

## Status Update for 51 Recommendations of Genting Crash

<b>Organisation</b>	<b>Genting Malaysia Berhad &amp; PWD</b>
<b>Agency/Department</b>	<b>Genting Malaysia Berhad &amp; PWD</b>
<b>Recommendation Number</b>	<b>4.1.1 (Page 18)</b>
<b>Recommendation Title And Details</b>	<p><b>Establish and Implement a Nationwide Systematic Road Safety Assessment and Risk Mapping</b></p> <p>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 (B66) which is under their jurisdiction. Immediate and appropriate actions shall be taken according to the road safety audit findings to address safety issues.</p>
<b>Implementation Plan (Status/Update)</b>	<p><b>Implementation Plan Details</b></p> <p>A road safety assessment and risk mapping was conducted along the 10.5km of Route B66 under the PWD jurisdiction using the IRAP methodology. Based on this report, PWD of Selangor State, allocated RM 2,852,829.94 to implement the upgrading (pavement and non-pavement) works at the identified high risk locations along this Road. The distribution of the above said allocation as shown below :</p> <p>2014 – RM 331,835.00  2015 – RM 508,156.54  2016 – RM 2,012,838.40</p>
<b>Status of implementation, including - outcomes achieved.</b>	<p><b>Desired Outcome (s)</b></p> <p>Reduction of number of accidents</p> <p><b>Rationale</b></p> <p>The prime objective of above said desired outcome could be achieved by upgrading the physical and geometrical features of the road alignment. Besides</p>

	that, adding and upgrading the road furnitures (eg. Road lines, signboards, road barriers etc.) also have been considered and carried out in the upgrading works along this road in order to enhance the safety of the road users.
<b>Next action/Justification</b>	PWD of Selangor State will bid and request for annual budget from the State government to continuously carry out the periodic and non-periodic works along this alignment.
<b>Issued by Director General/Chairman</b>	
<b>Progress Report Date</b>	28.2.2017

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<b>Organisation</b>	<b>PWD</b>
<b>Agency/Department</b>	<b>PWD</b>
<b>Recommendation Number</b>	<b>4.1.2 (Page 18)</b>
<b>Recommendation Title And Details</b>	<p><b>Establish and Implement a Nationwide Systematic Road Safety Assessment and Risk Mapping</b></p> <p>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.</p>
<b>Implementation Plan (Status/Update)</b>	<p><b>Implementation Plan Details</b></p> <p>Road safety audit is proposed to be carried out at the 12 high risk locations along the hilly terrain roads.</p>
<b>Status of implementation, including - outcomes achieved.</b>	<p><b>Desired Outcome (s)</b></p> <p>Reduction of number of accidents along the mountainous terrain roads</p> <p><b>Rationale</b></p> <p>Road safety audit was conducted and an appropriate treatment programs were implemented at 12 identified hilly roads whereby 7 locations are in Peninsular, 3 and 2 locations in Sabah and Sarawak respectively. In total RM 8,375,796.85 has been spent to implement all the mitigation works along the 12 identified high risk hilly terrain roads in the country.</p>
<b>Next action/Justification</b>	MoW and PWD will continuously improve the road safety at the mountainous terrain roads.
<b>Issued by Director General/Chairman</b>	
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<b>Organisation</b>	<b>PWD</b>
<b>Agency/Department</b>	<b>PWD</b>
<b>Recommendation Number</b>	<b>4.1.3 &amp; 4.1.4 (Page 18 &amp; 19)</b>
<b>Recommendation Title And Details</b>	<p><b>Establish and Implement a Nationwide Systematic Road Safety Assessment and Risk Mapping</b></p> <p>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.</p> <p>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.</p>
<b>Implementation Plan (Status/Update)</b>	<p><b>Implementation Plan Details</b></p> <p>The Road Safety Audit (stage 1-5) is a policy and necessity in all new PWD road projects or upgrading the existing road network along Federal and State Roads. Besides that, additionally PWD also requesting this safety report to be prepared and submitted by the developers on their junction designs.</p>
<b>Status of implementation, including - outcomes achieved.</b>	<p><b>Desired Outcome (s)</b></p> <p>Reduction of number of accidents</p> <p><b>Rationale</b></p> <p>The aspects of road safety have been improved significantly since the introduction of RSA reports in all the PWD road projects, since these reports qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users</p>

<b>Next action/Justification</b>	PWD will always ensure that the policy of RSA will be implemented in all the PWD projects and private roads with public access.
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<b>Organisation</b>	<b>Ministry of Works (MoW)</b>
<b>Agency/Department</b>	<b>Public Works Department (PWD)</b>
<b>Recommendation Number</b>	<b>4.1.5</b>
<b>Recommendation Title And Details</b>	<p><b>Establish and Implement a Nationwide Systematic Road Safety Assessment and Risk Mapping</b></p> <p>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.</p>
<b>Implementation Plan (Status/Update)</b>	<p><b>Implementation Plan Details</b></p> <p>Blackspot program is an annual program implemented by Ministry of Works &amp; PWD to improve road safety at frequent accident spots along Federal Roads. In general, blackspots are defined as the locations with frequent accidents, three or more involving same pattern of accident, or five or more involving different pattern of accident, within 50 meter radius over 3-year period</p> <p>From 2010 to 2015, 311 locations on Federal Roads throughout Malaysia have been treated with short-term mitigation measures under this program. After treatment, each location is monitored for accidents for 3 years as the accident data prior to treatment are over a 3-year period.</p>
<b>Status of implementation, including - outcomes achieved.</b>	<p><b>Desired Outcome (s)</b></p> <p>Reduction in number of accidents by at least 70% after treatment.</p>

	<p><b>Rationale</b></p> <p>Based on a 3-year monitoring period after treatment, the effectiveness of the treatment can be identified. Locations with re-occurrences of accidents of more than 70% will be further investigated and treated.</p>
<b>Next action/Justification</b>	MoW and PWD will continue to improve road safety at frequent accident spots along Federal Roads. A total of 18 blackspot locations have been identified to be treated in 2017.
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<b>Organisation</b>	<b>PWD</b>
<b>Agency/Department</b>	<b>PWD</b>
<b>Recommendation Number</b>	<b>4.1.6 (Page 19)</b>
<b>Recommendation Title And Details</b>	<p>Standardize the Implementation, Requirements for Road Design and Signage and Approval Process for both Public and Private Roads</p> <p>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.</p>
<b>Implementation Plan (Status/Update)</b>	<p><b>Implementation Plan Details</b></p> <p>At present, PWD is using the existing PWD's guidelines and specification to carry out internal designs and to do checking on private developer's proposals. These guidelines and specification will be reviewed and updated from time to time based on current changes in policies and design requirements.</p>
<b>Status of implementation, including - outcomes achieved.</b>	<p><b>Desired Outcome (s)</b></p> <p>To achieve a common and standard road and signage design on all roads in Malaysia in order to obtain consistency in relaying information among the road users.</p> <p><b>Rationale</b></p> <p>The public and private sectors are required to use the existing common guidelines and specifications in their road and signage designs. All the private sector's submissions will be checked and approved based on these guidelines.</p>



<b>Next action/Justification</b>	MoW and PWD will continuously improve the existing guidelines and specifications to be in line with the current expectations of the road users.
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<b>Organisation</b>	<b>PWD</b>
<b>Agency/Department</b>	<b>PWD</b>
<b>Recommendation Number</b>	<b>4.1.8 (Page 20)</b>
<b>Recommendation Title And Details</b>	<p>Establish a Technical Guideline for the Design and Use of Emergency Escape Ramp (EER)</p> <p>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.</p>
<b>Implementation Plan (Status/Update)</b>	<p><b>Implementation Plan Details</b></p> <p>PWD is planning to develop a technical note for the Emergency Escape ramp (EER) to design and construct proper EER to enable vehicles which are having braking problems to safely stop especially along the hilly roads.</p>
<b>Status of implementation, including - outcomes achieved.</b>	<p><b>Desired Outcome (s)</b>To enable vehicles which are having braking problems to safely stop and helping the operator to stop it safely without a violent crash, especially along the hilly roads.</p> <p><b>Rationale</b> The Nota Teknik (Jalan) 31/2015 - Design Guidelines For Emergency Escape Ramp has been published by PWD in 2015</p>
<b>Next action/Justification</b>	MoW and PWD will continuously improve the existing technical notes on EER and will ensure, these technical notes are used in the entire hilly terrain roads in Malaysia.
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<b>Organisation</b>	<b>PWD</b>
<b>Agency/Department</b>	<b>PWD</b>
<b>Recommendation Number</b>	<b>4.1.10 (Page 20)</b>
<b>Recommendation Title And Details</b>	<p>Upgrade and Enhance Current Design Standard, Specification, Construction and Maintenance for All Hilly Roads</p> <p>The relevant authorities shall upgrade the current road design standard, specification, construction and maintenance for all hilly roads.</p>
<b>Implementation Plan (Status/Update)</b>	<b>Implementation Plan Details</b> <p>PWD is planning to upgrade the current design standard, specification, construction and maintenance SOPs for hilly roads.</p>
<b>Status of implementation, including - outcomes achieved.</b>	<p><b>Desired Outcome (s)</b></p> <p>To upgrade the existing guidelines and SOPs pertaining to hilly slope road design and procedures in order to meet up the current demands in safety issues.</p> <p><b>Rationale</b></p> <p>The workshop of upgrading and improving the current design standard, specification, construction and maintenance for all hilly roads was conducted under a program known as '<i>Program Meningkatkan Keselamatan Jalan Berbukit in 2014</i>'.</p>
<b>Next action/Justification</b>	MoW and PWD will continuously improve and upgrade the current guidelines and SOPs related to mountainous terrain roads.
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<b>Organisation</b>	<b>PWD</b>
<b>Agency/Department</b>	<b>PWD</b>
<b>Recommendation Number</b>	<b>4.1.11 (Page 20 &amp; 21)</b>
<b>Recommendation Title And Details</b>	<p>Upgrade and Enhance Current Design Standard, Specification, Construction and Maintenance for All Hilly Roads</p> <p>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.</p>
<b>Implementation Plan (Status/Update)</b>	<b>Implementation Plan Details</b> <p>Both issues (advisory signages along hilly terrain roads and a system to measure visibility during heavy fog or rain) were addressed and discussed in the '<i>Program Meningkatkan Keselamatan Jalan Berbukit in 2014</i>'.</p>
<b>Status of implementation, including - outcomes achieved.</b>	<p><b>Desired Outcome (s)</b></p> <p>Enhance the factor of road safety among the hilly terrain road users especially during heavy fog or heavy downpour of rain.</p> <p><b>Rationale</b></p> <p>Under the program of '<i>Program Meningkatkan Keselamatan Jalan Berbukit in 2014</i>', issues pertaining to heavy fog area advisory signs and a system to measure visibility during heavy fog and rain were addressed and analysed. Advisory signboards which conveying the information of 'Heavy Fog Area' with the provision of blinker lights suggested to be installed in</p>

	identified heavy fog areas. Besides that, a report on real time fog detection and warning system was prepared during this workshop and has submitted to MoW.
<b>Next action/Justification</b>	MoW and PWD will continuously innovate, improve and upgrade the message delivery system along the hilly terrain roads.
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<b>Organisation</b>	<b>PWD</b>
<b>Agency/Department</b>	<b>PWD</b>
<b>Recommendation Number</b>	<b>4.1.14 (Page 21)</b>
<b>Recommendation Title And Details</b>	<p><b>Develop and Implement Speed Management Strategy for Hilly Roads throughout the Country</b></p> <p>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.</p>
<b>Implementation Plan (Status/Update)</b>	<p><b>Implementation Plan Details</b></p> <p>Currently PWD is using the existing PWD's guidelines and specifications (REAM GL 2/2002) on speed management strategies and facility management. These strategies were also conducted under the program of '<i>Program Meningkatkan Keselamatan Jalan Berbukit</i>'.</p>
<b>Status of implementation, including - outcomes achieved.</b>	<p><b>Desired Outcome (s)</b></p> <p>Enhance and improve the factor of road safety among the hilly terrain road users.</p> <p><b>Rationale</b></p> <p>Under the program of '<i>Program Meningkatkan Keselamatan Jalan Berbukit in 2014</i>', the geometrical of the 12 numbers of accident prone areas along hilly roads were reviewed and proper mitigation methods (eg taming the sharp bands, road widening ets) were implemented at site.</p>

<b>Next action/Justification</b>	MoW and PWD will continuously innovate, improve and upgrade the current guidelines and specifications to meet up with the current development and demands.
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<b>Organisation</b>	PWD
<b>Agency/Department</b>	PWD
<b>Recommendation Number</b>	4.1.15 (Page 21)
<b>Recommendation Title And Details</b>	<p><b>Develop and Implement Speed Management Strategy for Hilly Roads throughout the Country</b></p> <p>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.</p>
<b>Implementation Plan (Status/Update)</b>	<p><b>Implementation Plan Details</b></p> <p>All the roads under PWD's purview are designed based on the speed limits as recommended in existing PWD guidelines and specifications (REAM GL 2/2002).</p>
<b>Status of implementation, including - outcomes achieved.</b>	<p><b>Desired Outcome (s)</b></p> <p>Aimed to design and construct a safe road alignments.</p> <p><b>Rationale</b></p> <p>All roads under PWD jurisdiction are being designed based on speeds that are depending on the road design criteria and specification. However, the posted speed limit will be reviewed from time to time to take into consideration factors such as upgrading roads, widening roads ets.</p>
<b>Next action/Justification</b>	MoW and PWD will continuously monitor and improvise the current guidelines and specifications
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<b>Organisation</b>	PWD
<b>Agency/Department</b>	PWD
<b>Recommendation Number</b>	4.1.16 (Page 21)
<b>Recommendation Title And Details</b>	<p><b>Develop and Implement Speed Management Strategy for Hilly Roads throughout the Country</b></p> <p>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.</p>
<b>Implementation Plan (Status/Update)</b>	<p><b>Implementation Plan Details</b></p> <p>These strategies have been considered under the program of '<i>Program Meningkatkan Keselamatan Jalan Berbukit</i>' and in the annual black spot program.</p>
<b>Status of implementation, including - outcomes achieved.</b>	<p><b>Desired Outcome (s)</b></p> <p>Provide the early warning information to the road users</p> <p><b>Rationale</b></p> <p>Appropriate traffic calming measures were implemented under '<i>Program Meningkatkan Keselamatan Jalan Berbukit</i>' and in the annual black spot program.</p>
<b>Next action/Justification</b>	MoW and PWD will continuously innovate, improve and upgrade the black spot areas in order to bring down the statistic of accidents in the country.
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