



## The Institution of Engineers, Malaysia

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### **IEM POSITION DOCUMENT 2005-(number)**

**Approved by IEM Council on (27-7-2005)**

## **POSITION PAPER ON ISSUES RELATED TO MITIGATION OF ROAD ACCIDENTS**

Note: IEM Position Documents are approved by the IEM Council and express the views of the Society on a specific issue. The purpose of this document is to provide objective, authoritative background information to persons interested in issues with IEM expertise, particularly in areas where such information will be helpful in drafting sound public policy.

### **EXECUTIVE SUMMARY**

The issues relating to traffic accidents were not new. Road accidents are on the increase at a rate of approximately 7% per annum with an average of 6034 fatalities yearly. Existing legislations and guidelines are not sufficient to produce satisfactory effects of reducing traffic accidents, e.g., lack of sustainable solutions to road safety problems including enforcement, speed management, road safety education, licensing and lane changing behaviour of drivers. In that respect, billions of ringgit has been spent over the last few decades and more are budgeted to continually address these problems and the situation is worsening each day. In response, a position paper committee from IEM was set up to look into these issues and to subsequently arrive at common stance on the



*Position Paper on Issues Related to Mitigation of Traffic Accidents  
The Institution of Engineers, Malaysia*

position paper with a proposal on mitigation policy and guidelines on road safety aspects for consideration and acceptance by the Government of Malaysia.

This position paper aims to provide reasonably effective measures for mitigation of traffic accidents in Malaysia. The paper addresses issues related to the above-mentioned, together with the position the Institution of Engineers, Malaysia (IEM) takes in responding to these issues.

IEM has a direct interest and concern with this issue.

IEM's position at the present is that:

- Review of current Engineering Design and Construction Standards and Practices
- Constant performance monitoring of existing roads (Blackspot or Hazardous location treatment programme) for all categories of roads
- Introduction of Road Safety Audit (RSA) for all categories of new roads
- Risk Assessment of all categories of existing roads
- Improvement of Speed Management for all categories of existing roads
- Enhanced improvement by deployment of Intelligent transport System (ITS) for road safety and congestion
- Improvement of vehicle safety
- Introduction of emergency response service to save life during the first 10 minutes of incident
- Introduction of road safety education curriculum for children at young age
- Substantial rolling research fund for road safety and congestion related issues
- Encouragement and moving towards sustainable transport system through public transportation
- Continuing education for practicing engineers



## **THE POSITION PAPER COMMITTEE**

A position paper committee on issues related to road safety was established on **(date)** by the Institution of Engineers, Malaysia (IEM), with Ir. Chin Kar Keong as its chair.

Members of the committee included

- |                                       |           |
|---------------------------------------|-----------|
| 1. Ir. Tan Seng Khoon                 | Advisor   |
| 2. Dato' Ir. Chew Swee Hock           | Panelist  |
| 3. Ir. Dr. Leong Siew Mun             | Panelist  |
| 4. Ir. Lee Ho Seng                    | Panelist  |
| 5. Datin Prof. Rosiah                 | Panelist  |
| 6. Ir. Dr. Ch'ng Guan Bee             | Secretary |
| 7. Ir. Aik Siaw Kong                  | Member    |
| 8. Ir. Che Ali                        | Member    |
| 9. Ir. Mohd Shafie                    | Member    |
| 10. Ir. Adnan Zulkifly                | Member    |
| 11. Ir. Richard Wong                  | Member    |
| 12. En. Wahid Ghazali                 | Member    |
| 13. Ir. Kamaruzaman                   | Member    |
| 14. Ir. Nah Teik Ong                  | Member    |
| 15. Ir. Lim Eng Hwa                   | Member    |
| 16. Dr. Farhan                        | Member    |
| 17. Ir. Phillip Ow                    | Member    |
| 18. Ir. Assoc. Prof. Amiruddin Ismail | Member    |



## **THE ISSUES**

- Road accidents are on the increase at a rate of approximately 7% per annum with an average of 6034 fatalities yearly.
- Existing legislations and guidelines are not sufficient to produce satisfactory effects of reducing traffic accidents.
- Lack of sustainable solutions to road safety problems including enforcement, speed management, road safety education, licensing and lane changing behaviour of drivers.

## **RECOMMENDATIONS**

The proposed policies affect the followings:

- Existing traffic safety practice on mitigation measures.
- New road development and newly proposed measures for mitigation of traffic accidents and congestion.

The following policies on issues related to mitigation of traffic safety and road congestion proposed for consideration and acceptance by the Government of Malaysia:

1. Review of current Engineering Design & Construction Standards and Practices
  - Review of current practices and design standards on roads in the country is essential as most of current standards are outdated. New research findings are to be incorporated into the practice.
  - Good Engineering practices / best practice in the community shall always be used in the design of roads.



2. Constant performance monitoring of existing roads ('Blackspot' or Hazardous location treatment programme) for all categories of roads
  - This involves the application of appropriate road engineering and traffic management schemes at hazardous locations on the existing road networks. Currently, the practice of treating hazardous locations is confined to existing Federal roads and Expressways only. Such practice shall be extended to existing state and municipal roads.
  
3. Introduction of Road Safety Audit (RSA) for all categories of new roads
  - Road safety audit provides constant systematic checking of the safety aspects of new roads. Currently, the practice of road safety audit is limited to new Federal roads and Expressways only. Such practice on road safety audits shall be extended to new state and municipal roads as road accidents on these roads contributed about 50 % of the total road accidents. The main aim is to anticipate and tackle safety problems from the beginning (before construction) to reduce future problems.
  - Integration of regulating agencies and authorities is essential to realise such practice.
  - Particular attention shall be drawn to traffic management during construction.
  - Traffic calming for residential areas aims to reduce vehicle speeds in order to reduce both the number and severity of accidents, especially to vulnerable road users. This measure shall be considered in the audit.
  
4. Risk assessment of all categories of existing roads
  - Between the coverage areas of Blackspot programme on existing roads and Road Safety audits on new roads, there exists 'gap' on potential risk on areas where accidents has yet happened. This gap area shall be covered by Risk assessment schemes of hazardous locations on the existing road networks.



5. Improvement of Speed Management for all categories of existing roads
  - Improper managed speed of vehicles and non-uniform standards of speed management devices could lead to potential crashes. Therefore, speed management shall be incorporated in the Road Safety mitigation plan.
  
6. Enhanced improvement by deployment of Intelligent transport System (ITS) for expressway/urban roads for safety and congestion
  - An integrated system of people, roads and vehicles utilising advanced data processing and communication technology to achieve efficient utilisation of transportation infrastructure and energy resources, reduce traffic congestion, improve safety and reduced environmental degradation. Deployment of CCTV as traffic surveillance and dissemination of traffic information/warning through VMS will help to reduce road accidents particularly on Highways and other trunk roads which carry high volume of traffic.
  - ITS technology should last for at least 20 to 30 years, if not upgradeable.
  - Since I.T.S. is a cross-discipline solution and new to everyone, training to engineers should be in place. I.T.S. programme should also be incorporated into curriculum of institutions of higher learning.
  
7. Improvement of vehicle safety
  - Safety standards in a vehicle shall be reviewed.
  - A vehicle on the road shall meet revised safety features standards.
  
8. Emergency response service to save life during the first 10 minutes of incident needs to be incorporated into the Road Safety plan.



9. Introduction of road safety education curriculum in primary/secondary school for children at young age
  - Teaching safety skills to children can provide lifelong benefits to society, but should be seen as a long-term intervention strategy.
  
10. Substantial rolling research fund for road safety related issues including safety provision / material for road construction
  - Research and development constitutes an important part of mitigation of road crashes programme. Road safety research aims to improve knowledge about factors contributing to road accidents, effects of different countermeasures, and development of new and more effective safety measures.
  - Improvements in vehicle design, occupant protection, road furniture has made a significant contribution to road accident fatality reduction.
  
11. Encouragement and Moving towards sustainable transport system through public transportation
  - Awareness on the benefits of public transport – Continuously promote the awareness on the benefits of public transport. Government agencies and the local public transport providers such as STAR, PUTRA, Intrakota and Park May have a role to play.
  - Public transport infrastructure – It is important to examine the supply side of the public transport equation where public transport investments must be continued in improving its infrastructure and service network such as :-
    - extending the coverage and frequency of bus routes and rail services.
    - integrating for a common fare and ticketing system.



- network integration where a comprehensive system of routes and schedules are well-planned to provide almost “seamless” transfers between the various public transport modes as well as integration with other modes of transport.
- providing suitable "Park-and-Ride" facilities.
- utilise ITS in public transport to enhance its services.
- Incentives for public transport users such as:-
  - reduced fares (a good example is PUTRA’s reduced fare)
  - tax deductions for public transport users in order to give them more incentives to choose public transport.
  - tax rebates to employers if they give transport allowances for public transport instead of for cars to their employees.
- Traffic demand management – may be necessary to introduce stronger restraint measures to discourage car usage, particularly in reducing the number of vehicular traffic into the urban centres during peak hours such as:-
  - Parking Controls – Proper evaluation to ensure maximum effectiveness and gain acceptance from the public and businesses. Applicable where areas are shown to be well served with adequate public transport alternatives or will be in the near future.
  - Increase in Parking Charges – This will reduce some of the car traffic, particularly those with relatively short trip lengths.
- Integration with land-use planning.
  - Incorporate public transport facilities and priorities in land–use planning as part of the integration process between transport and land-use planning. Many transport planners advocate ***Transit Oriented Development*** (TOD) where residential and commercial areas designed to maximize access by public transport (transit) and non-motorized transportation.
- Formation of a Public Transport Authority.





*Position Paper on Issues Related to Mitigation of Traffic Accidents  
The Institution of Engineers, Malaysia*

- This single authority can comprise representatives from various ministries and government agencies and also some allocations from transport professionals and the general public such as NGOs.

12. Continuing education for practicing engineers is required in the areas of traffic and highway engineering in line with call from the Board of Engineers Malaysia.



In terms of short and long term measures, the following recommendations in terms rankings are made:

Table 1.0: Short and Long Term Measures

Item	Action by Government	Agency Involved	Immediate Action	Long Term Action
1	Yes (on-going but slow)	JKR/ REAM/ MHA/ PBT		1
2	Yes (federal road only)	JKR/ MHA / MOT	1	
3	Yes (federal road only)	JKR/ MHA / MOT	2	
4	No (new)	JKR/ MHA / MOT		3
5	Yes (minor)	HPU/ PBT		2
6	Yes	HPU/ PBT/ MHA		
7	Yes	MOT/ Car Manufacturer		
8	Yes (Expressway only)	Expressway Operator/ MHA		
9	Yes	RSC/ MOE		
10	Yes (little effort)	MOSTI/ MOT	3	
11	Yes (not enough)	MOT/ LPKP		
12	Yes (not enough)	BEM/ IEM		



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IEM strongly recommends that the proposals outlined above be considered and implemented by the Government of Malaysia earliest possible to mitigate and to improve road safety in the country.