MIROS
MALAYSIAN INSTITUTE OF ROAD SAFETY RESEARCH
ASEAN ROAD SAFETY CENTRE

MIROS BOOK OF ABSTRACTS 2023

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BOOK OF ABSTRACTS 2023

This book compiles and lists the reports MIROS has published in 2023. The compilation includes report number, title, authors and excerpt of its abstract. The compilation arrangement follows according to the type of reports – beginning with MIROS Research Report (MRR) and MIROS Road Safety Inspection (MRSI).

This compilation intends to provide the stakeholders a quick information about research projects and outputs MIROS has been undertaking for the past year; as well as providing glimpses of the research findings. Readers are encouraged to obtain the respective full reports for any detailed information of interest. Depending on its type, reports in general contain background of the research projects, methodology, analysis and results; as well as recommendations and suggestions.

Although the reports are official documents produced by MIROS, they are not binding on any other parties, whether mentioned in the reports or otherwise. The inputs from the reports are to be used only as references and as sources of information. Reference herein to any specific reports does not necessarily constitute or imply its endorsement, recommendation, or favouring by MIROS, the Ministry of Transport of Malaysia, or the Malaysian Government. For any enquiry, please contact us.

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MALAYSIAN INSTITUTE OF ROAD SAFETY RESEARCH

Established on 3rd January 2007, MIROS is a one-stop centre for the generation and dissemination of road safety information through various media and a concerted training programme. MIROS carries out studies and evaluates current procedures on road safety to generate information that will form the core of its evidence-based intervention programmes to enhance road safety. This effort is also assisted through the establishment of networks and partnerships with more experienced international members of the road safety research field.

Ever since its inception, MIROS has produced a number of research publications on road safety. These reports published in 2023 are available in this book of abstracts.

VISION

To emerge as the world leader in road safety research

MISION

To foster the science and arts of road safety interventions

MIROS Research Report (MRR)

MRRs are technical reports derived from research findings.The reports address objectives, methodologies and results that lead to recommendations and conclusions.

MRR No. 507

Determining the Level of Stress and Anxious Driving Behaviour among Commuting Drivers

Author (s) : Nuura Addina Mohamad, Noradrenalina Isah, Nurulhana Borhan, Nuur Sakinah Azman, Mohd Khairul Alhapiz Ibrahim, Azhar Hamzah

Abstract : Road stress and anxiety relatively received less attention in the country. In order to highlight the weight of the problem in Malaysia, it is imperative to recognize the prevalence of stress and anxiety among drivers. Using an online survey incorporating Driver Stress Inventory and Anxious Driving Behaviour scales, 576 drivers in Klang Valley were surveyed with regards to stress and anxious behaviour. Findings suggested that stress among drivers is prominently caused by hazard monitoring while anxious driving behaviour is more frequently exhibited through exaggerated safety/caution behaviour. In general, the findings indicate a moderate level of driving stress and anxious behaviour. Factors influencing the different level of stress and anxious behaviour are found to be gender, age, education, income, driving distance, summons history and trauma due to a crash. Relationships among driving stress and anxious behaviour are found to be significant. Understanding the extent of the problems caused by stress and anxiety on the road may be vital towards designing impactful road safety intervention especially through providing stress and anxiety related training curriculum for novice drivers and improving road infrastructures to reduce road stress.

MRR No. 508 (RESTRICTED)

Photo Documentary on Crash Victims and Its Effects on the Audience

Author (s) : Mohd Yusof Abd Ghani, Nur Fazzillah Mohammed Noordin, Iskandar Abdul Hamid, Nor Fadilah Mohd Soid, Zulhaidi Mohd Jawi @ Said, Azhar Hamzah

Abstract : The seriousness road crash fatalities in Malaysia requires an out-of-the-box and creative approach to alleviate the situation. From education to engineering to enforcement, the softer approach such as the use of arts in communicating road safety would add to another dimension to leave no stone unturned. This study explores the effectiveness of the post-crash images of road victims when used as a tool to communicate road safety awareness. Certainly, the photo documentary through series of photographs can be used for various campaign platforms.

Following approval either from victims or their respective family, a total of 20 subjects (road crash victims) were identified and documented in the form of 35 mm film photography and darkroom print. Each victim's (or the caretaker) was also interviewed in order to record the event that led to the crash and the post-crash implications to the victims and family.

The photos were capture with films and were self-processed in the darkroom, then printed on 16 x 20 inch Ilford Multigrade FB Classic Paper for exhibition at the Vehicle Safety Week in Melaka and Sekolah Kebangsaan Jalan Bukit 1, Kajang. To determine the effectiveness of the photographs in delivering road safety message, the audience were given a set of Google form questionnaire via WhatsApp application. Forty-five (45) respondents answered the questionnaire which were made of 10 statements about the subject. The results indicated that majority of the respondents believed that black and white film photography can be an effective tool to promote a safer road. The respondents also agreed that similar exhibitions should be held more frequently.

In conclusion, the use of art, namely black and white photography – such as the post-crash suffering – can evoke audience's emotion; and should be made widespread on the right platform in order to sell the idea of safer roads for everyone. Besides, the use of these photographs should be extended into many other platforms such as books and social media for higher reach.

MRR No. 509

Speed Characteristics on Different Type of Roads in Malaysia

Author (s) : Syed Tajul Malik Syed Tajul Arif, Alvin Poi Wai Hoong, Nusayba Megat Johari, Akmalia Shabadin, Sharifah Allyana Syed Mohamed Rahim, Norfaizah Mohamad Khaidir, Muhammad Marizwan Abdul Manan, Azhar Hamzah

Abstract : Speed is known to be the main risk factors for road safety. Numerous studies have shown that the increase in mean speed will result in the increase in traffic crashes. Therefore, this study was carried out with the objectives to determine the speed characteristics of different road types namely expressways, federal roads and state roads and analyse the association of mean speed to the number of crashes. Locations for observation were selected based on crash data acquired from M-ROADS database. Criteria for spot selection is the site must at least had one (1) killed or seriously injured crashes within 1 km radius and had high number of crashes by states. Meanwhile, for state roads spots were selected from the list of Jabatan Kerja Raya (JKR) and Jabatan Pengangkutan Jalan (JPJ) blackspot areas. From crash data, total number of observed location was 29 locations which comprise of 10 expressways, 10 federal roads and 9 state roads. Spot speed data was collected using smart sensor device. The result show that the highest operating speed occurred at expressways, followed by federal road and the slowest speed characteristics was observed at state road and the mean and 85th percentile speed (operating speed) were highlighted for each road sections. In term of association, it was found that there were weak or no association between mean speed and the number of crashes. This could be due to insufficient crash data and location of observations. We also found that some crash data may not be accurate and incomplete therefore affected our analysis. Therefore, for future studies crash data for wider area should be included and more locations should be observed to have a meaningful result and thus know the association of speed and

crashes in Malaysia. It is also recommended for improvement of crash data recording and clean up of past data by the relevant authorities or agencies.

MRR No. 510

Value of Statistical Life (VOSL) and Its Association with the use of Road Safety Devices

Author (s) : Maslina Musa, Normala Abdul Malik, Nor Fadilah Mohd Soid, Low Suet Fin, Law Teik Hua, Azhar Hamzah

Abstract : The Value of Statistical Life or also known as VOSL is an economic value to quantify the benefit of avoiding a fatality due to road crash. It is also known as the cost of life, value preventing a fatality and cost of averting a fatality. VOSL is developed to evaluate safety effects in monetary terms including human costs and is being used in several countries. In order to estimate VOSL, there are several approaches to use. This study applies the willing-to-pay approach (WTP) in which it estimates the amount of money people (if affected) are willing to pay to avoid an accident. The objective of this study is to determine the VOSL of Malaysian road users and to associate the VOSL with the use of safety devices consists of child restraint system (CRS), rear set belt and helmet. A total of 1000 respondents were approached through face-to face interview in four (4) regions. Based on the data collected, the VOSL obtained range from RM3.2 million to RM4.1 million. In relation to VOSL and safety devices, the study reveals that there is no significant association with CRS and helmet usage. However, there is a significant association with rear seat belt wearing. The findings of this study can be used to quantify the estimated amount incurred when a person is involved in an accident. Future similar study can be conducted to include respondents from Sabah and Sarawak.

MRR No. 512

Readiness towards ISO 39001 Road Traffic Safety Management Systems Certification: A case Study of Public Service Transport Operator

Author (s) : Mohd Hafzi Md Isa, Rabihah Ilyas, Ahmad Saife Salleh, Wahida Ameer Batcha, Mohamad Suffian Ahmad, Aqbal Hafeez Ariffin, Harun Bakar, Khairil Anwar Abu Kassim, Iskandar Abdul Hamid, Azhar Hamzah

Abstract : ISO 39001 is a tool for best practice for Road Traffic Safety Management (RTSMS) in an organizational context i.e. assists organizations in integrating road safety as a core objective into their management systems. Malaysia has adopted this standard since 2013; however, the number of organizations being certified by ISO 39001 is very low until now despite various concerted efforts by the government and NGOs in promoting the adoption of the RTSMS standards. Realizing this, MIROS, in collaboration with SOCSO has introduced a new approach i.e. a coaching program, known as Managing Work-Related Road Safety Program (MWRRSP) with the mission to promote and encourage the implementation of ISO 39001 in the organizations. One (1) of the main elements in the MWRRSP is the organization's readiness assessment. Thus, this qualitative case study was initiated to assess the readiness of a public service transport operator towards ISO 39001 certification. Based on the 2-day assessment exercise, it was revealed that the selected public service transport operator was not fully ready to proceed with the ISO 39001 certification despite complying to the existing ICOP Safety requirements (only 40% complied with the ISO 39001 requirements). Several gaps have been identified, in which several ISO 39001 requirements specifically RTS performance factors, objectives and targets as well as documentation, internal audit and management review processes need to be developed, harmonised and established. It is proposed for the scope of this study to be extended to other transportation and non-

transportation sectors to ensure the robustness of the developed assessment checklist.

MRR No. 513

Characteristics of Fire Related Crashes in Malaysia

Author (s) : Mohamad Firdaus Izhar, Ahmad Azad Ab. Rashid, Aizzat Syazwan Amir, Noradrenalina Isah, Mohd Khairul Alhapiz Ibrahim, Azhar Hamzah

Abstract : Fire accident is a part of road accident. The accident damage as well as the fire damage from the accident had become a double threat to the road users. This study was conducted to investigate the characteristics of traffic crashes involving motor vehicle fires in Malaysia. Statistical data of crashes involving fire from 2014-2018 were sourced from both Police and Fire Department reports and used for analysis. A total of 17,234 cases of fire related crashes from 2014 to 2018 were analysed. Selangor recorded the highest number of cases for five (5) consecutive years compared to the rest of the states with almost 1,000 cases except for the year of 2015. The majority of fire related crashes during those years involved passenger cars with average 61.3% involvement each year. Moreover, passengers were having a high possibility to die in a fire crash, meaning that after a collision, vehicle with more occupants were most likely to kill because once a vehicle is on fire and loaded with passengers, it has a higher risk of severe injuries and death when vehicle fire happened. Vehicle crashes which involved fire estimated four (4) times more likely to cause death compare with other types of vehicles involving crashes. Last but not least, a fire accident is a deadly, post-crash issues. It would need responsibility from all parties to make sure we can reduce the risk of this kind of accident. We should consider various factor approaches such as education campaign about fire accident, good maintenance practice and fire extinguisher training for road users at the moment of having a fire in the vehicles.

MRR No. 514

MIROS Crash Investigation and Reconstruction Statistical Report 2017 – 2019

Author (s) : Mohd Amirudin Mohamad Radzi, Ahmad Noor Syukri Zainal Abidin, Siti Atiqah Mohd Faudzi, Kak D-Wing, Zarir Hafiz Zulkipli, Iskandar Abdul Hamid, Khairil Anwar Abu Kassim, Azhar Hamzah

Abstract : During the three-year period from January 2017 to December 2019, MIROS investigated 179 traffic crash cases with at least one fatality. This report highlights the statistical analysis on traffic crash cases that had been attended by MIROS throughout the year of 2017 – 2019. This report presents the descriptive analysis and injury and crash occurrence characteristics of crash investigation cases from 2017 to 2019. The number of investigated cases for each year of 2017, 2018 and 2019 were 64, 61 and 54 cases, respectively. The head-on collision recorded the highest proportion compared to other crash configurations. In each year studied, just over a third of the cases attended occurred between 12:00 to 17:59. Most of the cases attended in 2017-2019 occurred on federal roads and this is consistent for that particular three-year period. Most of the cases attended in 2017 occurred on dual carriageways. However, the pattern has shifted, as the highest cases attended in 2018 and 2019 occurred on single carriageways. High numbers of investigated cases tend to occur at the midblock compared to the other types of intersection. More than 60% of the cases involved two (2) vehicles for each year, except for 2019, which recorded 51.9%. The proportion of crashes involving passenger cars, which excluded 4WDs, vans and multi-purpose vehicles (MPV), is significantly higher compared to other vehicle types. In terms of weather, the vast majority of cases attended occurred during good weather and during daylight. Meanwhile, risky driving and speeding are found to be the most identified crash occurrence factors in the investigated cases from 2017 – 2019. Meanwhile, for injury occurrence factors, crash compatibility conquered most of the

findings in every variable analysed, followed by the misuse of restraint devices.

MRR No. 515

Driver's Gap Acceptance Behaviour at Intersection: A Video Analysis Study

Author (s) : Aizzat Syazwan Amir, Noradrenalina Isah, Ahmad Azad Ab. Rashid, Mohamad Firdaus Izhar, Mohd Khairul Alhapiz Ibrahim, Azhar Hamzah

Abstract : The main purpose of this project was to study on driver gap acceptance behaviour at road intersections. Gap acceptance are among the various driving task as one (1) of the safety principals that driver need to perform while driving. The general objective for this project were to identify the type of intersection and vehicle most involve for this study and to identify the driver gap acceptance between signalized and unsignalized intersections. In this study, the type of intersection selected were cross-intersection and t-intersection. As for the methodology of this study was a descriptive, cross-sectional study by using a video data that been recorded in an observation at selected location. Observations were carried out from the site road at selected time for observations. The finding found that the total value for good acceptance behaviour were higher compared to bad acceptance behaviour at intersections. Motorcycle were recorded highest as bad acceptance behaviour by not complying to the intersections traffic laws.

MRR No. 517

The Fourth Industrial Revolution in Malaysia: A Road Safety Perspective

Author (s) : Muhamad Syukri Abdul Khalid, Mohd Syazwan Solah, Ahmad Noor Syukri Zainal Abidin, Ahmad Saifee Salleh, Zulhaidi Mohd Jawi @ Said, Mohamad Idham Zainal, Zarir Hafiz Zulkipli, Azhar Hamzah

Abstract : The fourth industrial revolution (IR4.0) has brought the world to a new better technology that benefits to all industries and manufacturing. With the introduction of advances technologies, most of the process have become near automation and digitization, and this proved to have improve the productivity and efficiency as well as reducing production cost. However, the growing up in technologies somehow affected traditional jobs as user are preferable to choose technology instead of traditional way. For example, shopping now can be made through online as well as food ordering, can be ordered through the mobile application and delivered by the service provider deliverer. More demands from user have forced delivery companies to hire more deliverer and most of them are motorcyclists. This eventually affected road safety where the risk of road crashes has been transferred from user, to the deliverer. As most of the deliverer are among motorcyclists, there multiple issues raised such as their attitude and behaviour on the road where it is frequently observed the food delivery rider violated the road rules in order to chase for more jobs and getting more income. Other issues related to road safety are the roadworthiness of their motorcycle as all of the food delivery rider are using their own motorcycle to complete the delivery job. These issues have to be looked and solved by the responsible parties including service provider in order to ensure the safety of the food deliverer rider, as well as improve the road safety situation in Malaysia.

MRR No. 520

Feasibility Study of Minimum Speed Limit on Malaysian Expressways

Author (s) : Syed Tajul Malik Syed Tajul Arif, Ho Jen Sim, Norfaizah Mohamad Khaidir, Muhammad Marizwan Abdul Manan, Azhar Hamzah

Abstract : The objective of this study is to examine the speed profile for drivers on the selected location and then determine the minimum speed limit based on the established guideline that could be imposed on Malaysian Expressways. This study uses the smart sensor to obtain spot speeds for 34 sites on the Malaysian rural Expressways. They are PLUS Northern Region (E1), PLUS Southern Region (E2), ELITE (E6), and LPT (E8).

Several guidelines has proposed 15th percentile speed as the minimum speed limit. This is to reduce the speed difference, hence reduce the risk of a crash. Descriptive analysis were used to determine speed characteristics on the selected expressways with speed limit of 110 km/h. Based on the analysis for the 17 locations, for cars, the lowest 15th percentile speed for of six-lanes dual carriageways (6L2C) was 88 km/h which occurred at section 28.9. Meanwhile the minimum 15th percentile speed on four-lanes dual carriageways (4L2C) was 77 km/h which occurred at section 148. Based on this, the lowest value of 15th percentile speed of 77 km/h was selected, and the minimum speed limit based on the 15th percentile speed may be set to 70 km/h.

However, the suitable stretch to set minimum speed limit was not within the scope of this study. Suitable stretch needs to be determined so that vehicle will be able to accelerate before reaching the minimum speed limit zone. Therefore, further study or guideline is needed to determine the suitable stretch for the minimum speed limit.

MRR No. 521

Evaluation of Seatbelt Wearing Circular among Public Servant in Putrajaya

Author (s) : Najwa Shaari, Noor Faradila Paiman, Mohd Amirudin Mohamad Radzi, Nurulhana Borhan, Fauziana Lamin, Rabihah Ilyas, Yahaya Ahmad, Zulhaidi Mohd Jawi @ Said, Khairil Anwar Abu Kassim, Ahmad Azad Ab. Rashid, Azhar Hamzah

Abstract : As an additional ruling to the existing law, Chief Secretary to the Government of Malaysia, has issued a circular letter in December 2020 for the purpose to inform public servant about the implementation of seatbelt campaign while riding a government vehicle especially higher government officer. The objective of this study is to identify effect of seatbelt wearing circular towards seatbelt wearing rate among public servants in Putrajaya, to compare seatbelt wearing rate between personal and official car and to identify ministry's action plan towards seatbelt wearing circular. This study was conducted through cross-sectional study design using roadside observation approach and interview approach. Roadside observations were done in two (2) phases which was before the distribution of the circular and after the distribution of the circular. The observations were conducted at five (5) randomly selected locations in Putrajaya to observe vehicle occupants. Interviews were done in selected ministries in Putrajaya to evaluate the ministries action plan towards the implementation of the circular. Overall, Seatbelt wearing rate for drivers, front passengers and rear passengers increases from pre-observation compared to post observation and the increased in wearing rate was statistically significant. When comparing the seatbelt wearing rate by types of vehicles, it was found that driver of personal vehicle, driver of official vehicle, front passenger of personal vehicle, front passenger of official vehicle and rear passenger of personal vehicle are more likely to wear a seatbelt after circular implementation rather than before implementation as their relative risk were statistically significant. Results from the interview sessions with the

ministries indicated that the circular had been distributed to all officers and planning to have training in the future to give awareness to all public servants in the ministry. The implementation of this circular along with continuous advocacy are among the important efforts that need to be implemented to increase the use of seatbelts among public servants.

MIROS Road Safety Inspection (MRSI)

MRSIs are the safety inspection reports on roads in Malaysia. They can be used as reference and guidelines which can lead to other activities that promote road safety. Unless stated otherwise, these reports are **"RESTRICTED"** and not available to the general public.

MRSI No. 511 (RESTRICTED)

RSI: Jalan Persiaran Lestari Perdana, Seri Kembangan

Author (s) : Nora Sheda Mohd Zulkiffli, Nor Aznirahani Mhd Yunin, Norfaizah Mohamad Khaidir, Muhammad Marizwan Abdul Manan, Azhar Hamzah

Abstract : A road safety inspection was conducted by the Malaysian Institute of Road Safety Research (MIROS) along Jalan Persiaran Lestari Perdana on the 10th of December 2020. The inspected area is a four-lane dual carriageway with rolling terrain. No posted speed limit was observed within the inspected area. However, based on the road and traffic characteristics, the speed limit along Jalan Persiaran Lestari Perdana is assumed to be 60 km/h according to the guideline provided by Jabatan Kerja Raya (JKR). Observation revealed that cars, MPVs, and vans contributed the highest percentage of vehicles within the inspection area, followed by motorcycles, heavy vehicles and pedestrians. Speed data showed that more than 70% of the road users travelled from Seri Kembangan and drove above the speed of 60 km/h. Based on the on-site observation, several road safety issues were identified and required attention from the road authority. Recommendations as per below are suggested to enhance the road safety condition within the area.

No.	Road Safety Issue	Recommendation
1	Speeding	• Install a speed limit sign. • Increase police enforcement within the area.
2	Poor visibility of access	Provide advanced warning signs to inform the presence of access to and from the residential area.
3	Insufficient and damage of road sign	• Provide advanced warning signs for access. • Install speed limit sign. • Repair damaged chevron signage.

4	Damaged roadside W-Beam guardrail and road kerb	• Fixed the W-beam guardrail accordingly to maximize the function of the guardrail. • Flare the terminal end treatment of W-Beam guardrail. • Repair and paint the broken kerb.
5	Excessive foliage	Schedule routine maintenance.
6	Damaged pavement and faded road marking	• Resurface damaged pavement. • Repaint faded road marking.
7	Unmaintained pedestrian walkway	Schedule routine maintenance.
8	Illegal U-turn and wrong direction	• Prohibit illegal U-turns at inappropriate locations and provide safe U-turns for vehicles at the traffic signal. • Increase police enforcement within the area.

MRSI No. 516 (RESTRICTED)

RSI: Jalan Cheras Hartamas

Author (s) : Nor Aznirahani Mhd Yunin, Nurulhuda Jamaluddin, Nur Fazzillah Mohamed Noordin, Norfaizah Mohamad Khaidir, Muhammad Marizwan Abdul Manan, Azhar Hamzah

Abstract : A Road Safety Inspection (RSI) was carried out by the Malaysian Institute of Road Safety Research (MIROS) at Jalan Cheras Hartamas on the 24th November 2021. The inspection was conducted based on the concerns raised by the public regarding the soon-to open new access point by SUKE. The aim of this inspection is to identify road environment and engineering deficiencies as well as recommend road safety enhancements to improve the safety of road users within the inspected area.

Based on the speed study conducted within the inspected area, it is known that the 85th percentile speed is 47 km/h and more than 80% of vehicles within the area drove at speeds higher than the advisory posted speed limit of 35 km/h. The traffic volume study revealed that cars, MPVs, and vans are the main contributors within the inspected area. This is followed by the motorcycle category and heavy vehicles (lorries with 2 axles and lorries with 3 axles or more).

Observations indicate that there are several road safety issues within the inspected area. Based on the road safety issues identified, recommendations below were suggested to improve the road safety condition within the area.

Road Safety Issue	Recommendation
Drastic change in road hierarchy	Speed management should be implemented, and the installation of a speed limit sign is suggested as a reminder to drivers on the allowable travel speed within the area.
No right turn lane	Right turn lanes should be considered. However, if no right turn lane can be

	implemented due to limited space, installation of a junction ahead warning sign is required to warn drivers of the access point ahead.
Insufficient sight distance	Remove all sight obstructions. However, if the obstructions cannot be removed, necessary improvements should be made, such as i. installation of warning signs indicating access points ii. implementation of measures preventing vehicles from parking on the roadside iii. scheduling of regular maintenance
Damaged pavement	Scheduled maintenance is required.
Misuse of bus lay-by	Regular enforcement is suggested to prevent the misuse of bus lay-by.
Roadside hazard	Guard rails are to be provided to protect road users from roadside hazards along the road.
Misplacement of road sign	Relocation of the road sign.

MRSI No. 518 (RESTRICTED)

RSI: Jalan Hospital Pengajar UPM

Author (s) : Muhammad Marizwan Abdul Manan, Nora Sheda Mohd Zulkiffli, Norfaizah Mohamad Khaidir, Azhar Hamzah

Abstract : The Malaysian Institute of Road Safety Research (MIROS) carried out a road safety inspection along Jalan Hospital Pengajar UPM (HPUPM) on the 21st of September 2021. The inspected road consists of a single carriageway with 2-lanes on flat terrain. Through observation along the inspected area, no posted speed limit was observed. According to the road and traffic characteristics, the speed limit along HPUPM road is assumed to be 50 km/h.

Findings during peak hours revealed that cars, MPVs, and vans contributed the highest percentage of vehicle composition within the inspection area at 86%, followed by motorcycles (11%), bicyclists (2%), and heavy vehicles (1%). Speed data showed that more than 50% of the road users travelled within HPUPM road and drove above 50 km/h.

Based on on-site observation, several road safety issues were identified and required attention from the UPM authority. Recommendations as per below are suggested to enhance the road safety condition within the area.

No.	Road Safety Issue	Recommendation
1	Speeding	Install a speed limit sign in both directions.
2	Hazard on the median	○ All concrete potted plants must be removed immediately. ○ For limited space, such as in this location, the installation of a double line or flexible post is encouraged to prevent vehicles from overtaking within the location.
3	Excessive foliage	Schedule routine maintenance.

4	Existence of loose material	Schedule routine maintenance.

MRSI No. 519 (RESTRICTED)

RSI: Jalan Pekan - Batu Balik, Pahang

Author (s) : Nora Sheda Mohd Zulkiffli, Sharifah Allyana Syed Mohamed Rahim, Muhammad Marizwan Abdul Manan, Norfaizah Mohamad Khaidir, Azhar Hamzah

Abstract : A road safety inspection (RSI) was carried out by the Malaysian Institute of Road Safety Research (MIROS) at two (2) locations along Jalan Pekan – Batu Balik on the 30th of September 2021. Sungai Temai Bridge was identified as Site 1, whereas Sungai Riti Bridge as Site 2. Spot speed measurement revealed that most road users travelled above the posted speed limit during off-peak hours compared to peak hours. The traffic volume within the inspected area was dominated by cars, MPVs, and vans, followed by motorcycles and heavy vehicles. Based on on-site observation, several road safety issues were identified and required attention from the road authority. Recommendations as per below are suggested to enhance the road safety condition within the inspected area.

No.	Road Safety Issue	Recommendation	Site
1	Speeding	Installation of yellow transverse bars before approaching the bridge area in both directions	1 & 2
2	Road surface condition	Rectify the pavement defects	1
		Resurface the pavement to the bridge platform's level	1 & 2
3	Visual aid	1. Repair or change the dysfunction obstruction markers and improvement required for both directions 2. Installation of obstruction marker according to the standard and improvement required for both directions	1
4	Roadside safety	1. Installation of steel parapet according to the standard	1 & 2

		2. Provide proper design and transition between steel parapet and guardrail barrier system 3. Installation of bullnose-type end treatment, including the flaring at the end of terminal sections for the W-beam guardrail	

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