

## **Road Safety Audits in Australia 20 Years after Inception: Examination of Practical Issues and Limitations**

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### **Abstract**

Industry surveys examined road safety auditing in practice in Australia, 20 years on from its inception. This paper summarises the findings of the 33 qualitative surveys of 59 people. The target attribute of participants was a high level of experience undertaking or responding to road safety audits. Participants were from Vicroads, Councils, engineering consultancies, construction companies, and design companies. Interviews occurred in metro and regional Victoria, and in Brisbane. Key discussion topics were training, accreditation, and quality. Recommendations have been provided based on the findings. Key recommendations are: a generic, systematic and centralised reporting and management system; a model accreditation system; and, an industry group / organisation.

### **Introduction**

A generation has passed, and road safety auditing has matured in Australia. It commenced in the mid-1990s just after establishment in the U.K. It has become a well-established safety tool forming part of the road design / construction landscape and its basic meaning is widely understood within the road design / traffic and road safety engineering industry. Although road safety audits have become increasingly entrenched in road design / construction, very little has changed in 20 years in relation to 'road safety audit infrastructure'. For example: training; accreditation; and standard contract clauses.

Key aspects of design, project management and the industry in general have changed in ways that affect road safety auditing markedly. For example: the legal landscape; skills-retention within road authorities; skills shift from public to private sectors; risk management; and quantity of available auditors. Also, the process is essentially a review based largely on subjectivity and experience, yet there is scant critical examination of the road safety audit process and industry. As such, important issues such as quality, timing, consistency, accreditation, should be critically examined.

Informal feedback from people within the industry to the author has triggered this more in-depth survey into the 'in-practice' issues with road safety audits. This was done by targeting a number of key people highly experienced in the industry through lengthy individual or group discussions.

### *Objectives of the qualitative surveys*

- Understand the general positives and problems both from an auditor and client perspective.
- Examine the issues with reference to the first principles of a road safety audit, in particular quality and value.
- Formulate recommendations for the Australian context.

#### *Austroads Project T1774 Revision of Guide to Road Safety Part 6 – Road Safety Audit*

Austroads is currently undertaking Project T1774 ‘Revision of Guide to Road Safety Part 6 – Road Safety Audit’, with its interim report published September 2013. The Austroads research was Australia-wide, and the stated objectives are:

- “alignment of current road safety audit processes and practice with a Safe System approach to road safety
- harmonisation of road safety audit processes across Australian and New Zealand jurisdictions
- production of a clear, concise and easy-to-use guide for practitioners.” [1]

This survey work and the Austroads project have overlaps in scope, in particular with accreditation, training, risk ratings, variation to the standard process, and recommendations. However, the surveys and participant-types for this work differed by having the main focus on the first principles issues of *quality* and *value* from real-life practitioners able to speak freely (‘off the record’).

### **Survey Methodology**

#### *Participant Selection*

Participants were selected based on the author’s knowledge of the person’s participation in road safety audits from a client’s perspective, a practitioner’s perspective, or both. The author’s knowledge of these people is based on eleven years working full time in the road safety audit field (a relatively small niche area of road design / road safety). A secondary consideration was the level of access to and availability of participants. Many participants had practiced or lived in rural or regional areas, however, there was a general urban bias in the survey sessions and participant origins.

#### *Surveys*

The surveys were conducted between July 2014 and April 2015. The duration was typically 1-2 hours. At the start of interviews, participants were given a topic prompt-list as a guide, mostly compiled from previous sessions, and advised that they should feel free to raise any topic on any tangent relating to road safety auditing in practice. Topics were: accreditation, quality, independence, audit timing, client understanding of audits, report structure / content / language, detail and wording of recommendations, risk ratings, administration, training, signing-off, and predictions.

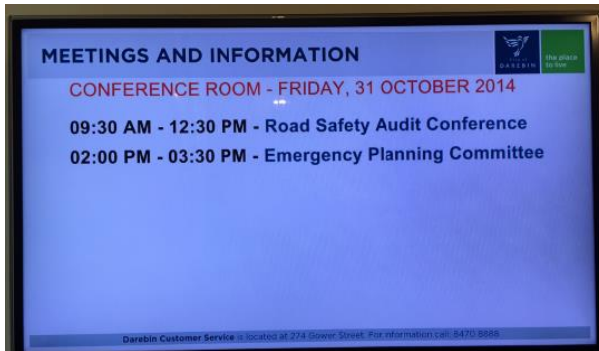


Photo 1 and 2: A discussion session in November 2014

### *Summarising and presenting the information*

All survey feedback points were inserted into tables under topic headings. The feedback under each topic heading was reviewed, with the dominant views extracted. Ideas/comments that were particularly different or thought provoking were extracted as individual quotes. Quotes have been used throughout the paper without referencing the specific source, as agreed with participants, for professional privacy.

### **Scope**

As this was private work with no funding, it attempted to examine the most important issues directly from some of the most experienced and respected practitioners in the road safety audit environment from the public and private sectors. The surveys were intended to initiate broader discussions within the industry, and also led to an extended paper in the form of a whitepaper which was disseminated into the industry in July 2015. The emphasis of the surveys was on Victoria, due to the author's location.

### **Summary of key findings from surveys**

- Some limited procedural/overview training is compulsory (2-day overview workshop), however technical road safety audit training does not exist in Australia.
- Accreditation systems have a very low standard to become a 'senior road safety auditor'.
- Some who engage or respond to road safety audits have a poor understanding of what a road safety audit is, and what it is not.
- There is no quality process for ensuring the client / designer understands the auditor's issue, either in part (the finding) or in full (the recommendation in the context of the finding).
- Audits are commonly triggered by a variety of reasons other than the guidance of a standard policy, and are being used for unorthodox purposes (outside of classical definitions in the Austroads guide).
- Quality assurance could remain as 'market-driven' through reputation, or move into a more professional realm with external validation, standards, and peer review.
- Wide range of views on the meaning of 'independence', and on report structure, language, content, wording, strength and specificity of recommendations. This reflects the relatively open guidelines.

- Road authorities tend to prefer a high level guidance in recommendations when compared to designers and consultants who prefer detailed recommendations through text and images.
- Some design audits are still not well timed to add real value to the project.
- Some standard audit specifications in road authority contracts are out of date with current practice.

### **Expanded findings from key topics**

#### *How are road safety audits triggered?*

Road safety audits are mandated within Vicroads through a road safety policy but are also routinely procured through the discretion of individual engineers. One Vicroads employee "...we frequently use audits as a tool to get a contractor to do what they are supposed to. Contractors are reluctant to listen to experienced [road authority] staff, however are more likely to listen to something an auditor says".

Local councils tend to carry out internal safety checks and only procure formal road safety audits on Vicroads funded projects, blackspot funding applications or local issue disputes. Design and construction companies stated that they carry out non-mandatory road safety audits at their own initiative and cost when the project is large, complex or specialised.

#### *Variation to standard audit types*

They are frequently commissioned for reasons other than those nominated in the *Austrroads Guide to Road Safety; Guide to Road Safety Audit Chapter 6*. The following alternative uses were described:

- To compare one design to another (especially feasibility stage audits).
- To arbitrate between disputing parties or an alternative opinion.
- A reactive crash-countermeasure tool rather than a proactive crash-minimisation tool (especially existing conditions and construction traffic management stage audits).
- A literature review on a specialised topic (e.g. a road safety barrier).
- A speed zone assessment.
- A compliance or design check.
- A risk assessment.

#### *Training*

Regardless of whether the course was conducted in Queensland, New South Wales or Victoria, the overwhelming majority of participants noted that road safety audit workshop is largely an overview session on 'process', and that auditing is experience / judgement based. Other than the short overview workshop, there is no initial or intensive specialist road safety audit training available. Participants stated that this results in a large proportion of accredited senior auditors with low-to-limited auditing experience, and a small proportion of practicing auditors with rich auditing experience.

Other noteworthy comments include:

- “Having done the training helps staff understand how to respond to audit points”.
- “Councils send staff to RSA training not necessarily to be able to do audits, but just to get experience and become more proficient in safety”.
- “the (Qld) CARS RSA course was much more interesting than the NSW one, but it still doesn’t teach you about auditing”.

### *Accreditation*

A recurring theme raised was that the accreditation standard is insufficient for progression to the status of ‘senior auditor’, and there is a stark lack of tested and verifiable requirement on whether or not the auditor has specialist skills and general experience to be conducting any or all stages of road safety audits.

#### *Victoria*

The requirements to become a senior road safety auditor in Victoria are:

- “a copy of a certificate from a recognised road safety audit training course, of at least two days duration;
- a brief breakdown of relevant experience, with a focus on road safety engineering, road design, traffic management or road user behaviour experience;
- at least five years’ experience in a relevant road design, road construction or traffic engineering field (this is a minimum and team leaders for audits of more complicated projects should have significantly more experience);
- at least five formal road safety audits undertaken under guidance of a Senior Road Safety Auditor, including at least three at design stages; and
- for Senior Road Safety Auditors to retain their status, they must keep their professional experience current by undertaking at least one audit per year.” [2]

#### *NSW*

The requirements to become a senior road safety auditor in NSW are similar to Victoria. Besides slightly more onerous requirements for ‘number of audits’ and ‘time in industry’, the main differences (for the Level 3 auditor) are:

- must undertake a lead audit training program
- must have a reference from a recognised Level 3 auditor [3]

It is noted that the lead auditor training program is a one-day course and is focussed on leading a team and project management. It does not train or test in technical proficiency<sup>[4]</sup>.

The standard of senior road safety auditor accreditation changed very little since it was agreed on in the 1990s by state road authorities to encourage people to train in this area.<sup>[5] [6]</sup>

### *Discussion*

A prospective client seeking a road safety audit for the first time has no way of evaluating the level of experience or specialisation of 'Senior Auditors'. The skills, experience and specialisations of individual auditors are at best self-declared. They are not externally or systematically validated.

The current system could be compared to a common vehicle roadworthy test. The roadworthy test gauges a basic set of minimum safety criteria. It does not evaluate mechanical reliability or quality.

It could be argued that none of this matters because quality is assured by clients seeking auditors with reputation. This is likely to be the case with some proportion of audits. However, many 'clients' are not road authorities, but are designers or contractors who have won a project extremely competitively. It is their decision on who to choose to carry out the audit, and it is an obvious commercial interest to have the audit as cheap as possible with minimal problems raised. As such, the quality of a road safety audit can easily become traded off for cost.

As noted by one participant: "If they are just being done for the sake of doing them, and the client has a low understanding of them and they are simply seeking the lowest price, there is very little value in conducting the audit at all".

### *Thoughts from participants*

Participants with particularly deep and long experience with road safety audits expressed:

- "It's the 'elephant in the room' issue, and an embarrassment, and completely undermines the credibility and value of audits and auditors".
- One participant explained that their employer doesn't rely on 'senior' status but have their own internal 'junior-senior' and 'senior-senior' due to the ease of obtaining senior auditor status.
- One participant proposed a portfolio system whereby you submit each audit to the accreditation management system, and it shows your 'total' and 'type' and what (if any) specialist areas it comprised. The quality is still non-validated, but this still presents a more robust reflection of an auditor's skills and experience.

### *What is an audit and what is it for?*

Continual feedback was that there is a lack of understanding in the industry as to what a road safety audit actually is. It is suspected that the use of the word 'audit' in '*road safety audit*' may forever contribute to the perception of a road safety audit as a checklist-based exercise of compliance issues. A road safety audit is in fact a subjective non-compliance based exercise of looking at all of the safety issues together and on their merits, which is very different to this perception.

Feedback on perceptions and understandings:

- “An important tool for the road authority. Also, one taken very seriously due to F.O.I.”
- “Can save costs, lead to better designs and prevent planning mistakes. At the same time a poor quality audit can also trigger the exact opposite.”
- “Used as a backup and ‘sanity check.’”
- “Used as risk sharing measure.”
- “Often it’s a ‘compliance or design check’. If not a directly stated aim, it’s the implication.”
- “A recommendation ‘has to be done.’”
- “The audit is often done due to the regulatory requirement, with little interest in the value-add or skill-set of the audit team.”

### *Road Authorities (Vicroads)*

There was strong repetitive feedback about Vicroads’ approach to road safety audits and process. This feedback came equally from *within* Vicroads. This is summarised below:

- Vicroads are relying very heavily on audits and take them very seriously.
- A common phrase is “let’s see what the auditor says”.
- Reports are increasingly being used to make a decision rather than guide a decision.
- There is a feeling that road safety audits are being used to create a paper trail that removes liability or transfers risk.
- Some Vicroads delivery engineers administering audits make inappropriate requests to removing points e.g. where an issue is outside of the physical scope of project but directly created by the project.
- There is very little administrative flexibility to allow Vicroads designers to question or reject an audit point due to internal policy structures.

The author was advised by Vicroads staff that a contributing factor to the above trends is that the last ten years at Vicroads has seen an acceleration in process-driven roles and a reduction in broad skills sets.

### *Value*

There was a perception by some that audits are not being used as intended; to add value and guide a design from its early stage. As one interviewee asked this rhetoric question: “Is it an ass-covering exercise, or is it actually for uncovering fundamental flaws?”. Other relevant comments on *value*:

- “75% of the value of a road safety audit is from the quality of the auditor/s and the knowledge/understanding of the designer/client. The other 25% comes from how well the audit scope is defined and framed.”
- “The biggest value for RSAs is using the highly qualified auditors to assess relative-risk and comparable-risk at project planning stage. It may not technically be ‘right’ but it’s the best outcome. Most formal audits are of far less value. Auditing a simple temporary lane closure is just sausage factory auditing. Auditors should be used to *form* the concept design, not just audit the designs.”

### *Audit Recommendations*

Participants had wildly varying views on recommendations. At the one extreme, there was a view that there should be detailed recommendations with images/mock-ups, definitive findings, and no uncertainty in language. At the other extreme, recommendations should be brief with 'open' language.

Some believed that the cost of a treatment should have absolutely no bearing on audit recommendations. Others were strongly supportive of 'realistic' and 'cost effective' recommendations commensurate with project size (which is more consistent with the Austroads guidelines) <sup>[7]</sup>. People with the latter view explained that there's no point pushing for the relocation of a power pole that's being brought slightly closer to traffic for \$40,000 if the project value is only \$100,000 to begin with. Other observations:

- Recommendations can be difficult for a road authority because their processes do not allow them to 'disagree' with a finding. They are very sensitive to Freedom of Information requests and perceive a disagreement to a finding as a legal liability.
- Recommendations could 'distract' the response. i.e. the client might reject the recommendation it is not feasible, but fail to respond in some other way to the audit point.
- Providing detailed recommendations should only be done if the auditor has a good understanding of the specific topic.

### *Defining 'independent'*

A road safety audit is an 'independent' assessment. However, participants had highly varied opinions on what this means. An astute observation was raised that, although independence can potentially be eroded by 'internal' audits, they just as equally have the potential to be eroded if one individual own-practice auditor services the one client year-in year-out. This is due to the relationship that's formed and the potential financial dependency.

Highly experienced auditors tended to have the view that, as long as the individual auditors are not connected to the project, it shouldn't matter if it's technically the same organisation. Or, that audits within the same company can still be independent, as long as a different office is used. Indeed, several people stated that they are 'harder' on their own offices than on external clients. Some felt quite strongly that it should be a completely different company / organisation. One interesting observation was that an 'external' audit will be used when it "helps the cause", in situations where a third part might see an 'internal' audit as non-credible. A minority view was that a different audit team/company should be engaged to carry out different stages of design audits.

Regardless of the above views, several participants agreed that, if this is tested in court at say a coronial inquest, a judge is unlikely to deem the same company/organisation as 'independent'.

### *Influence by client*



There was a strong feeling by some that an auditor can be influenced by ‘developer’ clients, and that an audit quality varies markedly and some auditors seem to ‘go easy’ on the client. This is difficult to measure. Some comfort might be able to be taken from the following: Kenn Beer of Safe System Solutions P/L stated that, whilst employed at Vicroads, part of his role in the Road Safety department was to oversee the administration of road safety auditing. As part of that role he was approached on occasion by staff with examples of what they saw as an audit not raising the typical issues that it should, implying that they were merely siding with the client. Kenn stated that, in his opinion, issues raised pertained to differences in professional opinion/judgement, or inadvertent error. He stated that of the audits he reviewed there was no proof of unethical behaviour.

Influenced deemed to be ‘acceptable’ by participants were:

- Changing a risk rating or a recommendation if the auditor is provided with further information or clarification.
- Manipulating the scope of the audit so that a point is not included.
- Omitting all recommendations.

#### *Structure and language*

There were two main views expressed which were diametrically opposite.

- A rigid report structure should be followed as per the examples in the Austroads guide.
- The examples in the Austroads guide are old and only rough guides. A flexible report structure should be used, tailored to suit the project at hand.

#### *Miscellaneous issues/insights raised*

- Some clients strictly insist on ‘at least two auditors’ must be used for the audit. More experienced auditors quipped that “the skill of the individual/s is far more relevant to quality than the ‘number of auditors’. Five times zero is still zero”.
- “Maybe adjacent councils should audit each other’s work even if it’s not as formal as a road safety audit. There’s lots of expertise in the industry. We should use it. It would add value, and would assist with training and professional development and help us get better at our jobs as an industry”.
- “The Austroads risk rating table is not good. We’d prefer that the auditor just use their judgement with a subjective ‘high/medium/low’ risk rating.”
- “The client looks down on you if you ‘agree’ with auditor because it makes it look like you have designed poorly and even the smallest change costs them money.”
- Some organisations felt threatened by the potential legal liability raised through the audit. This has changed their behaviour by undertaking ‘internal safety reviews’ rather than road safety audits, with the view that this does not “lock them in” as much.
- Views were expressed that night site inspections are not required on a small but significant proportion of audits.

## Key issues for action

The following ‘key issues for action’ emanate from the survey work and the auditor’s experiences entrenched within the industry. However, ideally these would be replicated, verified, refined, and adjusted as a result of a larger and more formal national review of road safety audit processes/practices. This would maximise inclusiveness and cover more jurisdictions and further target the overarching question of: “what constitutes a quality road safety audit and how do we get there?”.

### *Key issues*

- Greater auditor accountability for signing off on audits and their claim to be suitably qualified to participate in or lead the audit.
- Mechanism to ensure that audit points are, at an absolute minimum, understood by the people responding to the point.
- A higher standard of accreditation and a nationalised system.
- Modernisation of audit report production methods.
- Transparency and availability of auditor-client discussions and records management.
- Meta data acquisition and storage to steer research, guidelines, practices and knowledge.
- Establishment of a road safety auditor industry organisation.

## Key Recommendations

### 1. Central reporting and management system for:

- Sophisticated software tools for field-work and data capture, report writing, report communications and communication tracking.
- Skill and experience tracking with verification and peer-review module.
- Audit ‘package’ storage (reports, images, communications etc.)
- Generic and site specific road safety audit data gathering

### 2. A model accreditation system:

- Auditor rating based on knowledge and experience, giving a professional rating and an acknowledgement of specialisations
- Verification and peer-review system
- Testing module

### 3. National Peak Body of Road Safety Auditors

- Be the peak Australian road safety audit organisation for resources, knowledge and networking.
- Provide guidelines for auditors and clients covering the practical day-to-day questions and concerns that the Austroads guide is not designed to or equipped to cover.
- Peak organisation for third parties to seek guidance, second opinions, peer review, auditing arbitration, and so on, where there are disputes on issues or risk levels in relation to audits.

- Provide a Code of Conduct for auditors

#### 4. Using the Information Hub

Use the system from recommendation 1 to interrogate data to provide feedback on industry practices for constant learning and improvement, and to steer research. A brief example listed below:

- What road / intersection has been ‘audited’? When? What type? By who?
- What were the findings?
- How many audits are carried out?
- What type of audits are carried out?
- What are the categories of issues raised?
- What proportion of audit points relate to compliance issues? what proportion relate to first-principles safety issues?
- How many audit points are accepted / rejected?
- What is the experience level of the person responding to the audit?

#### **Acknowledgements and Participants**

The contribution from the industry was critical to writing this paper. Apologies are made to people who would have liked to contribute but were not contacted. This is primarily due to this exercise being undertaken by the author as a personal initiative in a limited time span with no funding. The author is grateful for the time and enthusiasm that people spent contributing to this discussion. Some travelled distances to meet with the author. Some went out of their way to host meetings and organise staff from their or other organisations to attend. The collective experience of the participants is approximately 1100 years.

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