The Independent Advisory Panel to The Minister of Transport Malaysia

REPORT

on Genting Highlands Bus Crash

at KM 3.6 Genting Highlands-Kuala Lumpur Road
on 21 August 2013

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Submitted on 28 January 2014 to The Minister of Transport Malaysia

Acknowledgment

The Independent Advisory Panel Members (Panel) would like to put on record special thanks to the Minister of Transport Malaysia for the appointment and trust to lead and carry out this very important task without **fear or favour**. As entrusted, the Panel has carried out a comprehensive evaluation and review on all investigation reports pertaining to the Genting crash and concluded with recommendations for further improvements.

The Panel would also like to express its gratitude and appreciation to the following agencies for their cooperation in providing valuable information and important documents promptly to support the evaluation and review.

1. Ministry of Transport Malaysia (MOT)
2. Department of Occupational Safety and Health (DOSH)
3. Road Safety Department (RSD)
4. Genting Highlands Transport Sdn Bhd(9940-V) (GHT)
5. Genting Malaysia Berhad (58019-U) (GENM)
6. Bentong Municipal Council (BMC)
7. Public Works Department (PWD)
8. Road Transport Department (RTD)
9. PUSPAKOM Sdn Bhd (285985-U) (PUSPAKOM)
10. Land Public Transport Commission (LPTC)
11. Hospital Kuala Lumpur (HKL)

Finally, the Panel is grateful to the team members of the Malaysian Institute of Road Safety Research (MIROS), in particular, the Director- General, Professor Dr. Wong Shaw Voon for assisting the Panel throughout the evaluation and review process.

The Independent Advisory Panel

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Accredited Road Safety Auditor

Executive Summary

On 29 October 2013, an independent advisory Panel (shall be referred as the **Panel**) was appointed by the Minister of Transport Malaysia with the main aim to evaluate and review the investigation reports submitted by various agencies and related parties such as the Malaysian Institute of Road Safety Research (MIROS), Genting Malaysia Berhad (GENM), a joint report from Road Transport Department (RTD) and PUSPAKOM Sdn. Bhd, and all presentations from related agencies during the interview sessions.

These reports were related to the bus crash that occurred at KM 3.6, Genting Highlands-Kuala Lumpur Road on 21 August 2013 (shall be referred as the **Genting Crash**), which involved 37 fatalities including the driver and was recorded as the worst in the country's fatal crash. The Panel also conducted interview sessions with the related agencies and obtained further clarifications pertaining to the Genting Crash.

The Panel's terms of reference are: (1) to evaluate and review the reports submitted by MIROS and other relevant agencies/ parties; (2) if necessary, to obtain further feedback and clarification from the relevant agencies/parties; (3) to make effective recommendations so as to avoid similar incidents in the future; (4) to propose a suitable framework that will monitor the implementation of the recommendations; and (5) to present the report to the Minister of Transport Malaysia.

The Panel has conducted ten (10) meetings and two (2) site visits to the crash site, including the Batang Kali-Gohtong Jaya road. The Panel also conducted face-to-face interview sessions.

The evaluation and review covered: (i) road factors; (ii) vehicle factors; (iii) human factors; (iv) institutional issues related to operational and occupational safety and health in the transportation sector; (v) emergency response and rescue; and (vi) future requirements and their recommendations.

In general, the Panel acknowledges the extensive work carried out by MIROS in investigating the Genting Crash.

The Panel agreed that various factors had contributed to the Genting Crash even though the primary event leading to the crash was speeding. Any one of the contributory factors discussed later such as the bus braking system, the safety barrier, the emergency escape ramp, vehicle design, inspection, licensing, safety practice of Genting Highlands Transport Sdn Bhd and attitude towards road safety in Malaysia can by itself prevented the crash or minimized its severity.

Further, the Panel had identified issues and implementation weaknesses in the current legislation and institutional framework that needed to be thoroughly reviewed to enhance road safety and prevent similar incidences of this nature.

Among issues and weaknesses identified are road design and approval, brake system, vehicle design, construction, approval and inspection, safe operation and occupational safety and health in the transportation sector, lack of effective enforcement by the respective agencies related to their best operational practices, and coordination and communication of rescue operation.

Recommendations have been formulated after comprehensive evaluation and review in order to avoid or minimize the occurrence and the outcomes of similar incidences and to improve the national road safety system holistically. In general, these recommendations are also applicable to other hilly roads and the identified “black spots” in the country. An implementation framework and an independent monitoring system shall be established to continuously evaluate and ensure all necessary actions, as recommended by the Panel, are implemented appropriately, seriously and timely by the respective agencies.

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List of Acronyms

AED	Automotive Engineering Division
BDM	Permissible Laden Weight (Berat Dengan Muatan)
BEM	Board of Engineers Malaysia
BMC	Bentong Municipal Council
C & U	Construction and Use Rules
CAD	Computer Aided Dispatch
DG	Director-General
DOSH	Department of Occupational, Safety and Health
ECP	Engineering Consultancy Practice
EER	Emergency Escape Ramp
GENM	Genting Malaysia Berhad
GHT	Genting Highlands Transport Sdn Bhd

GIRN	Government Integrated Radio Network
HKL	Hospital Kuala Lumpur
ICOP SHE	Industrial Code of Practices Safety Health and Environment
IEM	The Institution of Engineers Malaysia
LPTC	Land Public Transport Commission
MCDD	Malaysian Civil Defence Department
MIROS	Malaysian Institute of Road Safety Research
NSC	National Security Council
NTSB	National Transportation Safety Board
PE	Professional Engineer
RDU	Rapid Deployment Unit
RMP	Royal Malaysia Police
RRPM	Raised Reflective Pavement Marker

RSD	Road Safety Department
RTD	Road Transport Department
SOP	Standard Operating Procedure
TL	Test Level
UN	United Nations
UNECE	United Nations Economic Commission for Europe
WRO	Weight Restriction Order

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1. Mandate and Terms of Reference of the Independent Advisory Panel

A stage bus bearing registration number WGA 4136 plunged into a 34.5 m ravine on 21 August 2013 around 2:15 p.m. near KM 3.6 Genting Highlands Kuala Lumpur Road. Fifty-three occupants were onboard when the crash occurred. A total of 37 occupants including the driver were killed and 16 others were seriously injured. The crash was recorded as the country's worst road tragedy. The Ministry of Transport had entrusted Malaysian Institute of Road Safety Research (MIROS) to lead and conduct a comprehensive analysis and investigation to determine the causes of the crash and identify any pertaining issues.

Preliminary findings were derived within two weeks after the said crash. MIROS has submitted its MIROS Inquiry Report (Reference MIR No. 132) and presented the analysis and reconstruction of the crash based on the physical evidence gathered at the crash site and the damaged vehicle to the Minister of Transport and the Cabinet Ministers on 4 September 2013.

In the report, MIROS addressed the dynamics of the crash, identified contributing factors that caused the crash and proposed constructive recommendations to minimize injury outcome, if not preventing similar crashes in the future.

Subsequently, on 29 October 2013, the Minister of Transport Malaysia appointed an Independent Advisory Panel (Panel) to evaluate reports submitted by MIROS and other agencies or related parties pertaining to the crash. The appointment of this Panel is expected to conduct and discharge its duty without fear or favour based on the terms of reference (TOR) as follows:

(a) To evaluate and review the reports submitted by MIROS and other relevant agencies/ parties;

(b) If necessary, to obtain further feedback and clarification from the relevant agencies/ parties;

(c) To make effective recommendations so as to avoid similar incidents in the future;

(d) To propose a suitable framework that will monitor the implementation of the recommendations; and

(e) To present the report to the Minister of Transport Malaysia.

2. Evaluation and Review Activities

The Panel which was appointed by the Minister of Transport, Malaysia was formally established on 29 October 2013. MIROS was appointed as the Secretariat for the Panel. The first briefing was conducted on 5 November 2013 followed by a session between the Minister and the Panel on 8 November 2013.

Several meetings and sub-group discussions were conducted among the Panel members. These included two site visits to the crash scene for further inspection and observation on the road and environment condition. The site visits covered the following roads:

- Crash site at KM 3.6 Genting Highlands-Kuala Lumpur Road;
- Batang Kali-Gohtong Jaya Road;
- Gohtong Jaya-Genting Resort Road; and
- Gohtong Jaya-Genting Sempah Road.

In order to obtain further information pertaining to the crash as well as to identify any potential issues for further improvement, two interview sessions were conducted by the Panel with the relevant authorities and agencies. All the information and findings gathered from the above mentioned sessions were compiled and analysed. The Chronology of the Panel's Activities is tabulated in Table 1.

Table 1: Chronology of the Panel's Activities

Date	Activities
29 October 2013	Establishment of Panel
5 November 2013	1st Panel Meeting (Panel Briefing by Secretariat)
8 November 2013	Panel session with Minister of Transport
13 November 2013	2nd Panel Meeting
20 November 2013	Panel Site Visit to Batang Kali & Genting Highlands Road
3 December 2013	3rd Panel Meeting
10 December 2013	4th Panel Meeting and Interview Session with Various Agencies
13 December 2013	Sub Group Discussion 1
19 December 2013	5th Panel Meeting with Interview Session
6 January 2014	Sub Group Discussion 2
7 January 2014	Panel Site Visit to Batang Kali & Genting Highlands Road
16 January 2014	Sub Group Discussion 3
22 January 2014	6th Panel Meeting
28 January 2014	Submission of full report to the Minister of Transport

2.1 Reports and Documents Evaluated and Reviewed

The Panel reviewed the following reports and documents;

a) MIROS's Crash Investigation Report: Genting Highlands Crash Investigation, KM 3.6 Genting Highlands-Kuala Lumpur Road, MIR No. 132, 2013;
b) MIROS's Report on the Compilation of Initiatives by Various Agencies Pertaining to Genting Highlands Crash at KM 3.6 Genting Highlands-Kuala Lumpur Road on 21st August 2013, MIR No. 135, 2013;
c) *Laporan Teknikal Kemalangan Bas Henti-henti (WGA4136) KM3.5, Jalan Genting Highlands pada 21 Ogos 2013* by RTD and PUSPAKOM, 2013;
d) *Laporan Kemalangan Maut melibatkan 37 Mati dan 16 Cedera, KM 3.6 Jalan Genting-Karak, 21 Ogos 2013* by RSD; and
e) Other relevant documents received and reviewed (Please refer to Annex 1).

2.2 Agencies Interviewed

Table 2: List of Agencies/Parties Interviewed

No.	Invited agencies/parties	In attendance
1	Department of Occupational Safety and Health (DOSH)	Director-General and team
2	Road Safety Department (RSD)	Director-General and Director
3	Genting Highlands Transport Sdn Bhd (GHT)	Chairman, Managing Director and team
4	Genting Malaysia Berhad (GENM)	President, Vice President and Consultant team
5	Bentong Municipal Council (BMC)	*Yang di Pertua* and team
6	Public Works Department (PWD)	Senior Principal Assistant Director
7	Road Transport Department (RTD)	Director-General, Director of Enforcement and team
8	PUSPAKOM Sdn Bhd	Chief Executive Officer and team
9	Land Public Transport Commission (LPTC)	Chief Executive Officer and team

No.	Invited agencies/parties	In attendance
10	Hospital Kuala Lumpur (HKL)	Consultant Emergency Physician/Disaster Medicine Specialist

During the session for PWD, unfortunately, the DG of PWD did not turn up for the interview session. Instead, a representative was sent but he was not able to provide clarifications needed by the Panel. Subsequently, the Panel sent an official letter (Ref: IJB/001/2013) dated 10 December 2013 to the DG of PWD to express the Panel's disappointment for his absence.

2.3 Experts Briefings

The following were invited to provide their respective expertise to the Panel.

a) Brake retarder system: The expert explained the type and function of the retarder systems.
b) Speed limiter: The expert shared his professional opinion/expertise on the type and function of speed limiter.
c) Emergency Physician: The expert provided insight of the Medical Emergency Coordination Centre and the emergency response during the crash.

3. Findings

The Panel agreed that many factors had contributed to the Genting Crash even though the primary event leading to the crash was speeding. The contributory factors are further discussed in the following sub-sections.

3.1 Road Factors

Road Status and Road Design

3.1.1 It is confirmed that the Genting Road starting from Genting Sempah to and from the resort (Genting Road) is a private road belonging to and maintained by GENM. However, it is accessible to the public.

3.1.2 The stretch of road from Batang Kali up to Gohtong Jaya is under the jurisdiction of PWD. Based on accident statistics for the period 2008 to 2011 from RMP, few locations along the Batang Kali-Gohtong Jaya road were identified as accident prone areas and need to be addressed.

3.1.3 No enforcement related to speeding was ever made by any authority on the Genting Road since the posted 50 km/h speed limit was not gazetted.

3.1.4 The Genting Road was approved without any detailed design submitted and has never been audited by any relevant authority.

3.1.5 At present, there is no policy that requires submission of the road design with road safety audit to the relevant authorities, including Local Council, for a private road with public access.

3.1.6 There is no warning sign pertaining to foggy environment and inadequate warning signs to road users about accident prone areas. Night time safety features such as Raised Reflective Pavement Markers (RRPM) and reflective delineators are also very much lacking.

3.1.7 The lanes were constructed with significantly wider than a typical road with similar road hierarchy. The existing lane width of 4.2 m was found to be too wide as compared to the required standard of 3.25 m for R4 design standard for rural road. It was as wide as 4.9 m on certain stretch. Providing wider space to manoeuvre is a safety practice, but with too wide a lane, it would create a false sense of safety that would encourage most road users to disregard the posted speed limits.

3.1.8 The installed chevron markers at curves were found to be inadequate and the transverse bars available on site were not up to standard.

3.1.9 The safe speed of the curve at the crash site was calculated to be 30 km/h which is much lower than the posted speed limit of 50 km/h and the design speed of the road of 60 km/h.

3.1.10 The posted speed limit of 50 km/h along the road was decided by the consultant of GENM by averaging the design speed of 60 km/h for R4 and 30 km/h for R2 design standard.

Safety Barrier

3.1.11 The barrier installed at the crash site was not according to the road geometry leading to an increased risk of direct impact in an event of a crash. In addition, the combination type of barrier (TL-2 and rubble wall) used was substandard for safety purpose at ravine area. A similar type of rubble wall has been rebuilt at the crash site subsequent to the crash. The same situation had also happened previously at other locations that involved a series of crashes along the Genting Road.

3.1.12 The installed roadside safety barriers along the Genting Road consist mainly of guardrails, rubble walls and some sections of Reinforced Concrete (RC) barriers. They can only meet a containment level of TL-2 to TL-3 and are considered inadequate for hilly road with deep ravine.

Emergency Escape Ramp (EER)

3.1.13 The location of EER is not easily accessible by road users in an emergency situation. The EER entry was obstructed by the horizontal curvature of the roadway.

3.1.14 The message on the EER signage, that is "*Lorong Perhentian Kecemasan*" was misleading and did not indicate its purpose. No action was seen to be taken to rectify the issue.

3.1.15 There is no guideline for design, installation and maintenance for EER in the country.

3.2 Vehicle Factors

Brake System

3.2.1 Inefficiency of the braking system was noted. Front brake linings were badly worn out and had exposed the rivets which caused metal contacts between the drums and rivets. Given the steep condition of the road at the crash site, the secondary retarder installed on the bus might not have functioned as effective as it should.

Vehicle Approval and Inspection

3.2.2 The current vehicle plan approval only requires general vehicle drawings which contain very little information for inspection purposes. Bus approved plans indicates minimum dimensions and not the actual dimensions of the bus. In so doing, there is a possibility that buses are subject to unauthorized modifications without being noticed.

3.2.3 Structural drawing of the vehicle is not a requirement for the current plan approval process for all vehicles.

3.2.4 Periodic verification and validation check of coach builders are poorly implemented and monitored by the authority. At present, the competency of coach building companies cannot be ensured as most are not run by professional engineers. Also, there are no local Technical Service Providers to certify the coach building in accordance with UN Regulations such as UN R66 (strength of the super-structure of larger passenger vehicle), R36 (larger passengers vehicle), R52 (smaller passenger vehicles), R80 (seat anchorage) and R107 (double decker buses).

3.2.5 There is no official guideline to determine the standing capacity on stage buses.

Standard Operating Procedure (SOP) and Vehicle Technical Requirements

3.2.6 Technical documents (SOP, Current Rules & Regulations and Technical Guidelines) for reference are not updated and not readily made available to the public and any stakeholders despite being made a requirement under Rule 2A of the C & U Rules (PU (A) 383/07). Some of the existing guidelines are verbal, not documented, and subject to changes by individual engineers. Under these circumstances, industry players like vehicle manufacturers, vehicle body builders, design engineers, PUSPAKOM engineers and even RTD engineers do not have a common technical reference for vehicle requirements thus giving rise to confusion and misinterpretation.

Non-compliance of Provisions

3.2.7 The vehicle permissible laden weight for commercial vehicles, denoted as Maximum Permissible Laden Weight (BDM) are determined by weight certificate and cross-referred to the Weight Restriction Order (WRO) gazetted by the Ministry of Works. RTD, being the enforcement body of WRO is entrusted to ensure that all vehicles, in particular commercial vehicles, adhere strictly to the WRO so that our roads will not be damaged by indiscriminate overloaded

vehicles. There are strong evidences to show that certain officers of the Automotive Engineering Division (AED) do not comply with the WRO by approving BDM of a certain category of vehicles far beyond the gazetted BDM. For example, under the WRO, BDM 51 tonnes, 7-axle vehicles are approved only to articulated tankers for the carriage of bulk material. However, other types of vehicles like general cargo, tipper, and box semi-trailer are indiscriminately approved by AED for BDM 51 tonnes. Some timber-jinkers are even approved with BDM 65 tonnes.

Front Row Safety Seatbelts of the Crashed Bus were Not Installed

3.2.8 The vehicle plan (P/SCA 322/08) for the crashed bus was approved by AED on 14 August 2008 without safety seatbelts for front row seats. The Ministry of Transport, through the letter to the Director-General of RTD reference KP/BD/PJ/0.11 Jld 13 (58) dated 12 April 2004, decided that all front row seats must be installed with safety seatbelts. Furthermore, the letter of approval (Reference number: (02)dlm.JPJ.WP.09/244/15/13 KLT(1)) also stated the requirement of installing safety seatbelts for front row passengers. Four lives could have been saved from this Genting Crash if the above had been complied with.

Traceability and Safe Keeping of Document

3.2.9 The current system of traceability and safe keeping of document pertaining to vehicle approval is not efficient and has problems in cross-checking. The case of the missing important documents for the crashed bus, WGA 4136 which were destroyed by white-ants, as claimed by AED RTD Wangsa Maju is a reflection of bad document management.

Licensing of Public Service Vehicle

3.2.10 Approval of operation licenses without considering any specific requirement for certain road environment by LPTC may compromise safety. For example, double-deck buses (tour buses/express buses) are allowed to operate along hilly and winding roads.

3.2.11 Standing capacity is allowed for all stage buses without considering road environment under the present operation permit approval procedure by LPTC.

Lack of Communications amongst Different Agencies

3.2.12 Lack of communications amongst different agencies has direct influence on vehicles approval consistency. For example, PWD uses WRO to specify the maximum BDM allowed for a vehicle; LPTC issues operating license/vehicle permit; and RTD approves vehicles on the road. However, due to lack of communication among these three agencies the information of approved vehicle contradicts amongst agencies. In the issuance of carrier licenses, LPTC issues BDM of timber jinkers for 65 tonnes, while PWD only allows maximum BDM of 44 tonnes for the type of vehicle.

3.2.13 Discrepancy of information in terms of the number of passengers allowed on board between PUSPAKOM's record, the body markings on the bus and LPTC's approval was identified.

3.2.14 Vehicle blacklisting system is not synchronized between RMP and RTD. In this case, the blacklist status of the crashed bus which was from RMP, appeared on RTD website but not in the RTD system.

3.2.15 Specifications of LPTC requirements for permit are not well communicated to relevant authority and permit holder.

3.3 Safe Operation and Occupational Safety and Health in Transportation Sector

Lack of the Implementation of Occupational Safety and Health in GHT

3.3.1 Assessment for all OSHA ICOP SHE components has indicated that the implementation of OSHA ICOP SHE 2010 for GHT was not satisfactory. The operating company had very poor documentation and no substantial evidence to support that the company and the bus service were operating with satisfactory effort to ensure safe service and operation in driver management, vehicle replacement and maintenance, and journey and risk management.

3.3.2 The driver was recorded to have been issued with 16 summonses whereby 15 summonses were for speeding and one was for traffic obstruction.

3.3.3 GHT never conduct drug and alcohol test for their drivers.

Lack of Enforcement by the Respective Agency Related to Safe Operation Practice

3.3.4 DOSH has not enforced OSHA 1994 to date on transportation sector and they only focus on OSH at work place. DOSH is planning to delegate some scopes of Occupational Safety and Health (OSH) to other related agencies by making amendment to Act 333 (Road Transport Act, 1987), Act 514 (Occupational Safety and Health Act, 1994) and Act 715 (Land Public Transport Act, 2010). However, the delegation process is still yet to materialize.

3.3.5 It is mandatory for a company to implement SPAD ICOP before permit approval and renewal can be issued. Nevertheless, the GHT permit was renewed even though the implementation of SPAD ICOP was not satisfactory.

3.4 Emergency Response and Rescue

Ineffective Communication System in Hilly and Remote Areas

3.4.1 The Government Integrated Radio Network (GIRN) is not effective in hilly and remote areas including Genting and Karak Highway. It created numerous difficulties in communication among rescue members during the search and rescue operation of this crash.

Non Utilisation for Emergency Call through 999 Systems

3.4.2 The crash was first notified to the Genting Fire Station by the GENM Patrol Team at 2:15 p.m. However, the Medical Emergency Call Centre (MECC) at HKL which later coordinated the medical emergency team to the crash scene was activated 15 minutes later through the 999 systems call received from an officer of Malaysian Civil Defence Department (MCDD) Genting Highlands. This unnecessary delayed could be avoided should the first emergency call was made through 999 systems.

3.4.3 Not all states in Malaysia are equipped with Computer Aided Dispatch (CAD) 999 system. This system comprises automated alarm system which uses specific code for activation to initiate specific response to the system. This specific code will ease the CAD user in determining the type of incident and relevant emergency team. This system is also able to record the activation time for each agency automatically.

On-scene Coordination was Not Done Efficiently

3.4.4 On-scene coordination was not done in an efficient manner. It should be headed by RMP according to National Security Council 20 (NSC 20). All rescue teams should report to the on-scene commander but it did not happen nor recorded properly in this case. The on-scene commander should have controlled the area so that the public will not encroach into the restricted area.

3.4.5 In addition, the need for the right and adequate number of resources at the right time should be coordinated and arranged accordingly. Too many resources at one time may compromise the need for other emergency situation should it happen at the same time. In this incident, more than 700 personnel were deployed to the scene.

3.4.6 Traffic control at the scene was inefficient. The decision to divert the traffic was delayed and had caused traffic congestion at the site. Traffic diversion was done more than one hour after the crash.

3.4.7 The rescue area was encroached by public and media personnel who have caused congestion and disturbance to the rescue operation.

Medical Intervention at Scene

3.4.8 Patients management at the crash scene was done according to the spirit of NSC 20. Triaging was done accordingly and the patients were sent to the respective hospitals based on the advice from MECC specialist. However, on-scene medical intervention was not fully optimized due to improper medical base station.

3.4.9 Medical On-scene Commander (MOSC) was headed by a medical officer from Hospital Selayang and later was taken over by a specialist in training (Master Student) from Hospital Sungai Buloh. However, the emergency specialist was not deployed to this crash scene.

3.5 Lackadaisical Attitude on Road Safety

The Panel is deeply concerned with the findings that senior management of several government agencies and private organisations reflected lackadaisical attitude and poor commitments on road safety, despite the fact that they are in a position to influence or make decisions to implement appropriate measures in their normal duties. The Panel wishes to highlight the following specific findings.

3.5.1 Top management of GHT demonstrated poor commitment on managing safety aspect of their operation and compliance with OSHA ICOP 2010 was not satisfactory.

3.5.2 GENM failed to take adequate proactive actions to rectify road safety issues and to further enhance the safety of their road. A second visit to the crash site discovered that even the crash debris were still visible in the ravine.

3.5.3 The Panel is deeply concerned that the top management of certain government departments and agencies failed to accord public safety as their top priority and demonstrated lackadaisical attitude towards improving road safety while performing respective functions and responsibilities. With regards to DOSH, the Panel noted that DOSH was not assuming full responsibility in managing occupational road safety and health, and instead attempting to delegate its power to other authorities.

3.5.4 There was no initiative taken by any relevant authority to gazette the posted speed limit for the purpose of enforcing over-speeding along the Genting Road. Furthermore, none of the enforcement agencies initiated such an effort, although it was claimed that numerous enforcement activities had been conducted along this road.

3.5.5 There were clear evidences on blacklisting of the Crashed Bus on the RTD's official website. However, it was denied by the said authority stating that it might have been due to discrepancies between the RTD database and the web server. Hence, the Panel is very concerned about the poor handling of technical operation's issue by RTD. The Panel believes such contradiction, if true as claimed, is not a coincident and an isolated case.

3.5.6 Both RTD and PUSPAKOM had poor safe keeping of documents and records. The important documents and records related to the Crashed Bus could not be produced by RTD as it was claimed that the documents were destroyed by white ants. There was no further countermeasure to retrieve the entire content or partially. As for PUSPAKOM, they only keep their detail inspection records from 2010 onwards. It was claimed that there are no means to trace the earlier inspection details, including the technical contents of any earlier approval.

3.5.7 PUSPAKOM demonstrated its lackadaisical attitude in performing vehicle inspections where unrealistic data was recorded throughout the years for the Crashed Bus. PUSPAKOM did not take any appropriate action to identify and improve such shortcomings. The Panel believes this is also not an isolated case.

3.5.8 The absence of the DG of PWD for the interview session without any notice is not acceptable by the Panel. The DG had further demonstrated his low priority and seriousness towards road safety by assigning one of the Senior Principal Assistant Directors to represent PWD, and he could not provide any clarification on important issues sought by the Panel.

4. Recommendations

The Panel acknowledges that many factors have contributed to the Genting Crash. However, the Panel is deeply concerned that many of these issues are institutional and system-based, giving rise to the possibility that the problems are not isolated cases, but instead are the norms for the country. With this view, the Panel decided that the proposed recommendations would not only be specific to this case, but also applicable to the transport industry as a whole. The recommendations are subdivided into Road, Vehicle, Safe Operation and OSH Practice, Emergency Response and Rescue, and Strengthening and Empowering the Public for Road Safety.

4.1 Road

Establish and Implement a Nationwide Systematic Road Safety Assessment and Risk Mapping

4.1.1 Conduct a thorough road safety assessment and risk mapping along the Genting Road. GENM shall take full responsibility to conduct this road safety assessment on their private road while PWD shall be responsible for the stretch along Batang Kali-Gohtong Jaya road which is under their jurisdiction. Immediate and appropriate actions shall be taken according to the road safety audit findings to address safety issues.

4.1.2 As lessons learnt from previous major fatal crashes, PWD shall take proactive actions to conduct road safety audit at all hilly roads in the country, prioritize areas for action, and take necessary measures to improve the roads.

4.1.3 Establish a policy that requires mandatory road safety audit for all roads including private roads with public access that involve design change to ensure the safety aspects are complied.

4.1.4 Establish a policy that requires all proposed construction of private roads with public access to submit design plans with an independent road safety audit for proper assessment and approval by the responsible agencies.

4.1.5 Locations with high number of crashes shall be identified. Risk mapping shall be carried out to determine the risk of the road and will be used as a performance tracking tool to monitor the road safety indicator at that particular road. Risk mapping can be used as additional information to drivers in order for them to take precautionary measures and anticipate the risk.

Standardize the Implementation, Requirements for Road Design and Signage and Approval Process for both Public and Private Roads

4.1.6 Use standard guidelines and regulations on road design and signage on all roads in the country. This is to ensure conformity and consistency in relaying information to road users that would help them in anticipating the road environment and in adopting safe driving.

Strengthening the Enforcement for the Use of Safety Barrier at High Risk Sections

4.1.7 The Malaysian Cabinet has decided to upgrade the current safety barrier from TL-2 to TL-3 and TL-6 for high risk sections in 2007. Since then PWD has introduced a program to upgrade the current safety barrier. A committee chaired by Deputy Director General III of PWD has established the criteria to identify high risk sections. High performance safety barrier shall be installed at the identified sections along the route. High risk section is classified as;

- Section with embankment height more than 3 m.
- Embankment slope of more than 1 : 6.
- Location with history of heavy vehicle crashes.
- Percentage of heavy vehicle above the national average percentage.

In particular for the Genting Road, all safety railings on the ravine side shall be changed to a minimum of TL-5 concrete barrier.

Establish a Technical Guideline for the Design and Use of Emergency Escape Ramp (EER)

4.1.8 The relevant authorities shall establish a guideline for the design, construction and maintenance of EER. The EER shall be conveniently located and used by road users in the event of brake failure. The guideline shall include site selection, design specification and standardize signage for EER.

4.1.9 GENM shall immediately improve the visibility and signage of the EER along the Genting Road. PWD shall also review the need to install EER at all hilly roads with high risk in the country.

Upgrade and Enhance Current Design Standard, Specification, Construction and Maintenance for All Hilly Roads

4.1.10 The relevant authorities shall upgrade the current road design standard, specification, construction and maintenance for all hilly roads. In particular for the Genting Road, the lane width of straight stretch and curves shall be limited to 3.5 m and 4.0 m respectively. Along the road, RRPM shall be installed at the center line and the road edge line shall be marked with Vibraline. Reflective delineators shall also be installed along all curve sections of the road to guide motorists travelling at night. High skid resistance pavement shall be considered at substandard curves and shoulder safety barrier shall be installed following the alignment of curves.

4.1.11 PWD shall ensure that all signage are properly installed, displayed and maintained along all hilly roads. Adaptive signage to warn road users on heavy fog and rain conditions affecting road safety shall also be introduced along the Genting Road. In addition, a system to measure visibility during heavy fog and

rain conditions shall be developed and the information shall be well communicated to the road users.

4.1.12 Align all safety barriers along the curve according to the road geometry to reduce the risk of direct impact in an event of a crash. With the knowledge that all safety barriers are not designed to withstand direct lateral impact, GENM shall reconstruct the barrier to TL-5 standard and to follow the road alignment immediately in order to mitigate crash severity.

4.1.13 GENM is expected to be more proactive and pre-emptive on the safety of road users plying the Genting Road.

Develop and Implement Speed Management Strategy for Hilly Roads throughout the Country

4.1.14 Enhance the present road design approach holistically, with proper speed management and effective safety features including widening the lane width. Proper speed management strategies that are suitable for hilly terrain traffic shall be adopted to encourage safe travelling along the route.

4.1.15 Review and gazette all posted speed limit and vehicle weight limit in accordance with WRO at all hilly roads including private road with public access for effective enforcement purpose by the relevant authorities.

4.1.16 Install appropriate traffic calming devices and warning signs at sections with sub-standard features to slow down the vehicles and convey safety warning messages effectively.

4.2 Vehicle

Review and Enhance the Existing Approval and Licensing Processes of Public Service and Goods Vehicles

4.2.1 Conduct a comprehensive audit of the entire chain of the public service and goods vehicle design, construction, approval and inspection procedures and rectify immediately any gaps or issues identified for a more efficient and transparent service. The audit shall also include the record keeping procedure/process by RTD, LPTC and PUSPAKOM, especially the traceability and safe keeping of documents and records.

4.2.2 Standardize procedures and guidelines for vehicle design and modifications. These procedures and guidelines must be made publicly available to all stakeholders and relevant agencies. Guidelines should include dimensions, BDM that comply with the WRO, and safety features requirements. The current Motor Vehicle (Construction & Use) Rules 1959 should undergo revisions because much of the information is outdated and does not reflect the current practice and requirements of the industry.

4.2.3 Establish a mandatory requirement to attach structural drawings for submission, approval, and endorsement of general arrangement vehicle plans by Professional Engineer (PE). In addition, actual dimensions in all vehicle plans especially buses, shall be indicated with reasonable tolerance. Chassis modification must be supported with written approval from the original vehicle manufacturer to local distributor together with technical modification specifications.

4.2.4 The Board of Engineers Malaysia (BEM) shall systematically monitor and take stern action against Engineering Consultancy Practice (ECP) companies that misused and contravened the professional code of practice.

4.2.5 Establish a policy that requires only qualified technicians and welders to be involved in welding and fabrications and qualified engineers for supervision and construction of public service and goods vehicles in Malaysia. This is to ensure that fabrication specifications and the safety level are met thus minimizing

substandard works during construction. Furthermore, a statutory requirement shall be established to increase monitoring by RTD on these vehicle fabrication workshops.

4.2.6 Develop a standard guideline in the vehicle approval process which shall provide a clear and transparent guide to all stakeholders including engineers, designers and coach builders, and various agencies to function efficiently and avoid discrepancies between approval agencies.

4.2.7 Facilitate clear communication of permit conditions with regards to LPTC requirements for either new or amended permit. This can be achieved by having clear indications in the vehicle permit. All circulars issued pertaining to this matter must be promptly made known to the attention of the relevant agencies. Furthermore, the blacklist status for vehicles shall be in order and made easily available for the benefit of the motorists who wish to access the status of their blacklisted vehicles.

4.2.8 Ensure that all approving processes including the Vehicle Type Approval are strictly adhered to, transparent, accountable, and traceable. The approving process must be implemented systematically and well-coordinated with continual monitoring through systematic audit of the processes, effective enforcement and periodic inspection on the road to avoid any conflict. This shall be done by RTD with the assistance from other agencies if necessary and shall be enforced immediately.

4.2.9 Improve the current system of traceability and safe keeping of documents for effective document retrieval.

4.2.10 In line with the government policy of not encouraging monopoly, it is recommended that vehicle inspection services shall also open to other organisations capable of offering such services.

Safety Measures for Public Service and Goods Vehicles Plying Hilly Roads

4.2.11 Restrict public service vehicles specifically for buses and goods vehicles along hilly and winding roads. Restriction shall be made based on vehicles' length, width, height and laden weight. LPTC shall review the BDM of permit for certain types of vehicle.

4.2.12 Double Deck/High Deck buses shall be disallowed from plying hilly roads until the present weaknesses are rectified to ensure safety.

4.2.13 Disallow standing passenger for buses plying hilly roads for safety and health reasons.

4.2.14 Establish a policy to ensure all seats in buses are installed with safety seatbelts for safety reasons. Exception could be provided for stage buses plying urban area.

Mandate the Use of Retarder System and Encourage the Use of Speed Limiter for Public Service and Goods Vehicles

4.2.15 All public service and goods vehicles with unladen weight which exceed 3000 kg (Section 5(e), Road Transport Act 1987) plying hilly roads shall be installed with either both primary and secondary retarders or its equivalent. The brake system shall comply with United Nations Regulations 13 (UN R13) (brake system). For public service vehicles plying non-hilly roads, mandate the installation of secondary retarder.

4.2.16 Incorporate retarder functionality and performance tests in vehicle roadworthiness inspections.

4.2.17 Innovative enforcement method, for instance, encouraging the effective use of speed limiter shall be implemented by the operators and empowering the public particularly the passengers to be proactive in ensuring their own safety.

Ensure Compliance with UN R36, R52, R66, R80 and R107 for All Newly Registered Buses

4.2.18 UN R36, R52, R66 and R80 were gazetted on 19 November 2007 under the Motor Vehicle (Construction and Use) Rules (Amendment) 2007. All new buses must comply with these UN regulations to reduce fatalities emanating from rollover accidents and for an effective restraint system respectively.

4.2.19 Comprehensive independent audits shall be carried out to determine the compliance of existing buses constructed after November 2007.

4.2.20 The current Motor Vehicle (Construction and Use) Rules, 1959 shall incorporate UN R107 (double deck bus) implementation.

4.3 Safe Operation Practices

Intensify National Rollout of the Implementation of OSHA for Transportation Industry

4.3.1 DOSH shall take full responsibility on the implementation of OSHA 1994 with regards to occupational road safety. In the event DOSH has delegated its power to other authorities on the implementation of OSHA, it has a responsibility to ensure the power is effectively implemented by the agencies concerned.

4.3.2 Expedite initiatives to ensure effective implementation of OSHA ICOP SHE 2010 by all bus operators prior to the issuance of permit approval and renewal.

4.3.3 GHT needs to review and enhance its entire safety operation to meet the requirements of OSHA ICOP with the aim of achieving ISO 39001(Road Traffic Management).

Implement Safety Star Grading Operation and Nationwide Profiling of Public Service and Goods Vehicle Drivers

4.3.4 Quality and safety ratings are a well-established and impactful method of forcing service providers by the consumers to improve their services. A good example in road safety would be the Safety Star Grading for bus operators developed and launched by MIROS on 30 July 2013. The Safety Star Grading is an indicator of the safety performance of bus operators which the public can rely on. The Safety Star Grading is currently on voluntary basis and therefore, it shall be made mandatory.

4.3.5 A systematic nationwide profiling of commercial vehicle drivers is fully supported and the Panel looks forward to its early implementation. This profile is able to determine and identify the driver risk of being involved in road crash. An effective rehabilitation program shall be developed to treat such drivers before allowing them to return to the system.

Establish Monitoring Mechanism for Transportation Safety in Malaysia

4.3.6 **Establish** a **National Transportation Safety Board (NTSB)** that serves as an independent body to conduct high profile investigation and analysis of road, rail, aviation and maritime crashes. **NTSB** shall monitor and report the implementation of safety measures, interventions and related operations nationwide, and ensure evaluation of such to be carried out scientifically. **NTSB** shall be made directly responsible to the Cabinet on issues related to transportation safety. This Board shall also act as the catalyst for the National Transport Safety Policy and drive for its implementation.

4.3.7 The RTD shall be restructured into a Technical Department. However, the technical functions of RTD related to safety could be part of the core functions of the National Transportation Safety Board.

4.3.8 MIROS Act 2012 shall be amended to empower MIROS with certain enforcement prosecution authority in relation to road safety issues such as

collection and compilation of related vehicle data and crashes information for analysis and research purposes.

4.4 Emergency Response and Rescue

Ensure Effective Communication System in Hilly and Remote Areas

4.4.1 GIRN is not effective in hilly and remote areas. Therefore, it is recommended that the Government supply Rapid Deployment Unit (RDU) (either mobile or non-mobile) to emergency teams that operate in hilly and remote areas including Genting and Karak Highway. RDU will function as a repeater to enhance and enable more network penetration for GIRN. It is also strongly recommended for Genting Fire and Rescue to have this RDU as part of their preparedness plan. Standard operating procedures for activation of this RDU shall also be detailed out and made known to relevant emergency agencies.

National Rollout of Computer Aided Dispatch 999 (CAD 999) Systems

4.4.2 All emergency calls shall be made through the 999 systems as quick response can be activated for immediate and more coordinated actions. CAD 999 shall be used with specific code which will ease the CAD user in determining the type of incident, relevant emergency team and automatically record the activation time for each agency. This system shall be extended to all states and a standard operating procedures (SOP) shall be developed. Furthermore, group SMS system is needed to support communication for red and yellow alert declaration of any incidents.

Strengthen the Coordination and Capacity Building of Efficient Emergency Response and Rescue

4.4.3 In order to have better on-scene coordination between agencies involved in emergency response and rescue, a regular training as well as drill exercise according to NSC Directive 20 shall be carried out. This is a part of the preparedness and response plan with a proper evaluation of the exercise shall be done. NSC shall take a proactive role to review the performance of the recent rescue and response operation to enhance preparedness and response in the future. For better victim management on site especially for remote or hilly areas, a proper medical base station shall be set up. Furthermore, as a mean to inculcate safety culture among emergency team members, all agencies shall be provided with appropriate personal protective equipment prior to their deployment to crash sites.

Provide Logistic Vehicle for Proper Set Up of Medical Base Station

4.4.4 Logistic vehicle for emergency cases with mass casualties shall be provided and equipped with appropriate logistic equipment to enable a conducive medical base station to be set up at crash scene. The availability of these vehicles is very important for timely deployment whenever an emergency incident occurs.

4.5 Strengthening and Empowering the Public for Road Safety

Empowering Public in Enhancing Road Safety Culture

4.5.1 Empowering the Public for road safety is crucial. RSD shall develop ways and means with the objective of empowering the Public to play a more direct and effective role in enhancing road safety. The present technology, especially mobile technology, should be explored for such purpose.

Enhance the Role of Road Safety Council

4.5.2 RSD shall adopt and implement more aggressive measures to promote and ensure a road safety culture with the participation of Government agencies, Civil Societies, Non-Governmental Organisations (NGO), private sectors and the community.

Provide Platform for Consumer to Exercise Their Rights

4.5.3 RSD shall disseminate the right safety information to the Public in general and to the relevant consumers in particular. This is to enable the consumers to make their choice and decision based on the level of safety. Thus, the relevant industries with consumer power will be driven for safer system on the road in a sustainable manner.

5. Implementation of Recommendations

5.1 The completion timeline for all the proposed recommendations are divided into immediate, short term (up to 1 year) and long term (up to 2 years). The implementation approach for these recommendations could be one-off or on-going. The proposed completion timeline of these recommendations and the implementation approach are tabulated in the following Table 3, Table 4, Table 5, Table 6 and Table 7.

5.2 **It is recommended that the NTSB is to be established and become operational within two years with technical competency and legitimate power. Pending the formation of NTSB, an interim body with adequate support of resources and authority by the Cabinet is to be set up immediately. This interim body may include some Panel Members to ensure and to effectively monitor for timely and effective implementation of the recommendations. Consequently, it will further serve as the foundation to the establishment of the NTSB.**

Table 3: Proposed Implementation Timeline for Recommendations on Road

Recommendation 1: Road			Completion timeline			Implementation approach		Action by
Items	Page	Section	Immediate	Short term (up to 1 year)	Long term (up to 2 years)	One-off	On-going	
Establish and Implement a Nationwide Systematic Road Safety Assessment and Risk Mapping	18	4.1.1	√				√	GENM & PWD
		4.1.2		√			√	PWD
		4.1.3			√	√		PWD
		4.1.4		√			√	PWD & Local Authorities
		4.1.5		√			√	PWD
Standardize the Implementation,	19	4.1.6	√				√	PWD & Local

Recommendation 1: Road			Completion timeline			Implementation approach		Action by
Items	Page	Section	Immediate	Short term (up to 1 year)	Long term (up to 2 years)	One-off	On-going	
Requirements for Road Design and Signage and Approval Process for both Public and Private Roads								Authorities
Strengthening the Enforcement for the Use of Safety barrier at High Risk Sections	19	4.1.7	√			√		GENM
Establish a Technical Guideline for the Design and Use of Emergency Escape Ramp (EER)	20	4.1.8		√		√		PWD
		4.1.9	√			√		GENM
Upgrade and Enhance Current Design Standard, Specification, Construction and Maintenance for All Hilly Roads	20	4.1.10	√			√		PWD & GENM
		4.1.11			√		√	PWD & GENM
		4.1.12	√			√		GENM
		4.1.13	√			√		GENM
Develop and Implement Speed Management Strategy for Hilly Roads throughout the Country	21	4.1.14			√		√	PWD
		4.1.15			√		√	PWD
		4.1.16		√			√	PWD

Table 4: Proposed Implementation Timeline for Recommendations on Vehicle

Recommendation 2: Vehicle			Completion timeline			Implementation approach		Action by
Items	Page	Section	Immediate	Short term (up to 1 year)	Long term (up to 2 years)	One-off	On-going	
Review and Enhance the Existing Approval and Licensing Processes of Public Service and Goods Vehicles	22	4.2.1		√			√	MOT
		4.2.2	√				√	RTD
		4.2.3			√		√	RTD
		4.2.4	√				√	BEM
		4.2.5			√	√		RTD
		4.2.6	√			√		RTD
		4.2.7	√				√	LPTC
		4.2.8		√			√	RTD
		4.2.9	√				√	RTD & PUSPAKOM
		4.2.10			√	√		MOT
Safety Measures for Public Service and Goods Vehicle Plying Hilly Roads	24	4.2.11	√				√	LPTC
		4.2.12	√				√	LPTC
		4.2.13	√				√	LPTC
		4.2.14			√		√	LPTC & RTD
Mandate the Use of Retarder System and Encourage the Use of Speed Limiter for Public Service and Goods Vehicles	24	4.2.15		√			√	RTD & LPTC
		4.2.16		√			√	PUSPAKOM
		4.2.17			√		√	RTD, RSD & LPTC

Recommendation 2: Vehicle			Completion timeline			Implementation approach		Action by
Items	Page	Section	Immediate	Short term (up to 1 year)	Long term (up to 2 years)	One-off	On-going	
Ensure Compliance with UN R36, R52, R66, R80 and R107 for All Newly Registered Buses	25	4.2.18	√				√	RTD
		4.2.19		√			√	IEM
		4.2.20		√		√		RTD

Table 5: Proposed Implementation Timeline for Recommendations on Safe Operation Practices

Recommendation 3: Safe Operation Practices			Completion timeline			Implementation approach		Action by
Items	Page	Section	Immediate	Short term (up to 1 year)	Long term (up to 2 years)	One-off	On-going	
Intensify National Rollout of the Implementation of OSHA for Transportation Industry	25	4.3.1	√				√	DOSH
		4.3.2	√				√	DOSH & LPTC
		4.3.3	√				√	GHT
Implement Safety Star Grading Operation and Nationwide Profiling of Public Service and Goods Vehicle Drivers	26	4.3.4		√			√	MIROS
		4.3.5			√		√	MIROS

Recommendation 3: Safe Operation Practices			Completion timeline			Implementation approach		Action by
Items	Page	Section	Immediate	Short term (up to 1 year)	Long term (up to 2 years)	One-off	On-going	
Establish Monitoring Mechanism for Transportation Safety in Malaysia	26	4.3.6			√	√		MOT
		4.3.7		√		√		MOT
		4.3.8		√		√		MOT

Table 6: Proposed Implementation Timeline for Recommendations on Emergency Response and Rescue

Recommendation 4: Emergency Response and Rescue			Completion Timeline			Implementation approach		Action by
Items	Page	Section	Immediate	Short term (up to 1 year)	Long term (up to 2 years)	One-off	On-going	
Ensure Effective Communication System in Hilly and Remote Areas	27	4.4.1	√			√		MOH
National Rollout of Computer Aided Dispatch 999 (CAD 999) Systems	27	4.4.2	√			√		NSC

Recommendation 4: Emergency Response and Rescue			Completion Timeline			Implementation approach		Action by
Items	Page	Section	Immediate	Short term (up to 1 year)	Long term (up to 2 years)	One-off	On-going	
Strengthen the Coordination and Capacity Building of Efficient Emergency Response and Rescue	28	4.4.3	√				√	NSC
Provide Logistic Vehicle for Proper Set Up of Medical Base Station	28	4.4.4		√		√		MOH

Table 7: Proposed Implementation Timeline for Recommendations on Strengthening and Empowering the Public in Road Safety.

Recommendation 5: Strengthening and Empowering the Public in Road Safety			Completion timeline			Implementation approach		Action by
Items	Page	Section	Immediate	Short term (up to 1 year)	Long term (up to 2 years)	One-off	On-going	
Empowering Public in Enhancing Road Safety Culture	28	4.5.1		√			√	RSD
Enhance the Role of Road Safety Council	29	4.5.2		√			√	RSD
Provide Platform for Consumer to Exercise Their Rights	29	4.5.3			√		√	RSD

6. Conclusion

The Panel has performed its duty responsibly and diligently in accordance with the TOR in evaluating and reviewing the reports submitted by MIROS and other relevant agencies and parties. Several practical recommendations were proposed to prevent similar road crashes in the future.

All immediate, short and long term recommendations need to be implemented timely, appropriately and seriously. The success of enhancing road safety in the country depends not only on the commitment, cooperation and integrity of all relevant agencies but also on the establishment of the NTSB. In the long term, it will ensure the sustainability of road safety in the country.

7. References

1. *Laporan Teknikal Kemalangan Bas Henti-henti (WGA4136) KM3.5, Jalan Genting Highlands pada 21 Ogos 2013.* Road Transport Department and PUSPAKOM, 2013.
2. Genting Highlands Crash Investigation KM 3.6, Genting Highlands-Kuala Lumpur Road, Malaysian Institute of Road Safety Research (MIROS) Inquiry Report, MIR No. 132, 2013.
3. Report on Compilation of Initiatives by Various Agencies pertaining to Genting Highlands Crash at KM 3.6 Genting Highlands-Kuala Lumpur Road on 21 August 2013, Malaysian Institute of Road Safety Research (MIROS) Inquiry Report, MIR No. 135, 2013.
4. Road Transport Act 1987.
5. Land Public Transport Act 2010.
6. Motor Vehicle (Construction and Use) Rules, 1959.
7. Occupational Safety and Health Act 1994.

8. Annex

ANNEX 1

Other Relevant Documents Received and Reviewed

PUSPAKOM

1. Periodic Inspection of WGA 4136
2. PG 11A (Initial or Special Inspection report of public service and goods vehicle)
3. PG 11A/B2 Inspection Report (Initial/Special)
4. Vehicle Inspection Reports
    i. 28 Jul 2010
    ii. 29 Jul 2010
    iii. 24 Jan 2011
    iv. 25 Jan 2011
    v. 14 Jul 2011
    vi. 29 Dec 2011
    vii. 6 Jun 2012
    viii. 5 Dec 2012
    ix. 28 May 2013
5. *Sijil Timbang Berat Scania 2/94 Scania L113 CRL (Chasis Bas) Rear Engine*
6. *Laporan B2* (Special Inspection Report)
7. CCTV PUSPAKOM Wangsa Maju WGA 4136 (28 May 2013)
8. Letter to secretariat (MIROS) with title of "*Maklumat untuk Sesi Inkuiri Jawatankuasa Bebas Bagi Kes Kemalangan Bas Ulang Alik Di Jalan Genting Highlands-Kuala Lumpur Pada 21 Ogos 2013"* from PUSPAKOM (5 December 2013)

9. *Maklumat yang Diperlukan untuk Sesi Inkuiri Jawatankuasa Bebas Kemalangan Bas Ulang Alik Jalan Genting Highlands-Kuala Lumpur Pada 21 Ogos 2013*
10. *Siasatan dan Pemeriksaan Kemalangan Untuk Kes-Kes Khas*
11. *Laporan Teknikal Kemalangan JJX 8311 Di Kilometer 383.4 Lebuhraya Utara-Selatan (Laporan Polis Bernombor: K000137/2008)*
12. *Sijil Pemeriksaan Kemalangan Kenderaan di Bawah Seksyen 117 (5) Akta Pengangkutan Jalan 1987 (Laporan A17)*
13. *Kebenaran Mengubah Kenderaan Bas Henti-henti 45 Tempat Duduk Kepada 43 Tempat Duduk (Lampiran B) (21 November 2011)*
14. Inspection Receipt of WGA 4136 on 28 May 2013
15. Inspection Records for WGA 4136
16. List of Inspection History
17. PG 13B (*Laporan Pemeriksaan Kenderaan Perkhidmatan Awam (Pemeriksaan Awalan Bas))*
18. Standard Operating Procedure (*Pengemukaan, Pemprosesan, Penyemakan dan Pengesyoran Pelan Untuk Kelulusan Jabatan Pengangkutan Jalan)*
19. *Senarai Pelan Kenderaan (BDM 51000 kg dan ke atas) yang diluluskan pada 2001, 2002 dan 2003.*
20. Cadangan Penambahbaikan dari Pihak PUSPAKOM bagi Kes Kemalangan Bas Ulang-Alik di Jalan Genting Highlands-Kuala Lumpur pada 21 Ogos 2013

RTD

1. *Maklumbalas kepada Jawatankuasa Bebas Bagi Kes Kemalangan Bas Berhenti-henti (Genting Higlands-Kuala Lumpur) Jabatan Pengangkutan Jalan.*
2. *Spesifikasi Pembinaan Bas- Mengikut Kaedah Kenderaan Bermotor (Pembinaan & Pengunaan) 1959*
3. *Prosedur Pendaftaran Baru Kenderaan Perdagangan Pemasangan Tempatan dan Import*
4. *Prosedur Permohonan Pendaftaran Baru Bengkel Kejuruteraan (Bina Badan Kenderaan)*

5. *Prosedur Permohonan Pendaftaran Syarikat Perunding*
6. *Prosedur Permohonan Pengiktirafan Jurutera Profesional*
7. *Pelan Teknikal Bas WGA 4136*
8. List of Consultant Company and Professional Engineer
9. *Prosedur Permohonan Kelulusan Pelan Teknikal Kenderaan Dibawah Seksyen 12 APJ 1987*
10. Letter with title of "*Dokumen Untuk Inkuiri Panel Kes Bas Genting (WGA 4136)"*
11. *Laporan Teknikal Kemalangan Bas Berhenti-henti (WGA 4136) Kilometer 3.5, Jalan Genting Highlands Pada 21 Ogos 2013*
12. *Cadangan Langkah-Langkah Susulan JPJ Berkaitan Dengan Kes Kemalangan Maut Genting Highlands Pada 21 Ogos 2013*

GENM

1. As-Built Drawing New Chin Swee Bypass
    a. RESORTS/AB/001
    b. RESORTS/AB/002
    c. RESORTS/AB/003
    d. RESORTS/AB/004
    e. RESORTS/AB/005
2. Road design drawings including road furniture
    a. M1000/RESORTS/CIV/SP/001B
    b. M1000/RESORTS/CIV/SP/001.1A
    c. M1000/RESORTS/CV/LP/001.1
    d. M1000/RESORTS/CV/LP/001.2
    e. M1000/RESORTS/CV/LP/001.3
    f. M1000/RESORTS/CV/LP/001.4
    g. M1000/RESORTS/CV/GR/STD/001
    h. M1000/RESORTS/CV/GR/STD/002
    i. M1000/RESORTS/CIV/TS/001
3. Design brief for the proposed upgrading of existing Genting Highlands Road From Gohtong Jaya Roundabout to the Hill Top and the New Chin Swee Bypass

4. Road & Slope Maintenance Work Log Record
5. Letter to Minister of Transport Malaysia from GENM (18 November 2013)
6. Letter to Chairman of the Panel with the title “Re: Independent inquiry regarding the accident involving a stage bus at 3.6 KM of the Genting Highlands & Kuala Lumpur Road (the “Accident Site”) on 21 August 2013” from GENM

RSD

1. Nationwide road safety improvement : *Aktiviti-Aktiviti Pelaksanaan Program Dan Projek Jabatan Keselamatan Jalan Raya (JKJR)*
2. Effectiveness of road safety campaign
3. *Ringkasan Eksekutif Kajian Keberkesanan Pelaksanaan Pendidikan Keselamatan Jalan Raya di Sekolah Rendah (Tahun 2007-2010)*
4. Scope of work and power as the lead agency for road safety
5. *Perbelanjaan Bagi Jabatan Keselamatan Jalan Raya Tahun 2006 Hingga 2013*
6. *Pretasi KPI JKJR Negeri Dan HQ 2013*
7. Media Post buy for August 2012-February 2013 (RSD)
8. *Perlantikan Sebagai Ahli Jawatankuasa Inkuiri Kemalangan Bas Genting* (LPTC)
9. Bus Accident Inquiry Committee-Genting (Terms of Reference) (September 2013)
10. *Wakil Jabatan Keselamatan Jalan Raya (JKJR) Dalam Jawatankuasa Teknikal Bagi Kemalangan Bas Di Genting*
11. Initial crash report involved 3 fatalities, KM 330 Jalan Raub-Kuala Lipis, 18 August 2013
12. Initial crash report involved 2 fatalities, Galing Curve, Beserah Road, 22 September 2013
13. Initial crash report involved 3 fatalities, KM 49 Karak-Kuala Lumpur Highway (to Bentong), 16 October 2013
14. Initial crash report involved 3 fatalities, KM 115.8 Kuantan- Johor Bahru Road (Near Kg. Sembayan, Rompin, Pahang), 8 September 2013
15. Initial crash report involved 2 fatalities, Bypass Kuantan Road, 22 September 2013

16. Initial crash report involved 3 fatalities, Kuantan-Sungai Lembing Road, 22 September 2013
17. Initial crash report involved 5 fatalities, Sidam Kiri-Kuala Ketil Road, Sungai Petani, 4 August 2013
18. Photos taken by DG of RSD at 22 August 2013
19. Initial crash report involved 37 fatalities and 16 injuries, KM 3.6 Genting Road-Karak, 21 August 2013
20. Initial report on Second Penang Bridge Ramp Collapse, 6 Jun 2013
21. Initial crash report involved storm, Macalister Road, Pulau Pinang, 13 Jun 2013
22. Initial crash report involved 3 fatalities, KM 23 Paka- AMBS Road, 28 September 2013
23. Fatal crash report, KM 07 Kajang-Banting Road, 9 September 2013
24. Fatal crash report, KM 121.1 ELITE Highway (to North of Putrajaya), 6 October 2013
25. Initial crash report involved 3 fatalities, Ayer Keroh Lama Road, Melaka, 11 August 2013
26. Initial crash report involved 3 fatalities and 2 injuries, UTL 9 Road, Kampung Gebok, Mantin (Near Lagenda College), 22 August 2013
27. Initial crash report involved 5 fatalities, KM 52 Bintulu-Miri Road, 11 September 2013
28. Initial crash report involved 6 fatalities, KM 14 Selangau/Mukah Road, 29 November 2013

BMC

1. Drawing Title : As-built Survey of the New Chin Swee Bypass (Drawing No : RESORTS/AB/001)
   Job Title : Upgrading of existing Genting Highlands Road from Gohtong Jaya Roundabout to the Hill Top and the New Chin Swee Bypass
2. Drawing Title : As-built Survey of the New Chin Swee Bypass (Drawing No : RESORTS/AB/002)
   Job Title : Upgrading of existing Genting Highlands Road from Gohtong Jaya Roundabout to the Hill Top and the New Chin Swee Bypass

3. Drawing Title : As-built Survey of the New Chin Swee Bypass (Drawing No : RESORTS/AB/003)
   Job Title : Upgrading of existing Genting Highlands Road from Gohtong Jaya Roundabout to the Hill Top and the New Chin Swee Bypass
4. Drawing Title : As-built Survey of the New Chin Swee Bypass (Drawing No : RESORTS/AB/004)
   Job Title : Upgrading of existing Genting Highlands Road from Gohtong Jaya Roundabout to the Hill Top and the New Chin Swee Bypass

LPTC

1. Presentation to *Jawatankuasa Bebas bagi Kes Kemalangan Bas Ulang-Alik di Jalan Genting Highlands-Kuala Lumpur*

Others

1. Accident statistics at Genting Highlands Road
2. Accident statistics at Batang Kali-Genting Highlands Road
3. *Kenyataan Media oleh Menteri Pengangkutan bagi Laporan Nahas Genting Highlands (8 November 2013)*
4. Letter to Chairman of the Panel from Yamin Vong, Editor, NST-Cars, Bikes & Trucks
5. Letter to Tan Sri Lee Lam Thye from ANAK MALAYSIA (5 December 2013)
6. Letter to Chairman of the Panel with title of "*Meluluskan Pelan Lori Balak Sewenang-wenang Menjejas Keselamatan Jalan Raya"* from *Pengusaha-Pengusaha Kayu Balak (*13 November 2013)

The Independent Advisory Panel to
The Minister of Transport Malaysia

REPORT

on Genting Highlands Bus Crash

at KM 3.6 Genting Highlands-Kuala Lumpur Road
on 21 August 2013

MINISTRY OF TRANSPORT
MOT