

EMS Safety Foundation - New York

## Concepts to Practise Webinar

10 September 2009

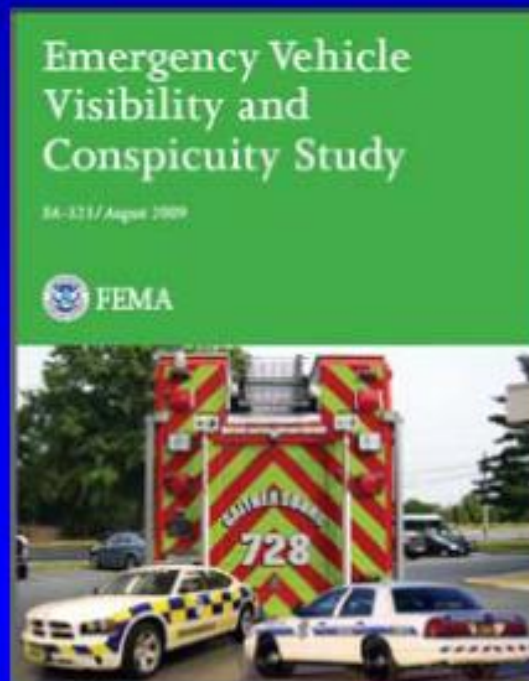
### A Brief Synopsis

PowerPoint slides & Transcript

by John Killeen - Ambulance Visibility

Comments and key points from the Emergency Vehicle Conspicuity and Visibility Study released by the US Department of Homeland Security and FEMA in August 2009.

## August 2009 - review



**FEMA - Emergency Vehicle Visibility and Conspicuity Report**  
Comments on the Study - John Killeen

1. **Vital first step toward developing informed guidelines**
2. A generalised report with an underlying awareness of numerous political & multi-agency sensitivities
3. Embraces operational diversity [Fire, Police, EMS]
4. Recognises US & selected international research
5. **Key Findings /Opportunities** are basic sound practise BUT...
6. ! Generalisation can lead to misinterpretation of detail
7. ! Many photos in the report display real-life examples of *poor design & practise*



**FEMA - Emergency Vehicle Visibility and Conspicuity Report**  
Key Points within the Study - John Killeen

***Succeeds in focusing the future direction of conspicuity research and practise for all US states + other countries***

1. **Importance of contour markings** – especially the difference between research in USA & Canada + benefits of solid colors
2. Battenburg and chevrons – *effectiveness is unproven* due to lack of research and possible cross-cultural misinterpretation
3. Need for national standardisation of colors for rear chevrons
4. A balanced approach in the use of fluorescent and retro-reflective markings + the possibility of visual overload
5. Lowering some markings on larger vehicles to waistline height to cater for sharp light cut-off on new headlamps



## Transcript of presentation

A good (very) early morning from Canberra, Australia. Now, I am going to stick my neck out here and make some comments about the latest visibility and conspicuity report released by FEMA last month.

### 1. A vital first step toward developing informed guidelines.....

1. In simple terms, *emergency service agencies in America needed this report.....*
2. It has been released at a time of much controversy within the industry, especially following the inception of new chevron markings on the rear of fire trucks.
3. This is accompanied by the current trend for American agencies to import & adopt frequently novel & intriguing variations of the conspicuity marking schemes currently used in other countries, especially the UK.
4. As I have stated in point 1... the report is a “vital first step” toward producing a set of logical, well informed national guidelines for the future range of multifaceted applications undertaken by emergency agencies.

### 2. A generalised report with an underlying awareness of numerous political & multi-agency sensitivities

1. The report lists the names of some 23 people who have obviously put a lot of time and effort into compiling the study. I have said here that it is “a *generalised report*” and this should not be taken as a criticism.
2. The study covers a wide gambit of visibility & conspicuity topics with many of these important issues having none or little available research to use as a reference point.
3. The final report is a “middle of the road” dissertation that eloquently navigates a careful path through a political landscape littered with multi-agency minefields.
4. To further illustrate this point: In Australia we have seven states and territories with most emergency services run by state governments. The US has 50 states with numerous Federal, state, county and corporate agencies, all of them involved in emergency operations throughout the entire country. This is a staggering number of organisations... with each of them supporting their own valid interests.... while all still look for consistent outcomes... this leads me to point 3 .

### 3. Embraces operational diversity [Fire, Police, EMS]

1. To its credit, the report clearly outlines some of the many differences between Fire, Police and EMS agencies - all services having similar, dissimilar as well as sometimes conflicting needs in relation to increasing their public level of vehicle visibility and conspicuity.

### 4. Recognises US & selected international research

1. Good news in point 4 is the fact that the committee looked beyond the United States for relevant information.
2. Much of the international research comes from Europe, particularly in relation to Battenburg markings.
3. The Canadians in particular, have excelled in real-life, all-weather testing of contour markings and HiVis colours with some of the later results superseding the earlier American studies.  
Some of these American studies were later incorporated into US federal and state vehicle regulations.
4. I will talk more about the research later on as I move onto the key findings and opportunities outlined within the study.

### 5. Key Findings /Opportunities are basic sound practise

1. Tables 1 and 2 on page 6 provide basic, reliable and informed recommendations that will lead to a more unified & directed research pathway. The points tabled also place in true perspective some of the new adaptive styles of emergency markings from overseas appearing on vehicle fleets right across the United States. These designs are often utilised on vehicles with no scientific basis.
2. Even more important is the finding that some marking schemes can be overbright or contraindicated due to the possible camouflage effects generated by an inferior design.
3. Agency administrator's should look carefully at their current vehicle markings and cautiously consider any new designs to ensure their vehicle markings are mostly compliant and in line with the good intentions of this latest report.

#### **But**

1. But as I explained earlier, the report speaks in broad terms with very little fine detail.
2. There is a real danger that some of the issues and recommendations may be taken out of context and then later be incorrectly tailored to support the validation of a disconnected agenda. I really hope this will not be the case.

3. In addition, photos included in the report are more illustrative than instructive. The photos in the report should not be seen as portraying best practise. The reader should resist the urge to duplicate the designs onto their agency fleet.

*“Succeeds in focusing the future direction of conspicuity research and practise for all US states + other countries”*

1. Before moving on to talk about the key points in the study, I should reaffirm that the report undeniably succeeds in focusing on a definite direction for future research projects
2. The report has been widely read and the findings will influence potential research well beyond North America as well.

## 1. Importance of contour markings – especially the difference between research in USA & Canada + benefits of solid colors

1. Looking at the key points outlined in the study there is great emphasis placed on contour markings and how they maximise conspicuity, increase depth perception and define vehicle shape and direction.
2. Canadian & European research has demonstrated that single color markings match or outperform alternating bands of colour under most weather conditions.
3. Black & white police cars can be color matched so that even black body panels show the reflective vehicle outline at night

## 2. Battenburg and chevrons – *effectiveness is unproven* due to lack of research and possible cross-cultural misinterpretation

1. The controversial Battenburg markings along with the new rear chevrons recently adopted on fire trucks have been identified in the report as needing supplementary research to substantiate if they actually are effective in real-life situations.
2. The report also recognises that while markings may work in one country, they can be confusing or ineffective if adopted by other countries outside the home region.

### 3. Need for national standardisation of colors for rear chevrons

3. Point 3 - The findings reinforce the need for standardised colors for rear mounted chevron patterns to avoid confusion and misinterpretation by other drivers.
4. This single topic has been more controversial than ever before as individual agencies attempt to colour match the new reflective chevrons to their existing vehicle markings.

### 4. A balanced approach in the use of fluorescent and retro-reflective markings + the possibility of visual overload

1. The study acknowledges that retro-reflective and fluorescent markings require a balanced design approach and can also reduce the vehicle surface area that needs to be covered by product due to the increased efficiency now built into the materials.
2. Some marking materials and patterns may overwhelm the viewer by being overbright and be significantly counter-productive due to excessive reflected glare and dazzling halo effects.

### 5. Lowering some markings on larger vehicles to waistline height to cater for sharp light cut-off on new headlamps

1. Point 5 refers to design changes in modern headlights that produce a well defined beam cut-off leaving reduced levels of reflectivity available for markings located above the common sedan vehicle waistline height. This is especially relevant for large trucks or high vehicles when their higher reflective markings are illuminated by headlights located at lower levels while at close range.

I hope this brief summary provides some increased clarity about the FEMA report...

THANK YOU FOR TAKING THE TIME TO LISTEN