published, with key aims to improve road safety. In particular, focus on the role of the road environment, especially pavement and surfacings and their contribution to reducing road trauma.

Each time the conference alternates between the northern and southern hemispheres and covers three days with keynote addresses, technical paper presentations and live demonstrations. There is also plenty of time for professionals to network in the themed trade exhibitors’ hall, with this year’s theme, Brunel.

The 2014 conference had three key supporters - W.D.M. Limited, New Zealand Transport Agency and the Chartered Institute of Highways and Transportation, with six sponsors and nine exhibitors.

This report provides a snapshot overview of the conference proceedings, not aiming at repeating detailed material contained in the formal papers, but provides more context and captures the key points presented in the various presentations. Often new material comes to light during the presentations and together with the key note addresses, it is important to capture these gems and present them in a report that provides a reference document for uptake of these good ideas.

With 7 formal technical sessions, and 55 papers presented across a wide range of subject matter, there was a wealth of information relating to how road networks are managed, maintained, assessed and treated to improve overall road safety. With leading edge technology and informative discussion this forum provided a platform for learning, development and sharing critically important safety initiatives across international boundaries.

The conference summary at the end of this report provides an overview of the topics covered and a snapshot of information gleaned across the three days of conference. The good news is this forum will continue as the NZ Transport Agency looks to host the 2017 SaferRoads conference in New Zealand.

Mark Owen
On behalf of the Conference Steering Committee

Key statistics:

3 DAYS EVERY 3 YEARS

55 PRESENTATIONS

>1000 HRS OF ABSTRACT/PAPER PREPARATION, PEER REVIEW AND PRESENTATION

12 COUNTRIES REPRESENTED

5 KEY NOTE ADDRESSES

1 AWESOME VENUE

125 ATTENDEES

7 TECHNICAL THEMED SESSIONS

1 STEAM TRAIN

5 TECHNICAL WORKSHOPS
Monday 19th

Conference address – Prof Fred Wegman MD, SWOV Institute for Road Safety Research, Netherlands.

“Future Challenges”
- OECD countries - a noted reduction in road fatalities e.g. Holland has seen an 80% reduction from the 1970's
- However, less reduction in injury crashes
- World Health Organisation (WHO) has 5 safety pillars
- Target to high risk areas & users
- Putting PEOPLE at the centre of a safe system - “… It is inevitable that road users make mistakes…”
- Swiss Cheese model (James Reason) - aim to reduce latent errors
- Ethical approach
- Proactive approach
- ‘people are the measure of all things’
- Use of road categorisation and homogeneity
- Safe speeds
- Physical separation is key focus (eg medians and segregated cycleways)
- Need a paradigm shift in thinking [a stepped change] focusing on proactive approach

Keynote speaker Mike Wilson, Chief Highways Engineer, HA.

“The Influence of Safety on Network Management”
- 7,000 road network managed by Highways Agency (HA)
- HA that’s recognised need to focus more on ‘operating’ the network
- Challenges = traffic growth! Demand on network performance (e.g. 6,000 lane incidents per month), crash rate trends and technology advancements (e.g. smart motorways) given 0.5million incidents per year
- Vision = high capacity! High speed network with no planned disruption and safe and sustainable for customers and communities
- 5 year Roading budgets now set with HA transitioning to Government Owned Co
- Transformation - focus on customer service, capable assets, improved operation of the network, high performing client and supply chain
- Roads/Vehicles/People
- Contributory Crash factors - using Police assessment, No.2 is loss of control while No.9 is slippery road [opportunity to review road factors in loss of control crashes, as not recognised by those analysing data]
- 80% of HA network planned to be resurfaced over next 5 years [note opportunity to target longer lasting skid resistance surfaces]
- post collision response and resultant congestion impacts

Notes:
Implementing the Transport Scotland skid policy through the use of Operating Companies (UK Martin McLaughlin)

Scottish skid policy similar to that used in NZ. Further developments to process prioritisation.

Skid Policy - Transport for Scotland
- £2b annually on 6800km of main/trunks roads, including rail and 2000 bridges
- Skid Policy Guideline for HA, Scottish Executive, Welsh Assembly & Northern Ireland
- Scottish Executive survey 100% of network annually
- 16,574 sites identified in 2012, hence due to high number of challenges of inspecting, developed a prioritisation process and only top 1,000 sites investigated annually
- Site categories reviewed every 3 years

Dedicated “skid manager” under new generation Contract models.

The impact of severe weather events on Highway authorities in the south west of England (Mark Stephenson)

Cornwall -12 storms caused surface flooding, coastal defence damage due to wave action

Somerset - subsequently developed a Resilience Plan, 20 year Flood Action Plan

Severe weather events appear to becoming more common – is it a blip or a new trend?

Highlights the need for dedicated “emergency funding”.

Regions can apply for grants from Central Government but this underlines the need for a robust Asset Management Plan to convince the funders.

The choices between life and death – a case study (Australia)

Case Study into a fatal crash in Australia.

“Blamestorming” – doesn’t help.

Positive changed transpired from the investigation:

- Closure for families/driver
- Bus Mechanically sound
- Seat Belts – message to remind need to use (fitted but not used in this crash)
- Child restraints
- Use of safety glass
- 100kph limit/slippery when wet signs – not a good combination
- Closing the Maintenance Loop – Low SR means work gets undertaken

Incidents deserve investigation as they have a huge learning potential.

Illustrates that “silo mentality” is no longer appropriate in road safety management.

The Management and benefits of automated survey data collection (NZ Pam Ball)

- significant % of data collected is pavement/surfacing survey data (97.5%)
- consistency of survey data is important
- professional service contract provides technical expertise for road agency
- encourages collaborative team = Performance, Commitment, Reliability, Team Spirit
- NZ highway has 14 climatic zones and 114 Seasonal sites
- Tools to visualise survey data & video

Consistency of data is key and well valued.

Requires collaborative partnership.
Improving a great skid resistance policy: New Zealand’s state highways
(NZ Dave Cook/John Donbavand)

Utilised information readily available to develop robust standards.
Prioritisation system for skid resistance introduced.

Keep reviewing and updating.
- Backbone of the policy is the Investigatory Levels
- Macrotexture levels based on speed environment
- Survey Exception Report produced with uncorrected data provides early response opportunity to treat site prior to onset of winter
- National prioritisation process adopted and now ring-fenced funding to treat sites based on risk and network road classification and also allows network management area benchmarking
- If the surface stone fails early through polishing - don’t use that stone against at that location
- For aggregate performance, use local knowledge
- Goal = right sites! right treatments! right aggregates!

Keynote speaker Prof J D. Lee, Department of Industrial and Systems Engineering, University of Wisconsin - Madison.
“Technology Trends and Traffic Safety”.

- More change in road technology in next 5 years than in the previous 50
- In 1970 a large building housed computer technology for what the iPhone has today and by 2050 will be the size of a human blood cell
- 47% of employment may be replaced by computer automation
- Safety Technology = good
- Distraction Technology = bad
- Autonomous Driving = uncertainty
- Reductionistic, using driving simulators
- Naturalistic, using data from instrumented vehicles. Distraction factors monitored with cell ph usage and singing major distractions
- Opportunistic, using data from non-traditional sources eg Twitter
- Customer complaint database off vehicles safecar.gov
- Lead Indicator using trend data from this customer complaint data trend

Notes:


Safer Roads Conference Cheltenham, UK
Parallel technical session: Safety Engineering, Design & Maintenance

The new Zealand skid resistance policy and crash rate & skid resistance trending for the different site categories (NZ Mark Owen)
We are aspiring to be lifesavers.
SH wet road crashes trending down.
Difference between SH and local roads is proof the policy is working.

Efficiency and performance of diamond grinding in Texas (USA Prasad Buddhavarapu)
Diamond grinding had limited success – not skid resistance or noise reduction (especially if you use limestone)
Did longitudinal not transverse grinding.
- comparison of diamond grinding concrete road surface versus cost to overlay with thin asphalt
- trial measured changes to texture, skid resistance noise and roughness, all of which improved in the initial 3-6 months but noise back up to close to original by 9 months

A review of the use of high friction in London (UK Mark Stephenson)
Considering relaxing the standard for using Calcined Bauxite but not one size fits all and reducing IL from 0.55 to 0.5 to allow natural aggregates.
- Very high crash rate on approaches to pedestrian crossings
- New crossings require HFS but not obvious that ongoing maintenance is fully captured, other than generic skid policy
- Typically designed for 4-8 year service life
- Trial looked at reducing approach treatment length to 40m

Road safety analysis: a case study of national highway 1-A in India (India Mohammad Shafi Mir)
- 55km highway 2010 & 2011 had 285 reported crashes and 420 road fatalities
- Analysis undertaken to determine black spots were then ranked and 17 local sites identified
- Then looked at causal factors and site specific countermeasures Have developed a prioritisation scoring process applied the black spots and ranked.

Development and use of a skidding strategy for a local authority (UK Charles Catt)
No texture depth requirement.
Investigation is the first action in response to Exception Report.
- Adopted HD 28/94 & then principles of HD 28/04
- Using straight average of 3 years SC data
- 4 stage categorisation process, and in addition, any known high crash sites
- Lots of temporary surface contamination due to late harvesting after a wet summer coincided with annual SCRIM survey and affected the results
- No texture depth requirement for Warwickshire road network (...seems to work...C Catt)
- The site survey checklist was a useful on site reminder of what to look for
- When reducing IL’s, there is a 2 stage process. Where no crashes for last four years, but this excludes drunk and excessive speed crashes [?? Is this a safe system approach??]
How to allow for seasonal effects when using skid resistance data (UK James Mitchell)

- CSC = 3 year average of Survey results, plus current years data
- ESC = 3 in year seasonal measurements on a range of benchmark monitoring sites, then averaged and 3 previous years survey added to gain 4 year median
- Noted the effects of an extremely dry summer
- Yearly fluctuations due to changing weather patterns, therefore the timing of the survey is important, with 10% variations in seasonal corrections observed

Different ways of correcting data. - CSC/ESC

Between year corrections are important.

Guidance for undertaking skid resistance site investigations in London (Anuradha Premathilaka)

Training guide is good tool. Important that AM’s are trained to correctly use policy.

Commended T10 for prioritisation.

- 2157km, 33 Boroughs - all vary and hence difficulty to apply 1 policy for all
- Hence London Skid Resistance Strategy developed as a training guide for site investigation
- 2 options, either Priority Category or Priority Score (more factors assessed)
- Good example of field inspectors forms

Lessons from 3 reviews of how skid strategies are implemented (UK Mark Stephenson)

- London (33 Boroughs and TfL), Transport for Scotland & Somerset
- Staff resources, changes and competency are key contributors
- Some Road agencies/suppliers have defined Skid Manager role
- How to manage day, especially from numerous sources and some Road Agencies still adopt paper (hard) copy methodology

Consistency is good but also needs to be flexible.
The New Zealand safe system in practice – a sector wide training programme (NZ Carey Griffiths)

The Safe System in Practice training course was developed as part of the New Zealand Safer Journey’s road safety strategy. It is a two day course with seven presentations bringing a range of disciplines together using case studies to analyse problems and present solutions. The course has been well rated by participants, the goal being to change the conversation amongst safety practitioners, learn from each other and tell the story in a consistent way. Over 800 people have attended so far and another 500 are anticipated to attend over the next year.

Effect of right turn lane on motorcyclists’ gap acceptance and hazard perception during intersection approach (Malaysia Mohd Khairul Alhapiz Ibrahim)

Crashes at intersections have severe outcomes for motorcyclists; human error on the part of the rider or the driver of the other vehicle is the primary contributing factor. To assess the road design factor of installing a right-turn lane, a comparison of rider behaviour at two types of intersection was made. It was found that the rider was more likely to reject small gaps between on-coming vehicles when waiting in a right-turn lane, so this suggested a successful safety effect of the lane. However, although the rider accepted smaller gaps when waiting in a general lane, they also acted with heightened hazard perception in this situation - this was measured in the form of signal use and choice of speed.

A case study of the prevalence and characteristics of red light runners in Malaysia (Malaysia Hawa Mohamed Jamil)

In Malaysia there is a growing number of intersection related crashes. A study was carried out to examine the prevalence of red light running at four intersections with high accident rates. The factors assessed were traffic light cycle length, vehicle type, traffic light cycle type (automated or vehicle actuated) and time of day (peak or off peak). Three of the factors were significantly related but time of day made no significant difference. Most importantly out of over 5000 vehicles observed approximately 12% ran the red light. This research quantifies one of the contributing factors to controlled intersection crashes and recommends engineering counter measures and automated enforcement.

The safety effectiveness of the audio tactile profiled markings programme (NZ Dr Fergus Tate)

There is a high cost for installing and replacing audio tactile profiled markings. This study is about evaluating the cost/benefit to determine the value of these markings in terms of reducing fatal and serious injury crashes. The evidence (22% reduction in injury crashes) provides statistics for not just maintaining the project but increasing the extent of installation on the New Zealand network.
Speed calming using vertical deflections in road alignment (Egypt Dr Hassan Mahdy)

No presentation on the day.

Average speed enforcement: share the benefit spread the cost (UK Geoff Collins)

Average speed enforcement systems are expensive but very effective in reducing fatal or serious injury crashes. To reduce the cost Vysionics ITS Ltd have developed a system where signage and street furniture is installed in multiple locations on a network (relatively low cost) but the real gear, the POD portable outstation device can be moved around by installing into the pre-set sites as desired. So there is a visible impression of widespread monitoring although only one monitoring site may be active. The theory is that people or processes are changed simply through the perception that monitoring is taking place.

Predicting animal vehicle collisions for mitigation in Texas (USA Dr Prasad Buddhavarapu)

210 people died due to animal vehicle collisions in the United States in 2008. Understanding the features of a severe animal/vehicle collision can be used to identify high risk area for mitigation. Some of the contributing features include higher statistics for darkness hours, wild animals (deer and feral hogs), months of October, November, December, and the worst outcome is for motorcyclists.

Making knowledge exchange between theory and practice a reality: A practical model to enhance road casualty reduction on a decreasing budget (UK Paula Wellings)

Cornwall Council are using the KTP, Knowledge Transfer Partnership to embed evidence based intervention strategies to reduce serious and fatal injuries. Some of the interventions include: Learn2Live – young driver intervention, an awareness campaign for leisure riders based on the implications for families, an awareness campaign for young riders focused on cost and a child pedestrian training programme. The evidence based interventions are selected with a customer focus and a change management team plans delivers and monitors the results. This evidence based practice (EBP) is the methodology adopted for efficiency during a time where public spending has been reduced.
Tuesday 20th

**Keynote speaker:** Andrew Millar, Chief Technical Officer, Thatcham Research.

Safe vehicle Transport – the roles of collision avoidance and real time data acquisition
Thatcham UK motor insurers automotive research centre
Intelligent roads, intelligent vehicles and intelligent drivers
Covered vehicle development, Google car, Telematics

Autonomous vehicles even with a supporting infrastructure will hold challenges for our whole society, for example global standardisation and liability resolution. The transition will take many years.

Total costs of the average injury crash are approximately 90K.

Telematics benefits...20 to 30% reduction in claims cost

First real step: AEB, Autonomous emergency breaking

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Driver Information/Skid Resistance Measurement & Safe Systems

**An overview of NZ history with skid resistance on the highway network** (NZ Mark Owen)

**Skid resistance performance of melter slag based surface dressings on Hawke’s Bay rural state highways** (NZ Dave Cook/John Donbavand)

Alternative artificial aggregates other than Calcined Bauxite may be useful to address skid resistance issues in high risk areas.

Can be difficult to use and lay.

Achieved longer seal lives

**Use of reclaimed asphalt in the surface course – the effect on friction** (UK Dr Alan Dunford)

Mixing low and high skid resistance materials will give medium results.

**Surfacing Aggregate skid resistance performance** (NZ Dave Whitehead)

Test for polishing resistance may need to be revised.

Practical data mining exercises are good at engaging suppliers in aggregate performance method.

**Use of 3D modelling techniques to better understand road surface textures** (UK Dr David Woodward)

**Safety hardware and materials for safer, forgiving highways** (USA Arthur Dinitz)

Remove obstacles if possible but if not make all obstacles frangible.

**Towards contactless skid resistance measurement** (Germany Dr Andreas Ueckermann)

Hysteresis is dominant factor in providing friction indicating microtexture not be important.

**An index for safety management of road networks** (USA Dr Prasad Buddhavarapu)

Developing models to determine crash risk and found to be 85% accurate.

The influence of humans, tyres and vehicles on road safety

**The Human Element** (UK Alexandra Luck)

We must design the road environment to improve safety.

Drivers process complex information visually at a very fast speed and sometimes in difficult environmental conditions including night-time.

By nature when we focus on a task we ignore other things and we also take risks.

Road design needs to be self-explanatory and evoke the correct driver expectations.
Do Periodic vehicle inspection programmes improve vehicle safety? A literature review (UK Dr Verona Beckles)

Road traffic crashes viewed by a surgeon as a major health problem. One of the factors is the road worthiness of the vehicle. This is a review of vehicle inspection programmes.

There is limited international information available and it is mainly from high income countries.

Mid to low income countries often have classic (old) vehicles and even non mechanical transportation.

Vehicle inspection programmes provide a snapshot and drive behaviour.

Good Pavement Texture – good tyre friction (USA Thomas Yager)

A hard day, every day – it’s a tyring life (UK Darren Lindsey)

Looked at the role of tyres and grip on wet surfaces. Smart tyres RFID tags mean information can be extracted.

What’s around the corner? What if one vehicle could alert another that it had lost traction? What about the tyre grading? This gives us an indication of the operating limits which could also be communicated.

Feasibility of using truck position data to identify accident risk (UK Dr Tony Parry)

GPS fleet tracking has been used in more detail to report harsh braking incidents. Most of these are found to have occurred approaching roundabouts. Incidence of harsh braking could be indicative of accident risk. In the future it would also be of benefit to analyse harsh cornering. Crowd sourcing data is increasing and could be used; other vehicle information could provide more data to work with.

Predicting splash and spray and its impact on drivers (USA Dr Alan Dunford)

Impressive use of survey data; geometry and texture, to calculate water on the road and identify hot spots. Water spray causes a small number of accidents but is also an inconvenience for motorists. The faster you go the more water there is. The work included literature review, user study, model development and validation.

The static contact patch of some friction measuring devices (UK Dr David Woodward)

Pressure mapping used to understand what happens when a friction measuring device is used. Shows the contact area between tyre and surface, for example a grip tester tyre on an SMA surface. Shows thermal heat and how the technology is beginning to be so precise as to show up the detail of the tyre.

The influence of roads on improving safety using lane support technologies (UK Matthew Avery)

Automatic Engine Braking AEB is just the beginning. Another development is lane departure correction. Run off road crashes occur on straight roads, where there is clear linemarking, in dry weather where there is good road condition and visibility. That is, it is not the road! Line markings are the rails for self-steering cars. Mono cameras, stereo cameras and radars are used to steer the driver back on the road. Driver interface can include audio warning and visual. In the UK 47% of line marking needs replacing.
Wednesday 21st

Main Auditorium

Keynote speaker: Carey Griffiths, National Road Policing Manager, NZ.

“Safer Journeys – An enforcement perspective on NZs Safe System approach”

New Zealand has a national multi agency governance via the national road safety committee. There is a ring fenced budget that supports continuous focus on road safety.

There is decade long strategy for road safety, 2010 to 2020, ‘Safer Journeys’. The aim is to create a system where a mistake doesn’t cost a life or a limb.

The pillars of the safer journeys system are,

People make mistakes, People are vulnerable, (we accept this)

We need to share responsibility, We need to strengthen all parts of the system (we manage this).

We now have legislation enforcing zero tolerance of young people drinking.

Last year NZ had the lowest road toll since the 50s.

The culture of acceptance of drunk driving is over.

The police force in NZ is a single national service, very low use of enforcement cameras, there is more reliance on people. They use iPhones and iPads which has really improved administration load and response times.

The enforcement threshold for speeding was reduced this summer for the Safer Summer Campaign, last summer there were 57 deaths, this summer there were 42.

There is strong supportive media and public conversation.

Technical Session: Road Surface – Materials & Specification

Current and future issues in skid resistance management in Australia (Australia Paul Hillier)

There is no mandatory requirement to measure/manage skid resistance but it’s a duty of care. There are attitudinal barriers to address and historical issues. Further guidance was issued between 2011 and 2013 but the effort to encourage skid resistance policy for local authorities is ongoing as this type of management is seen to be more within the realm of the national network.

Predicting the potential of local aggregate in surfacing mixes without the risk of road trials (UK Dr David Woodward)

Aggregate selection in the UK is based on PSV. The paper considers how the performance and durability of surfacing systems can be assessed easily. A ranking test to give a single value of fiction is not successful so there will be CPR and the FAP test. It assesses any mix using a slab test to wear it. There were two types of tests, natural aggregates and blends.

Blending of high PSV ag with low can be successful providing no more than 30% of the low PSV ag is added.

An assessment of the performance of the different aggregates in delivering skid resistance (UK Mark Stephenson)

Is there evidence to support aggregate selection, the database holds the information, this investigation looked at 9 different principal sources. It found better SRCRIM performance on lower hierarchy roads (traffic effect). Looked at different site category results for the same aggregate. Looked at the PSV values on two materials.

Different aggregate with the same PSV can give different skid resistance. Material guidance is important. Need to understand how batching plants use premium aggregates. Blending high PSV with low drags it down.

The aggregates performance is variable over a two IL band and the reason for variability is still being reviewed.
Losing our grip? The challenge of maintaining safe road surfaces on southern NZ state highways (NZ Peter Mortimer)

2010 revision of T10 ramped up the risk rating on high speed curves (category 2H at .5S) which resulted in a significant increase in the number of exceptions. Change to legislation for heavy vehicles has increased wear on the network. They’ve been using racked in seals using small chip grades and information is well recorded. 85% of test sections were achieving the threshold but the change to t10 increased the failure to 50%. Analysed history of skid resistance on the aggregates restricting the data to the relevant parameters. The Parkburn performed well on one network so they have tried that, the initial two years shows a quick drop so it will need monitoring. Not a given success despite performing well on another network. Also considering using 100% crushed faces.

High speed friction of thin surface course surface (UK Dr Alan Dunford)

6mm aggregate performs better than 10 and 14 mm aggregate which was surprising. Author indicated that SMTD not a good measure of how water is shed on the road.

TS 2010 a surface course designed for safety (UK Dougie Millar)

Thin surfaces in the UK were not performing. They have been blending a small grit into the voids to wear the binder off the surface stone. It gives you more grip and lasts longer. They measured skid resistance using SCRIM, grip tester, then open traffic, on different ‘trial panels’. In their specification no PSV or texture requirement.

Improved methodology for selecting polishing resisting aggregates for chipseals (NZ Jeff Waters)

NZ uses the UK skid resistance model but NZ roads aren’t like UK roads. We have different geometrics, heavies and predominantly use chipseal. The policy calls for an aggregate that works, that is doesn’t polish up too quick rather than just specifying a PSV. The threshold change for curves <=400m radius means there are a lot of sites failing. Network data comparison masks site specific investigation. Closer analysis can be made by looking at the lane and the wheelpath. Looking at this scenario it would appear that there is no aggregate in the Coastal Otago area that will meet the T10 performance criteria. Author mentioned it was excellent that NZTA share their data and aggregate performance is an excellent concept and that the aggregate performance model takes it further.
Technical session:
Maintaining safer roads in a period of austerity

Developing an optimised safety management philosophy reflecting the safe system in a constrained environment (NZ Dr Fergus Tate)

In the past road safety has been reactive. Largely quite successful BUT only specific sites get treated and crash history determines the level of treatment. Safer Journeys strategy is more proactive and targets high risk rural roads, where there is a lot of scope for improving personal risk. Star rating looks at safety level inherently present. Combining personal risk, collective risk, star rating and AADT gives a method for strategising safety treatments.

Prioritising state highway skid resistance in NZ: A policy for all budgets (NZ Dave Whitehead)

TH introduced in 1997. Managed around TL and IL, now incorporates seasonal correction and skid assessment lengths. Exception reports enable treatment of high risk sites. Sites are prioritised A or B. A is indicative of wet crashes within 250m of the site. 2nd level prioritisation is done after seasonal correction. Once sites are scored we can determine if investigation for treatment is necessary. Benefits include targeted funding, prioritisation works toward our goal for reducing the exceptions, funding directed to the regions needed, extend the life of seals.

The development and implementation of an infrastructure asset management in Cornwall (UK Andy Stevenson)

Finances are under challenge. Asset management includes risk and performance requirements. Inventories and condition are all evaluated in relation to budgets lifecycle, and maintenance plans. A maintenance hierarchy is applied to establish levels of service for each different type of asset. Various safety, serviceability and statutory factors apply. This process helps appraise options of risk, funding and potential LoS reviews due to funding constraints.

Managing a cost effective rolling programme using a pavement management system to deliver a safe road system in Carmarthenshire, Wales (UK Ian Cadwallander)

Maintenance program involved many isolated processes. Using WDMs Integrated Highway Management system and condition data to generate schemes. Can also integrate other datasets like customer request information and defect system information. Ranking sets are developed. They merged data driven schemes with wildcard/wish list schemes and then ranked and published on the web. What we’re going to do and when. Once identified it goes to the defect management system.

Delivering road safety in a challenging economic climate: The 3 Cs: Commissioning, Community and Culture (UK Tim Heminsley)

Commissioning is outcome focused. We do road safety treatments to save lives not simply to meet road safety outcome specifications. Think about how we and our partners deliver.
1. What’s the question
2. Know your customers
3. Outcomes and priorities
4. What will it look like
5. How will you get there
6. Measuring the impact

Community, people want reassurance and responsibility, so identify, engage and empower.
Culture, the intellectual environment we live in, the thoughts and beliefs we have. The education side is difficult to measure and justify costs. We need influence to get a positive message across.

Safety: Design construction or education? Smart motorways (UK Andrew Page-Dove)

Congestion comes with a high cost. 2005 started using the hard shoulder at peak times through ITS instructions to motorists. The number of assets increases, as does the risk to the road worker. The signage when it becomes intense can be less intuitive. Making the hard shoulder a permanent lane had some considerations. People stop on the shoulder for the wrong reason or when they panic about something, when they really shouldn’t, they are not safe. Hazard analysis carried out, all to do with the person behind the wheel, not the roading engineer.
Introduction

The 4th International Safer Roads Conference attracted widespread international participation, with a broad range of papers/presentations, making for a stimulating, thought provoking and quality conference. There were a comprehensive number of presentations and time for attendees to network and compare the latest developments. The conference has previously had a strong technical focus, however, this 4th Conference was broadened to encourage a wider safety perspective to be taken.

Overview Themes

Why are we here? Challenged each person to action the outcomes and think about what happens next.

Internationally (especially in developed countries) crash rates are showing a common downward trend since a peak in the 1970s. What are we doing about the future (i.e. to ensure a continuing downward trend) and who will influence and intervene?

Investment in effort and targeting effort/resources to risk.

Putting PEOPLE at the centre of a safer system! As it is inevitable that road users make mistakes.

Proactive approach - paradigm shift in thinking and behaviours. Need to set safety targets, lift the bar and ensure a stepped change in the way in which we influence road safety.

Use of lead indicators e.g. new car customer complaint data used as feedback on issues with the product. Move from building and maintenance mind-set to ‘operating’ with a strong Customer focus.

Identification - need to lead Action for example the use of field inspection forms. Also using trials as an opportunity to up skill practitioners.

People

You and I are at the centre of making a difference and applying the conference findings.

With number of presenters, approximately 55 presentations and hours of effort to prepare papers and present, this equals value for money The quality of papers has been high and continues to rise over 4 conferences to date.

Example of having a nominated Skid Manager role, as dedicated resource in the supplier team reflects significance of this specialist area.

Sustainability - staff resources, competency, changes, succession planning are all relevant topics to be considered as we go forward and see changes to the way Roading networks are managed, maintained and operated

We are all LIFESAVERS and our aim should be to apply safety principles and to save lives on our road networks, in whatever capacity and roles we currently have It’s about changing our conversations and attitudes, not just accepting the norm.

Use of social media

Cross Agency collaboration
Technical
Detailed, technical research - how to convert, understand and apply the findings if the stone surfacing fails early through polishing, don’t use it at that site again, utilise local knowledge.
Materials are a finite resource, hence their use should be targeted, hence on high risk curves eg use of melter slag
How materials perform and utilisation of the wealth of data - use the 80/20 rule
Seasonal variations, climatic changes and the impacts of these.
Who will assess these impacts and then act accordingly?

Technology & Innovation
Major advancements over the next 5 years in vehicle and road technology – a key point is how we transition and apply this in areas that may not have full application of this technology

Examples:
- Trade exhibitors
- Autonomous Emergency Braking (AEB) - great to see the blown up car as smart idea to test new braking systems
- Telemetrics - monitoring drivers, fleet event data recorders = 20-30% crash reduction
- Intuitive, self-explaining roads - people’s attention span, next generation with ageing population Using data for high splash/spray model Using GPS to monitor fleet eg harsh braking highlights high risk areas

Technical Demonstrations
- Thatcham Crash Avoidance Technology - did you brake when trying out the car?
- Klaruw surface re-texturising
- GERT ageing suit! Thanks to women from Heatherwood and Wexham Park Hospital
- TRL mini digi simulator NZTA
- Safe System workshop - condenses 2 days course into 30 min - will you change your conversation?

Summary
Excellent programme & content with conference programme, probably the best one on the four conferences to date, reflecting the professional development, maturity and update of good ideas and advancements in technology.
Good to have support from WDM, HA, CIHT and NZTA and all the supporters.
Overall a well-balanced programme, including variety of presentations, challenging and informative key note addresses, good interactive technical/practical sessions and plenty of time for networking in the trade exhibit area.
In summary, we now challenge, each delegate to consider how they are going to sell the benefits and value of the learnings from this conference, given the vast pool of material, papers, presentations highlighting latest thoughts and ideas, into how we continue to save lives.
The 4th International Safer Roads Conference
Cheltenham, UK, 18 – 21 May
Saving lives through safer roads