

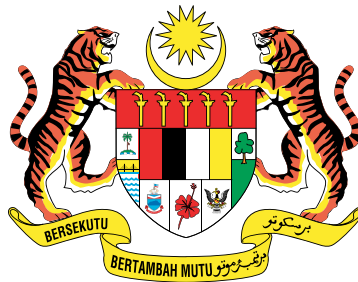


MINISTRY OF TRANSPORT
MALAYSIA



MALAYSIA ROAD SAFETY PLAN 2022-2030





MINISTRY OF TRANSPORT
MALAYSIA

MALAYSIA ROAD SAFETY PLAN **2022-2030**



MIROS
MALAYSIAN INSTITUTE OF ROAD SAFETY RESEARCH
■ ASEAN ROAD SAFETY CENTRE



MALAYSIA ROAD SAFETY PLAN 2022-2030

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PRIME MINISTER MESSAGE

YAB Dato' Sri Ismail Sabri bin Yaakob

Road traffic crash is the number one cause of accidental death in Malaysia, and most serious during our festive seasons. On average, the lives of more than 6,500 people are cut short as a result of road traffic crash yearly in Malaysia. This issue needs to be given serious scrutiny by all of us, as it involves the livelihood and wellbeing of our Keluarga Malaysia.

Therefore, proactive and strategic actions need to be taken in order to achieve our vision of making Malaysia a country with zero road fatalities.

Through the actions under the previous Malaysia Road Safety Plan 2014-2020 (MRSP 2014-2020), we have successfully recorded a reduction rate of 4.8% yearly in terms of the number of fatalities from road traffic crashes. However, we cannot afford to be complacent with this achievement. The existing road safety policies and guiding principles need to be continuously evaluated and improved to ensure its effectiveness and relevancies in achieving the ultimate goal.

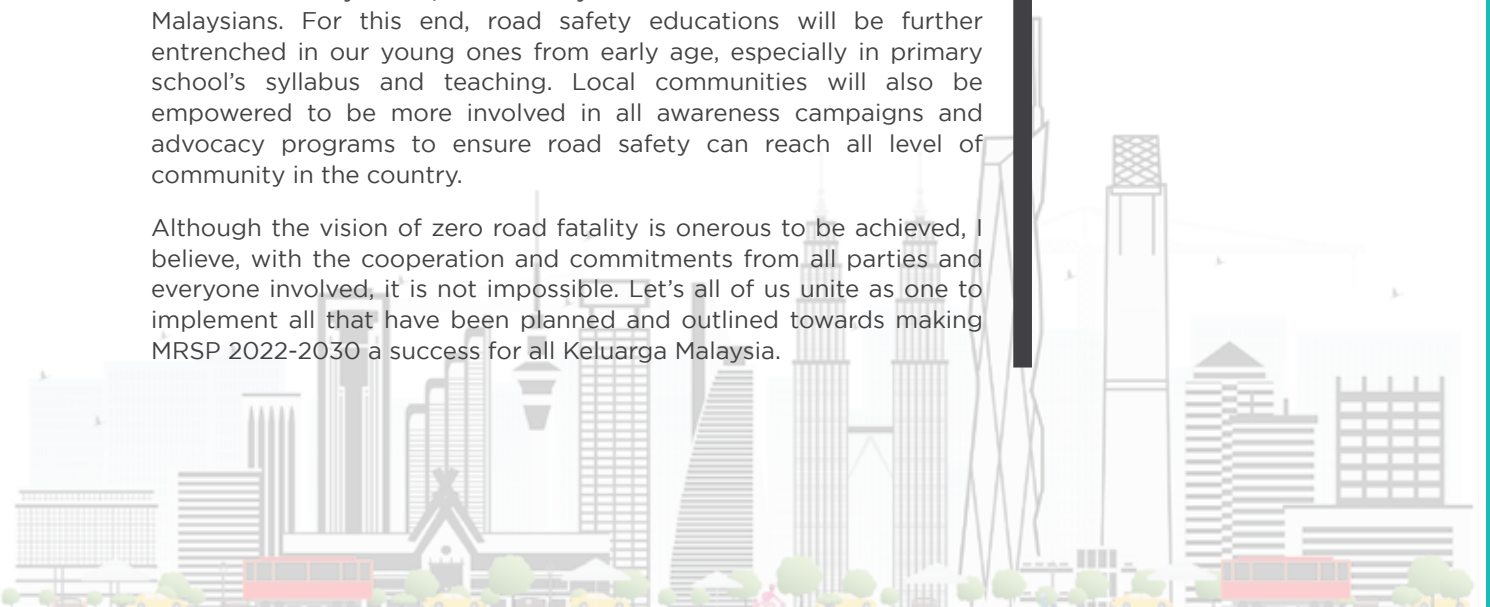
In these regards, I very much welcome the development of the Malaysia Road Safety Plan 2022-2030 (MRSP 2022-2030). This plan aims to improve all level of road safety in Malaysia by setting targets and various initiatives, programs, strategies and intervention measures under 10 priority areas for the next 10 years. The plan will be implemented with the collaboration from all stakeholders including governmental agencies, private sector, Non-Governmental Organizations (NGO's), local communities, and even prominent road safety advocates. The Malaysian Government will also become the role model by introducing a sustainable and dynamic road safety management system in government's internal management procedures and operations.

I believe that by 2030, road safety will become the culture for all Malaysians. For this end, road safety educations will be further entrenched in our young ones from early age, especially in primary school's syllabus and teaching. Local communities will also be empowered to be more involved in all awareness campaigns and advocacy programs to ensure road safety can reach all level of community in the country.

Although the vision of zero road fatality is onerous to be achieved, I believe, with the cooperation and commitments from all parties and everyone involved, it is not impossible. Let's all of us unite as one to implement all that have been planned and outlined towards making MRSP 2022-2030 a success for all Keluarga Malaysia.



VII



Opening Remarks

MINISTER OF TRANSPORT MALAYSIA

YB Datuk Seri Ir. Dr. Wee Ka Siong

The transport sector is the backbone that supports the prosperity and the socio-economic development of the country. An efficient land transportation system will contribute towards the creation of a conducive ecosystem that will facilitate the movement of people and goods in the country.

Regrettably, the increase in the number of goods and passenger vehicles on the road will also contribute to the increased risk of road traffic crashes. Thus, a systematic, long-term, and evidence-based strategies and actions needs to be formulated in order to balance between the needs of travel and ensuring safety for all road users.

VIII

Based on the Value of Statistical Life (VSL) estimate, the death of one road user could result in financial implications of up to RM3.12 million, which is equivalent to a loss of almost RM19.7 billion a year to the country. Even more unfortunate, most victims are young adults who are supposed to be the future workforce and main assets to the country. Families will be broken and children will be left to tend to themselves when their parents were lost to road traffic crashes. Hence, every road traffic crashes, fatalities and injuries must be prevented.

Therefore, to ensure road safety will always be paramount as the country move forward towards the next decade, the Ministry of Transport with the cooperation from all relevant stakeholder, has developed the Malaysia Road Safety Plan 2022-2030, outlining a holistic approach to drive road safety initiatives at all levels of societies. One of the focus is to ensure that road safety elements become a culture or routine that will be engraved and practiced in every aspect of Malaysians daily life.

The development of this plan is also in line with the recommendations of the United Nations through resolution 74/299 which declared the period of 2021-2030 as the second Global Decade of Action for road safety. In addition, the Sustainable Development Goal (SDG), through SDG 3.6 and SDG 11.2, has also set targets related to road safety elements that will be adapted in this plan.

The Malaysia Road Safety Plan 2022-2030 will highlight the localization agenda as the main method in achieving the targets through active involvement of various parties, especially at the local level. Therefore, I hope that the Malaysia Road Safety Plan 2022-2030 will be the guiding principles for all towards accomplishing the vision of zero fatalities from road traffic crashes in Malaysia.



Opening Remarks

SECRETARY GENERAL OF THE MINISTRY OF TRANSPORT MALAYSIA

YBhg. Datuk Isham Ishak

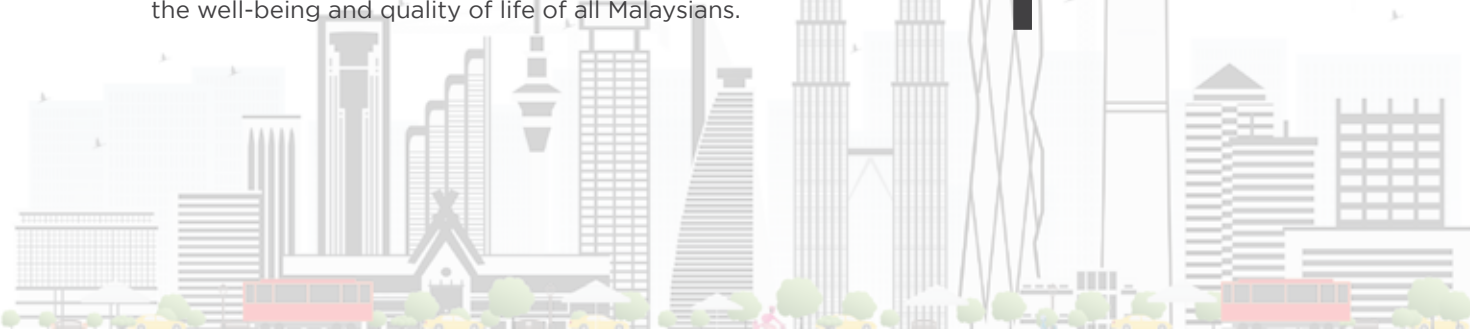
The Malaysia Road Safety Plan (MRSP) 2022-2030 outlined a framework containing 10 priority areas that focuses on improving road safety in Malaysia. These priority areas were adapted from the five strategic pillars of road safety set by the United Nations (UN) which are - **road safety management, safer vehicles, safer road users, post-crash response, and safer driving environments**. Based on these fundamentals, MRSP will provide a comprehensive view on the road safety ecosystem in Malaysia and a conceptual framework where strategies, initiatives, programs and interventions can be planned and formulated.

These 10 priority areas will be applied at every social level, namely at the national, the state level, community, workplace / school as well as at every level of community groups and family units. The main purpose of involving all social levels in the country is to create a road safety culture and subsequently making it as the main focus to all in the community.

The framework that has been developed under this Plan will be the basis for the Ministry of Transport to establish strategic cooperation with stakeholders that includes government agencies, private sectors, Non-Governmental Organizations (NGOs), employers and road users towards achieving the vision of making Malaysia a country with zero fatalities on the road.

The Plan has set a target to achieve 50% reduction in the number of fatalities due to road traffic crashes by the end of 2030, by taking into consideration the total number of deaths that was recorded in 2019 as the basis. This target is in line with UN Resolution 74/299, which also declared the period 2021-2030 as the second Global Decade of Action for road safety.

To achieve this target, various road safety programs and initiatives will be formulated under the 10 priority areas. The Ministry of Transport are confident that, with the supports and commitment from all relevant stakeholders, these challenging endeavours can be successfully implemented and accomplished, towards improving the well-being and quality of life of all Malaysians.





AYSIA

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1.0 EXECUTIVE SUMMARY

Safe travel is a basic need for all parties. In order to achieve such aspiration, two road safety plans have been implemented within the last two decades. The implementation of these plans has successfully raised public awareness concerning road safety, commencing the interventions of using the safe system approach. These efforts should be continued by all parties to create a holistic road safety ecosystem in achieving the goal of zero death due to road crashes.

Approximately, more than 6,000 road casualties happened annually involving children and young adults whom are the potential future leaders. Although the number of deaths due to road crashes had successfully declined for four consecutive years since 2017, there is room for improvement towards achieving the vision zero of road fatality. To determine the way forward for the next 10 years, a comprehensive plan needs to be developed in order to increase the level of road safety comprising prevention of traffic collisions and a more effective post-crash management.

Malaysia Road Safety Plan (MRSP) 2022-2030 has set a vision called “Malaysia, A Country with Zero Road Fatality” similar to the visions implemented by other developed countries, such as Sweden, New

Zealand and The Netherlands. Through this vision, any road crashes that resulted in death or injury is unacceptable in the travel system. Therefore, more proactive measures and guidelines ought to be adopted in order to achieve a safer travel experience that will safeguard all road users.

In supporting this vision, this plan sets the mission of “Engendering the Culture of Road Safety Towards the Nation’s Prosperity”. With the aspiration to increase awareness among road users, this plan also aims to make road safety a culture for the authorities, vehicle manufacturers, road infrastructure developer, local communities, workplaces, schools, and also the family units. All the parties involved will make road safety a new norm in their respective daily lives. As a benchmark to achieve both the vision and mission, the government has put in place a goal of 50% reduction in road fatalities in 2030 based on the total number of deaths in 2019. In other words, we need to reduce the number of road fatalities to at least 3,084 by 2030. This is in line with the Sustainable Development Goal (SDG) for the Second Decade of Action for Road Safety as announced by the United Nations (UN).

To achieve this vision, the plan will focus on 10 Priority Areas (PA), which are:



These ten priority areas will be integrated and complement each other. Responsive governance is indeed required to ensure all interventions that shall be undertaken for each PA will receive adequate legal support, human resources, and financial support. In addition, effective observation and evaluation serves to identify the level of road safety based on the effectiveness of the interventions that have been implemented.

Motorcyclists are the group with the highest risk of getting involved in a road crash. Thus, this plan has dedicated one priority area for motorcyclists focusing on two sub-areas, namely reducing traffic conflicts and improving technology's effectiveness. The most effective intervention to reduce motorcycle traffic conflicts is by separating motorcycle users in high-risk areas to a designated lane. Even though this intervention will incur a high cost, it has been proven effective to avoid collisions between motorcycles and other vehicles of much larger size. Besides that, the use of technology on motorcycles and other vehicles also play an important role. One of the interventions that can be considered is installing an anti-lock braking system (ABS) on motorcycles.

As a starting point, the Malaysian government needs to set an example in its effort to engender a road safety culture. Therefore, the government needs to practice road safety management in the daily operations, such as conducting periodic inspections on every government vehicle, providing prudent driving training to government employees, and implementing vehicle driving speed monitoring.

Good practices at the government level will indirectly set an example to the private sector and the industry. The government is also able to make road safety management practice as one of the mandatory conditions on procurement matters that are related to land transport and logistics.

As such by having the good practice, it can then be extended towards the private sector. If these interventions can be carried out continuously, the entire value chain of day-to-day operations will apply the safe system principle through the procurement, production, service, and distribution processes. Eventually, a road safety culture will be formed across all sectors in Malaysia.

Speed management is also included as one of the main focus. The problem with speed management is that it not only increases the risk of traffic collision but it also increases the severity of the injuries. In the event that there is a chance of decreasing the traffic speed in Malaysia, many lives can be saved. Thus, there is an urgent need to expand the use of Automated Awareness Safety System (AwAS) especially in high risk areas. Moreover, the use of Intelligent Speed Adaptation System (ISA) by both commercial and private vehicles can also assist in lessening the vehicle speed. The system is able to alert the drivers whenever they exceed a certain speed limit or automatically decreases the vehicle speed. Subsequently through this plan, the use of technologies such as these can be widely utilized.

To ensure the achievement as outlined MRSP 2022-2030, cooperation and contribution from all stakeholders is very much needed to complete the road safety system in Malaysia. On that note, all stakeholders should develop a holistic action plan as a guideline and a monitoring mechanism on the nation's level of achievement. The success of this plan requires the involvement and support from all agencies and local communities so that all relevant parties can carry out various road safety programs proactively. When communities adopt road safety as part of their culture, they will be willing to accept road safety compliancy as a noble value and worthy of respect. With the involvement of all parties in this road safety system, we are confident of achieving the vision zero road fatality.



2.0



2.0 INTRODUCTION

Road fatality is one of the main cause of deaths in Malaysia. Over the past decade, an average of 6,540 people died due to road crashes every year. According to Department of Statistics Malaysia for 2020, road casualty was also the main cause of deaths among children and young adults .

Road crash statistics from the Royal Malaysia Police (RMP) in 2011-2020 shows that the number of road fatalities had peaked in 2016. However, as shown in Figure 1, the numbers were continually decreasing down to 6,167 in 2019 and plummeted drastically by 2020, with 4,634 deaths in total.

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Nevertheless, the decreasing number of road deaths in 2020 among other was the effect from the Movement Control Order (MCO) execution by the government to curb the spread of COVID-19 pandemic. Due to the enforcement of MCO, there was a significant drop in the number of traffic on the road and inadvertently reduced the risk exposure of road fatality. Therefore, there is a high probability of an impending increase in the number of deaths after traffic conditions return to normal in the event of no continuous intervention measures are being implemented.

Based on Figure 1, motorcycle is one of the main modes of transportation among Malaysians and one the most high-risk group on the road. Within the last 10 years, deaths involving motorcycles have recorded the highest number, accounting for approximately 60% of the total number of deaths. Car users and pedestrians are the second and third most at-risk

groups, with 20% and 6% of total deaths respectively in 2019.

From age group perspective, children and youth (0-30 years of age) have shown the highest death risk with 50% of the total death count, as presented in Figure 2. This finding shows that young people are exposed to higher risk while on the road.

Besides that, based on the value of statistical life (VOSL) in 2018 developed by the Malaysian Institute of Road Safety Research (MIROS), each life lost due to road crashes is estimated to have a financial implication of RM3.12 million per person. This cost includes the loss of efficiency and infrastructure recovery as well as medical costs, not including the social issues that must be borne by the victim's family. This means that the government loses RM56.15 million per day or up to RM21 billion per year based on the recorded total number of deaths.

As such, it should be emphasized that every road crash will not only pose a risk of injury or death but will also have high financial implications that includes repairing of the infrastructure and medical cost borne by the government. Road crashes also bring negative implication to the road transportation system efficiency level (such as traffic congestion, the cost of time loss, loss of efficiency, and wastage of energy) that brings impact towards socioeconomy advancement level and the nation's development. Hence, a comprehensive and holistic strategy is needed to overcome this issue in the next coming decade.

FATALITIES DUE TO ROAD CRASHES

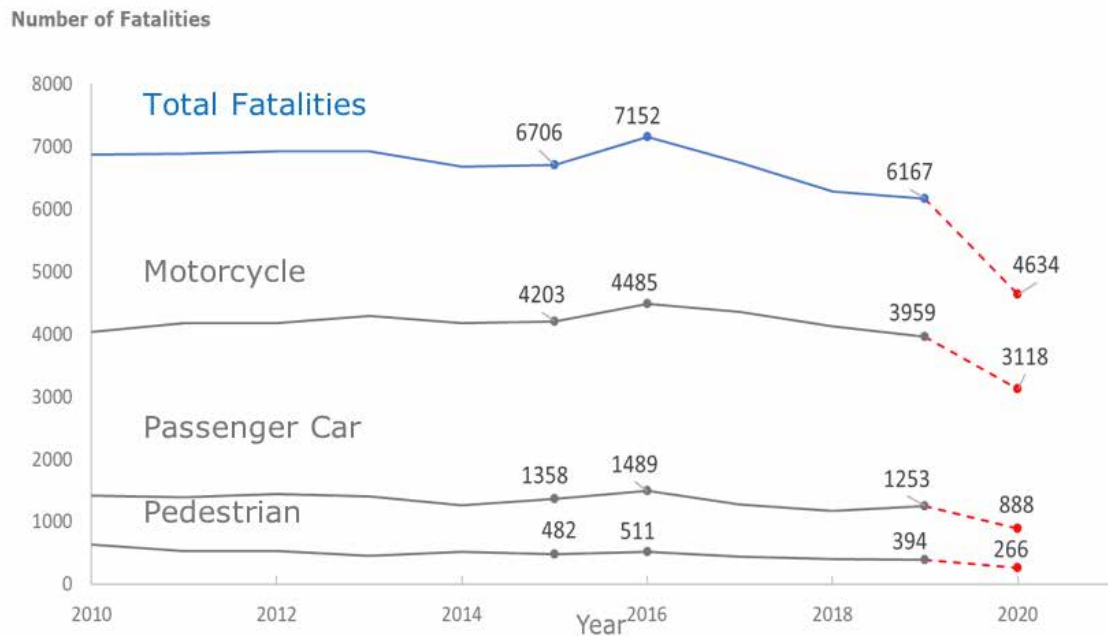


Figure 1: Deaths due to road crashes by vehicle type 2010-2020 (Source: RMP)

TOTAL FATALITIES ACCORDING TO AGE GROUPS

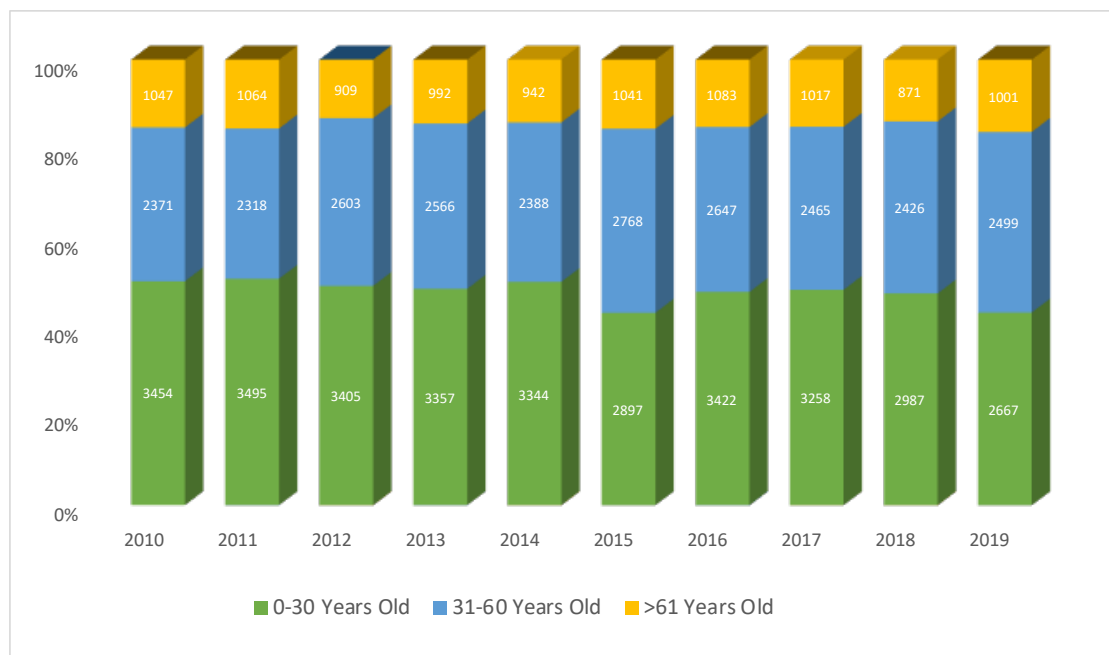


Figure 2: The number of deaths due to road crashes by age group for 2010-2019 (Source: RMP)



3.0



3.0 ACHIEVEMENTS OF MALAYSIA ROAD SAFETY PLAN 2014-2020

Since 2006, the Ministry of Transport (MOT) has introduced an official document named as the Malaysia Road Safety Plan (MRSP) as an effort to address road safety issue in Malaysia as shown in Figure 3. The document was developed with two main objectives, which are:

- (i) To set a direction, focus areas and strategic planning to handle road safety issues especially from the aspect of reducing road fatalities. This document shall be the main reference for all related authorities and stakeholders in dealing with road safety issues, and
- (ii) To set targets as a benchmark on achievements on the direction, and strategic planning implementation that had been decided as a mean to improve the road safety level.

Furthermore, the establishment of Malaysian Institute of Road Safety Research (MIROS), implementation of Road Safety Education (PKJR) in schools, community-based programme on helmet wearing, introduction to Code of Practice for Safety, Health, and Environment (SHE), enforcement of seatbelt wearing for rear passengers, and enhancement road barriers/guardrails from Test Level (TL) 2 to TL 4 were among other deliverables achieved under the MRSP 2006-2010.

Table 1: Comparison between targeted index and achieved index for 2010

<i>Death Index Indicator</i>	<i>Targeted Death Index 2010</i>	<i>Achieved Death Index 2010</i>
Deaths Per 10,000 Registered Vehicles	2.0	3.4
Deaths Per 100,000 Population	10.0	23.8
Deaths Per 1 Billion Kilometres Vehicle Travelled	10.0	17.3

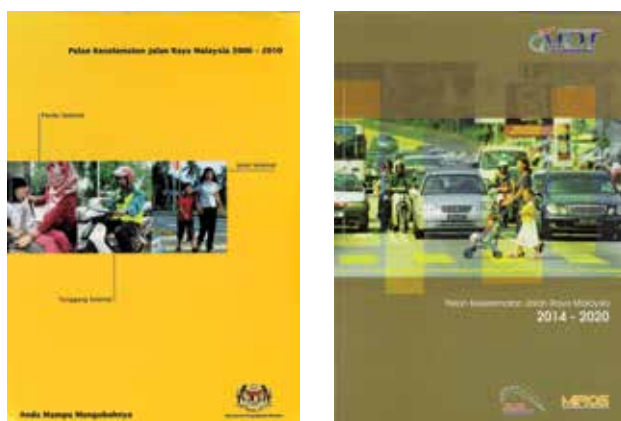


Figure 3: MRSP 2006-2010 and MRSP 2014-2020

The first edition of MRSP 2006-2010 was based on the concept of 4E (education, enforcement, engineering and environment). With the aim of reducing road deaths involving motorists, passengers and pedestrians, nine (9) strategies had been introduced by using the balance approach method. Although the target set in the plan was not fully achieved (as shown in Table 1), the mortality rate for every 10,000 registered vehicles had been reduced successfully from 4.0 in 2006 to 3.4 in 2010.

MRSP 2014-2020, a continuation from MRSP 2006-2010, is in line with the global effort to address road safety issue under the United Nations Decade of Action for Road Safety 2011-2020. The main target of MRSP 2014-2020 is to reduce the projected road death by 50% by 2020, compared to the estimated number of deaths in the event of no intervention measures were implemented. Based on analysis of the previous trends, if there was no comprehensive road safety programmes being implemented or in a “business as usual” situation, the expected death rate would be 8,760 in 2015 and 10,716 in 2020. The target set for 2020 (a reduction in road fatalities of 50% from the projected deaths) is 5,358, as depicted in Figure 4.

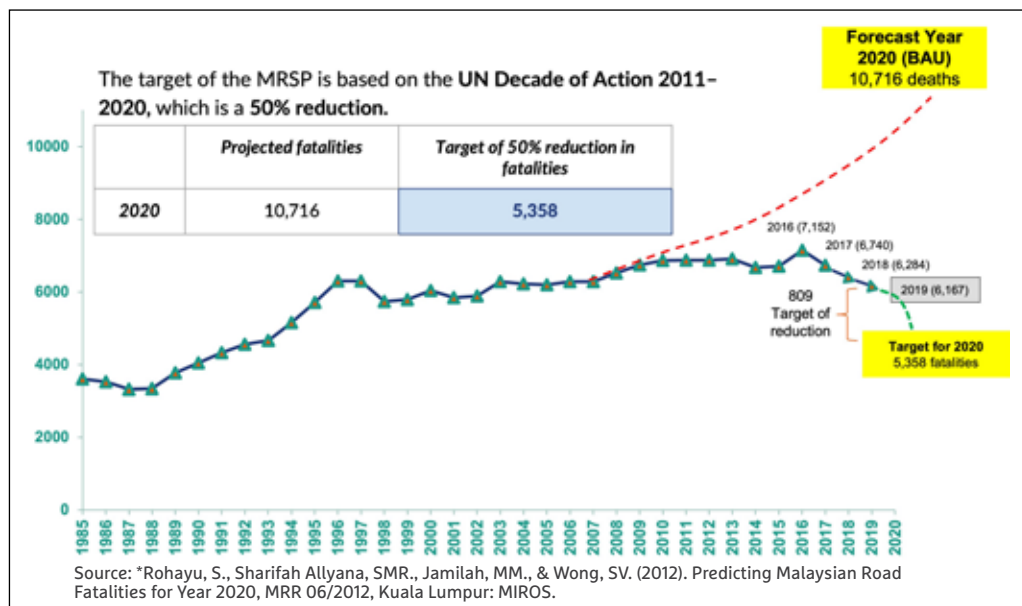


Figure 4: Targets for MRSP 2014-2020

In addition, MRSP 2014-2020 also targeted a reduction in Death Index to 2.0 for 2020 compared to 3.4 in 2010. The Death Index is the ratio or comparison on the total number of death (due to road crashes) for every 10,000 registered vehicles.

Based on the five pillars above, seven key strategies were established with each of the key strategies contains sub-targets towards achieving the main target of MRSP 2014-2020. A summary of the achievements of the seven strategies are as follows:

THE IMPLEMENTATION OF MRSP 2014-2020 IS BASED ON THE FOLLOWING FIVE STRATEGIC PILLARS:

- 01 Strategic Pillar 1**
Road Safety Management
- 02 Strategic Pillar 2**
Safer Mobility and Road
- 03 Strategic Pillar 3**
Safer Vehicle
- 04 Strategic Pillar 4**
Safer Road User
- 05 Strategic Pillar 5**
Post-Crash Management

(I) STRATEGY 1: VEHICLE SPEED REDUCTION TARGET

Driving at high speed (or exceeding the limit) is the main cause and risk of road crashes. For measurement purpose, the number of death as a result of speeding was used as the main indicator for this strategy.

Among the main programmes implemented under this strategy were integrated ops for traffic offence enforcement, re-evaluation of speed limit for types of road and vehicle, implementation of speed control techniques (traffic easing), re-evaluation and improvement of laws concerning road safety, and training programmes for enforcement officers.

Other indicators were also used such as the percentage of summonses issued for exceeding the speed limit, the number of Automated Awareness Safety Systems (AwAS) installed, vehicle speed compliance, and the number of traffic easing installed.

Under MRSP 2014-2020, the number of road fatalities related to speeding was decreased from 475 cases in 2017 to 323 cases in 2019.

Records demonstrated speed compliance at locations installed with AwAS cameras was 95% compared to locations without AwAS cameras (at a rate of only 56% on Federal Roads).

(II) STRATEGY 2 : RISK REDUCTION TO MOTORCYCLE RIDERS AND PASSENGERS

Motorcycle riders and their passengers are the main contributors to road fatalities in Malaysia. Fatalities involving this group are at an average of 60% of the total number of deaths caused by road crashes.

Besides monitoring the percentage of summons issued pertaining to helmet regulations, other main measurement indicators include increase in awareness coverage pertaining to motorcycle riders and passengers on social media platforms and monitoring of the number of employers carrying out road safety programmes for motorcycle riders and passengers.

Various programmes had been implemented to ensure the success of this strategy, such as integrated operation for traffic offence enforcement, helmet exchange advocacy programme by Road Safety Department (JKJR), road safety education programmes in schools, road safety programmes for employers and employees, road safety programmes to increase the visibility of road users, and construction of motorcycle lanes and paved road shoulders.

The above-mentioned approaches had contributed to achieve the target under Strategy 2 with the number of road crashes involving this group was decreased from 4,485 fatalities in 2016 to 3,959 deaths in 2019. In addition, the number of deaths due to non-helmet wearing recorded a decrease from 1,500 deaths in 2016 to 1,326 deaths in 2019.

(III) STRATEGY 3: RISK REDUCTION TO PEDESTRIANS

Pedestrians are the third highest at-risk group in terms of involvement in road crashes and fatality risk. The main indicator used is the total number of deaths involving pedestrians.

Among other indicators used under this strategy include monitoring the number of pedestrian crossings provided and increase in awareness programmes and coverage related to pedestrian safety, such as road safety programmes to increase pedestrians visibility and road safety programmes in schools.

Overall, fatalities involving pedestrians showed a decrease from 511 deaths in 2016 to 394 in 2019. The recorded data also showed that 27% of crashes occurred in school zones.

(IV) STRATEGY 4: REDUCTION OF RED LIGHT VIOLATIONS

Red light running is also one of the main contributing factors that increase the risk of serious injury or death to all road users. To measure the achievement, the number of summons issued for red light running was used as the main indicator.

In addition, other indicators under this strategy include monitoring the number of summons issued related to red light running and the number of AwAS cameras installed at traffic light junctions. Among the main programmes implemented were traffic light management and road safety programmes in schools.

The number of fatalities related to red light running (the main indicator under this strategy) showed an increase from 75 deaths in 2016 to 98 deaths in 2019. However, based on records, there was a 60% decrease in the number of summons issued (representing the level of compliancy among road users) from 275,018 summons in 2017 to 108,474 summons in 2019.

(V) STRATEGY 5: IMPROVEMENT OF VEHICLE SAFETY STANDARDS

Improvement and compliancy with safety standards for vehicle components is one of the important aspects in ensuring the crashworthiness of new vehicles and roadworthiness of existing vehicles.

Other indicators under this strategy include percentage of summons issued relating to vehicle modification that has not been approved by Road Transport Department (JPJ), application or compliancy with United Nations Regulation

(UNR) under the Vehicle Type Approval (VTA) procedure, percentages of initial and periodic inspection approvals at PUSPAKOM, and numbers of enforcement for the standards related to automotive replacement components.

Among the programmes that were implemented continuously were the implementation of UNRs through VTA Certification, enforcement of vehicle component standards in the market, and evaluation programmes on vehicle safety level.

In this regard, Malaysia has gazetted a total of 114 (75%) UNRs under the Vehicle Type Approval (VTA) procedure from 152 regulations issued by the United Nations (UN).

The summons issued relating to vehicle modification offences also increased from 24,554 cases in 2017 to 30,510 cases in 2019. This reflects broader and continuous monitoring and enforcement activities by JPJ.

(VI) STRATEGY 6: RISK REDUCTION TO CAR DRIVERS AND PASSENGERS

Car drivers and passengers are the second highest at-risk group to be involved in road crashes.

Among the indicators under this strategy were the percentage of summons issued related to mobile phone and seatbelt uses, number of awareness coverage related to drivers and passengers on social media, number of employers who conducted road safety programmes for car drivers and passengers, percentage of vehicle models with ASEAN NCAP rating of 4 stars and above, Perception of Being Caught (POBC) Index among car drivers and passengers, percentage of seatbelt used, and percentage of child restraint system (CRS) used.

Among the main programmes implemented were society's education and awareness programmes through media, advocacy to increase seatbelt use, and severe punishment system through Demerit Points System (KEJARA).

The number of summonses issued related to mobile phone use and seatbelt violations showed a decrease

of 36% from 369,593 summonses in 2017 to 236,892 summonses in 2019.

The percentage of child restraint system (CRS) use showed an increase to 50% in 2020 from 25.6% in 2017.

In addition, there was a decrease in the number of recorded road fatalities among car drivers and passengers to 1,253 deaths in 2019 from 1,489 deaths in 2016.

(VII) STRATEGY 7: IMPROVEMENT IN EMERGENCY RESPONSE

This final strategy emphasised on the aspect of improving the process of emergency assistance following a road crash and the use of communication systems/digital tools/high tech applications to reduce fatality rates.

Effective from 2016, the Ministry of Health Malaysia (MOH) has been collaborating with the Fire Department for the use of Emergency Medical Rescue Services (EMRS) to manage emergency cases based on priority.

Among the main indicators under this strategy were the average response time for medical emergency, establishing specialist hospitals classified as trauma centres, and increasing the number of ambulances for pre-hospital treatment. Several programmes that had been implemented were the First Responder community programme, improvement in emergency response time, and improvement in ambulance services for pre-hospital treatment.

MOH recorded 100% achievement for dispatch time in which a response of within five minutes upon receiving the emergency call. In addition, an average medical emergency response time involving Priority 1 case (emergency assistance response time of < 15 minutes, according to the level of injury) showed an improvement of 41.75% in 2019 compared to 35.32% in 2017.

The implementation of all programmes and initiatives under the seven aforementioned strategies contributed to the achievements of MRSP 2014-2020 main targets. Based on analysis of all the relevant



DOWNWARD TREND IN RATE OF ROAD CRASH FATALITIES 2016-2019

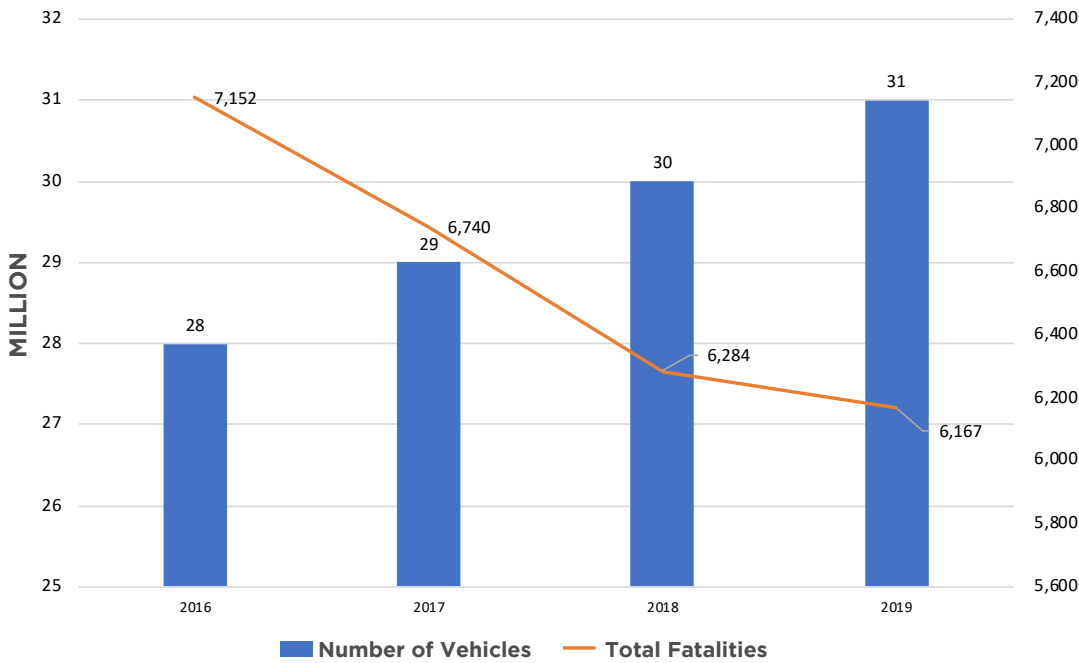


Figure 5: Downward trend in road fatality rate 2016-2019 (Source: RMP)

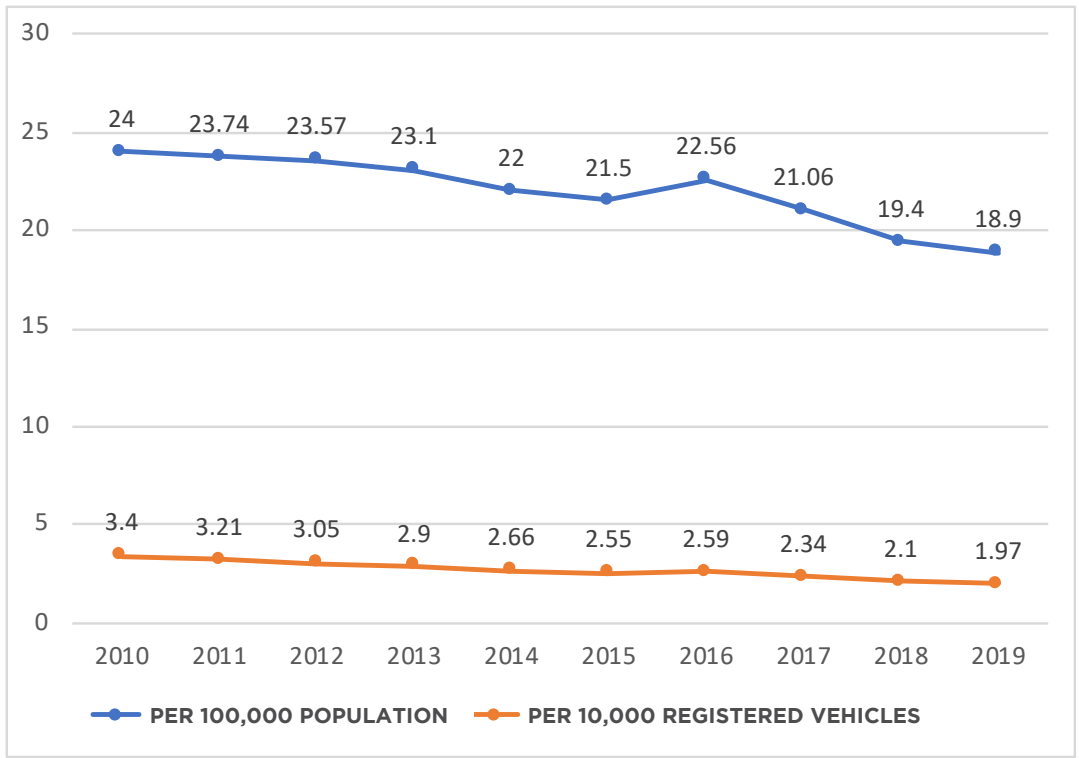


Figure 6: Downward trend in fatality index 2010-2019 (Source: RMP)

data and indicators, overall, it can be concluded that the main objectives of MRSP 2014-2020 had been achieved, as follows:

- (i) There was a downward trend in the number of fatalities between 2016 and 2019 with an average rate of 4.8% decrease per year (as in Figure 5); and
- (ii) The target for Fatality Index reduction was achieved from 3.4 in 2010 to 1.97 in 2019 (the target of MRSP 2014-2020 was 2.0) as shown in Figure 6.

The total numbers of road casualties in 2020 were 4,634 with an average death of 386 per month. The decrease was, among others, contributed by the enforcement of MCO, which saw a drop on the number of vehicles on the road. However, looking at the decrease in road fatality rate from 2016-2019 (i.e. 4.8% per year), without the enforcement of MCO, it is estimated that the total number of road fatalities in 2020 is 5,871 deaths (a decrease of 4.8% from the total fatalities in 2019, which is 6,167). This shows a difference by 513 from the set target for 2020 (the target was 5,358 deaths). Therefore, if both of these numbers were averaged, the projected fatalities for 2020 would be around 5,253 deaths. This can be clearly concluded that MRSP 2014-2020 has also succeeded in achieving the target of reducing the number of road fatality. A comparison between the death reduction target and the actual number of fatalities for 2015 and 2020 is shown in Table 2.

Table 2: Comparison between targeted fatality reduction and actual fatality in 2020

Year	2015	2020
Projected deaths	8,760	10,716
Fatality reduction target	6,570	5,358
Actual fatalities	6,706	4,634
% +/- difference	2.1	-13.5

Apart from those listed above, other achievements of MRSP 2014-2020 towards improving road safety are the implementations of electronic enforcement Activity (AwAS cameras), a demerit system for traffic offenders, a new curriculum for driving school, an introduction to ASEAN NCAP system, an introduction to road safety management system (ISO39001) and the enforcement of child restraint system (CRS).

The success of MRSP 2012-2020 resulted from the initiatives and collaboration between government agencies and support from Non-Governmental Organisations (NGO), private sector, and individuals at every level of society. Road safety is a non-negotiable and an important aspect in which everybody must take responsibility in order to have a safer road for all road users and also generations to come. All parties have maintained the same momentum and have been more proactive towards reducing road deaths, and subsequently, making the roads in Malaysia much safer.

Nonetheless, based on the findings from MRSP 2014-2020 implementation, there is room for improvement that can be carried out under the MRSP 2022-2030. One of the items that must be given special attention is continuous and effective monitoring as well as reporting on the implementation of all strategies that will be laid out. Besides that, measurement indicators for each strategy must be carefully chosen and determined from the beginning stage. Accurate indicators will ensure that the outcomes are measured properly. Absence of a detailed action plan to support the implementation of previous plan is one of the weaknesses that can be improved in the new plan. As such, development of the action plan will help all stakeholders to have a clear timeline, deliverables, and targets in strategic implementation and road safety programmes. In addition, continuous engagement activities with all stakeholders is also a crucial factor which must be given attention in ensuring that the MRSP document becomes a priority for all stakeholders.

All initiatives under MRSP 2014-2020 that had been successfully implemented will be continued, while improvements will be made under the new plan to ensure effective implementation and continuation of the achievements and successes of the road safety agenda.



4.0



5.0

4.0 CURRENT STATUS ON A GLOBAL SCALE

The strategies and approaches towards improving road safety on international platforms and those implemented in developed countries were used as the primary reference in developing MRSP 2022-2030. On 19 and 20 February 2020, the Third Global Ministerial Conference on Road Safety was held in Stockholm and issued as The Stockholm Declaration.

In the conference, world leaders have expressed their concern about road crashes that killed over 1.35 million people each year. According to the global data, the deaths of children and young adults between 5 to 29 years old caused by road crashes were alarming. Meticulous action needs to be taken seriously to forestall the recurrence of the same tragedy. To prevent this tragedy from recurring, a country must integrate the safe system and vision zero approach as a road safety policy that can last years, that involves private sectors, industrial sectors, the Non-Governmental Organisations (NGO), and locals. The conference also targets reducing road crash deaths by 50% from 2020 to 2030, especially involving vulnerable road users such as motorcyclists, cyclists, and pedestrians.

Stockholm Declaration had encouraged the trading and other industry sectors to contribute to road safety campaigns by applying the principles of safe systems throughout the daily operational value chain through procurement, production, and distribution processes. The government sector needs to be the benchmark and set ideal conduct for other sectors, making road safety one of the procurement conditions in obtaining transport and logistic services. A continuous report needs to be prepared annually to ensure active involvement from all said parties.

In line with the Stockholm Declaration, Conference 74/299 of the United Nations (UN) on 31 August 2020 has announced 2021 to 2030 as the second Global Decade of Action for Road Safety and has set the same target (targeting 50% road crash deaths from 2020 until 2030). This decade is also an era of preparation towards zero road deaths, which will be achieved by 2050.

The UN also encourages all countries to assume political responsibility of the highest level to improve road safety and carry out all the related strategies and plans by involving all stakeholders in all sectors. However, the governments must also understand that efforts to save lives from road crashes are a shared responsibility of all parties, including public and private sectors, academics, professional organisations, non-governmental organisations, and the media.

The UN had incorporated road safety as one of the elements of concern in the SDG. Road safety is a multidisciplinary issue closely related to a person's physical and mental health. It is also related to education, sustainability of urban development, economic growth, environment, and climate change. Road safety needs to be considered to achieve sustainable development instead of solely focusing on economic development.

As a developing country, Malaysia cannot simply overlook road safety. Constant efforts must be made to ensure concrete measures to uphold the institutional capacity, especially in the enforcement area, educational, road infrastructure developments, vehicle safety, public transportation, post-crash management, and data management.

5.0 MRSP 2022 - 2030

The Malaysia Road Safety Plan 2022-2030 will have the following vision, mission, and primary target:

5.1 VISION

**“MALAYSIA, A COUNTRY WITH
ZERO ROAD FATALITY”**

This vision was chosen to represent all parties, meaning individuals' age and weaknesses are not barriers to safely moving to any destination. The public should be educated to comply with existing laws and drive safely through a comprehensive and holistic safe system approach. Although this dream is viewed as an enormous challenge, it is not impossible to achieve. The safe system approach can serve as the starting point for the future generation until it finally becomes a reality.

5.2 MISSION

**“ENGENDERING THE CULTURE OF ROAD SAFETY
TOWARDS THE NATION'S PROSPERITY”**

To realise the dream of making Malaysia a country with zero deaths on the road, cooperation, involvement, and support from various parties are essential both directly and indirectly. An effort to achieve a mission depends not only on the authorities but also on

all leaders from different walks of life proactively creating the safe road system. To achieve the road safety targets set, all citizens in Malaysia have to make safety culture a norm and a daily routine.

5.3 TARGET

**“TO ACHIEVE AT LEAST 50% REDUCTION IN
THE NUMBER OF DEATHS CAUSED BY ROAD
CRASHES IN 2030”**

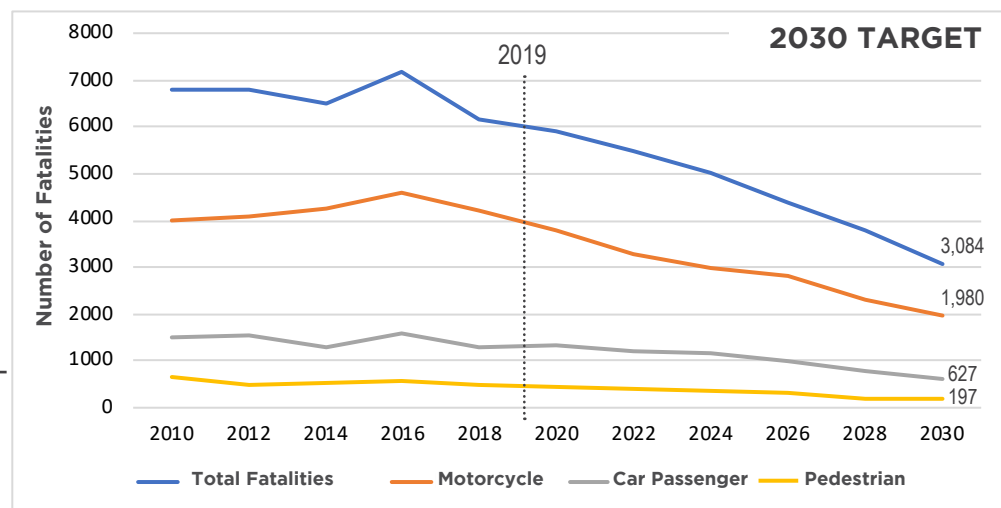
2019 data will be used as a baseline or reference data until 2030 as it is in line with the target set by the UN and to ensure accuracy. Data in 2020 will not be taken into account due to the COVID-19 pandemic, which has an abnormal effect of reducing road crashes, injuries, and deaths.

Thus, the target set in 2030 must be at least 50% from 6,167 deaths in 2019. An average reduction of 309 deaths per year is targeted to be achieved in this target. The projected linear reduction is as shown in Figure 7.

5.4 CHALLENGES AND RISKS

The success of this plan depends on the responsibility of all parties in government, including the private sector, non-governmental organisations, universities,

Figure 7: In 2030, the targets to be achieved in the assumption of linear reduction



local communities, and individuals. The plan focuses on the Ministry of Transport and requires contributions from all parties to ensure a road system can ensure safe travel.

The biggest challenge in achieving the vision of MRSP 2022-2030 is establishing holistic governance through mutual understanding among all stake holders. All parties' participation in implementing this plan will face difficulties in expertise, legislation, communications, and financial resources. However, this challenge can be solved by empowering the public in planning and implementing appropriate programs.

Without scientific evidence, the plan will not change anything or reduce the risk of road crashes. Therefore, the involvement of any research institute and university in data collection and in-depth study will be able to determine the decisions based on the latest facts, data, and science. Nevertheless, the evolving scientific knowledge reinforced by the latest research findings and data is a challenge, and it is applied based on experience and conservative data.

5.5 IMPLEMENTATION

MRSP 2022-2030 is based on the experiences of the two previous MRSPs and the basic framework of the Global Road Safety Decade Action Plan in 2011-2020. In addition, the current issues related to road safety at the Malaysian level are the foundation for developing the overall structure of MRSP 2022-2030.

5.5.1 OVERALL STRUCTURE

To achieve the target of 50% reduction in deaths caused by road crashes, ten priority areas (PA) have been introduced (as shown in Figure 8), containing 23 sub-areas with 58 strategies. Every strategy can be implemented through various programmes/initiatives at the national or local level.

PA 1 (Responsive Governance) and PA 2 (Effective Monitoring and Evaluation) is based on Strategic Pillar (SP) 1 of MRSP 2014-2020, namely Road Safety Management. PA 1 will focus more on coordination between agencies, legal issues, and funding related to road safety. At the same time, PA 2 is created based on the lessons from experience to ensure that the monitoring element is not neglected and subsequently carried out effectively.

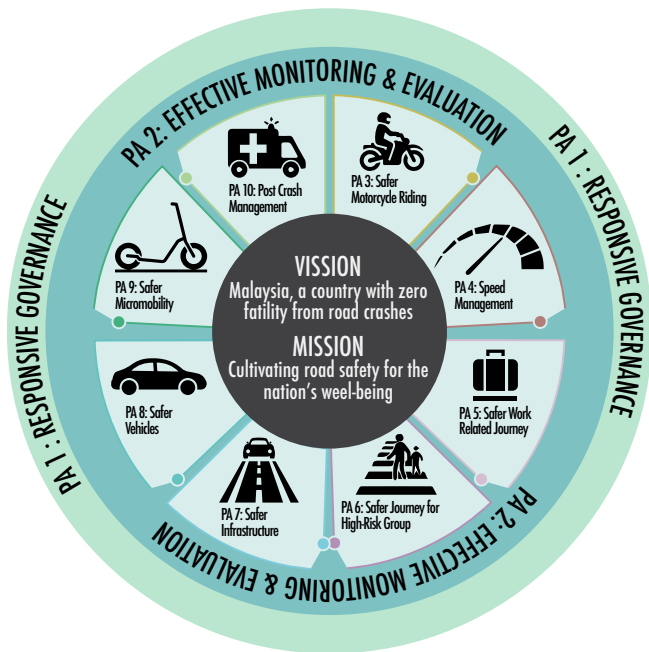


Figure 8: Ten (10) Priority Areas for MRSP 2022-2030

PA 3 is about Safer Motorcycle Riding, which previously was covered under SP 4 (Safer Road Users). Based on the past two decades, where deaths involving motorcycle riders and passengers contributed to over 60% of the total road deaths, there is a dire need to focus on safer motorcycle riding. The result of PA 3 will significantly impact the road safety situation in the country if it can be implemented accurately and effectively.

Many studies have shown the relationship between speed and the severity of a road crash. Recently, Stockholm Declaration 2020 also called all countries to focus on speed management as PA 4. Speed management can be implemented through road engineering, vehicle engineering, and enforcement.

In the current digital era, there is a boom of a fast-growing gig economy that proliferates as a transport solution and shapes the country's economic sector. There is a need to focus on the individuals directly involved in the gig economy industry by emphasising Safer Work-Related Journey as PA 5 besides the trend of deaths involving work commute, which continue to rise.

National road crash data for 2019 showed approximately 38% of road crash deaths were among road users aged 30 and below. Thus, the elderly and people with disabilities (OKU) are high-risk groups on the road. Therefore, children, youths, the elderly and the disabled are high-risk groups among road users. Safer Journey for High-Risk Group has been made PA 6 to focus on road safety intervention planning.

PA 7 is a Safer Infrastructure, which is also based on SP 2 (Safer Mobility and Roads), while PA 8 is Safer Vehicle based on SP 3 (Safer Vehicles) as in the previous plan.

Nowadays, there is an increasing trend of using bicycles and electric scooters as leisure and sports activities. In addition, by focusing on the issue of first-last mile connectivity, there is a need to focus on Safer Micromobility as PA 9. At the same time, PA 10 is Post-Crash Management based on SP 5 in the previous plan. It will focus on the treatment provided to road crash victims and help them return to society. A detailed description of each priority area will be provided in 5.6.

5.5.2 EXISTING PLANS AND POLICIES

This plan has been created in line with Malaysia's goals towards forming a developed nation and in line with international developments. The road safety aspect is no longer an isolated issue but a global responsibility. Existing policies involving road safety have been established at the international level, such as the Sustainable Development Goals (SDG's) the Stockholm Declaration, and further led to the formation of the 74/299 United Nations conference resolution.

The plan is intently linked to every plan and policy from other ministries that have been developed before. It is based on mapping of the priority areas of this plan with the policy elements of different ministries. Among them are the National Transport Policy 2019-2030, National Automotive Policy, Occupational Safety and Health Master Plan (OSHMP) 2021-2025, Shared Prosperity 2030, Health Services Transformation Plan, Malaysian ITS Blueprint, 4th National Physical Plan, National Youth Policy, National Social Policy, National Family Policy, and Science and Technology Policy. The

implementation of MRSP 2022-2030 can also be a catalyst for achieving these existing policies' goals.

5.5.3 APPLICATION OF THE FRAMEWORK TO THE GENERAL PUBLIC

To achieve the vision towards Malaysia becoming a country with zero deaths due to road crashes, the mission agreed to cultivate road safety towards prosperity. In the context of this plan, a road safety culture encompasses an arrangement of safe road conduct or existence that encompasses aspects of the thoughts, attitudes and beliefs of road users and stakeholders collectively.

Figure 9 shows the general framework for forming the road safety culture in Malaysia. The magna layer (national level) is the highest-level layer within this framework that considers distal factors such as climate, geographical conditions, ethnicity, population, and the economy. The proximal factors at this level involve the political situation and policies relating to traffic, law enforcement, infrastructure, licensing, and education.

Next, the other layer is the macro layer which refers to the regional or state level in Malaysia that plays a role in ensuring road safety. The cultural factor plays an essential role at this level about the attitude, norms, and beliefs of the citizens or population of that region or state.

The next layer is the meso layer which includes residential communities, organisations, or groups of road users (for example, cycling clubs). At this level, the cultural component consists of the fundamental beliefs and attitudes shared by members, the community, or road users. At the same time, the proximal factors focus on evaluation, monitoring, and enforcement systems affecting the behaviour of members at this level.

The most basic layer is the micro layer, which refers to the road users themselves. This stage is the most widely studied in various research projects to explain risky driving using demographic characteristics such as age, gender, and personality as distal factors.

Furthermore, various factors affecting each level need to establish specific plans of action as targets for the road safety agenda at the respective level.

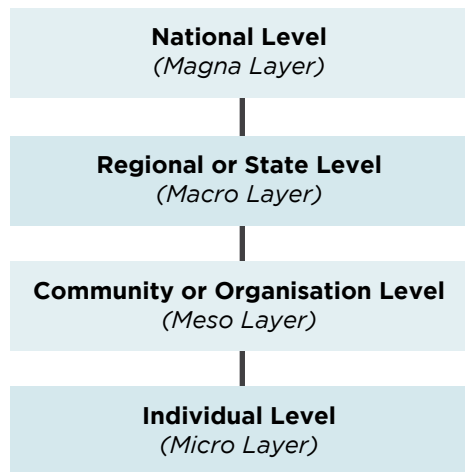


Figure 9: Framework of road safety culture in Malaysia

5.5.4 DEVELOPMENT OF ACTION PLAN

Implementing the entire MRSP 2022-2030 plan requires support and commitment from all stakeholders. For this purpose, the implementation and achievement of MRSP 2022-2030 will be monitored using three series of action plans, as shown in Figure 10.

To facilitate the process of monitoring and measuring achievements, the implementation of MRSP 2022-2030 will be divided into two main phases. The First

Phase starting in 2022 until 2027, is the phase to self-familiarise, learn, and perform an assessment supported with two action plans. The Second Phase from 2028 to 2030 is the coordination and professional phase that contains one action plan.

FIRST PHASE:

In the first three-year action plan (2022-2024), emphasis will be given to the implementation of activities or programs to generate governance platforms and mechanisms for effective monitoring and evaluation at central and local levels. Continuous monitoring will be carried out, focusing on implementing activities or programmes to reduce deaths in high-risk areas.

Thus, in future, under the second three-year action plan (2025-2027), emphasis will be given to the implementation of targeted activities or programmes by local communities who will be more experienced to implement interventions proactively and effectively. The government would have applied excellent road safety management practices to guide the local community during this period. A comprehensive database will also be created to decide appropriate interventions and more effective planning or implementation processes.

SECOND PHASE:

The final phase, which is the coordination and professional phase, will be devised in the final three-year action plan (2028 – 2030). Re-coordination of all the existing strategies and plans will be carried

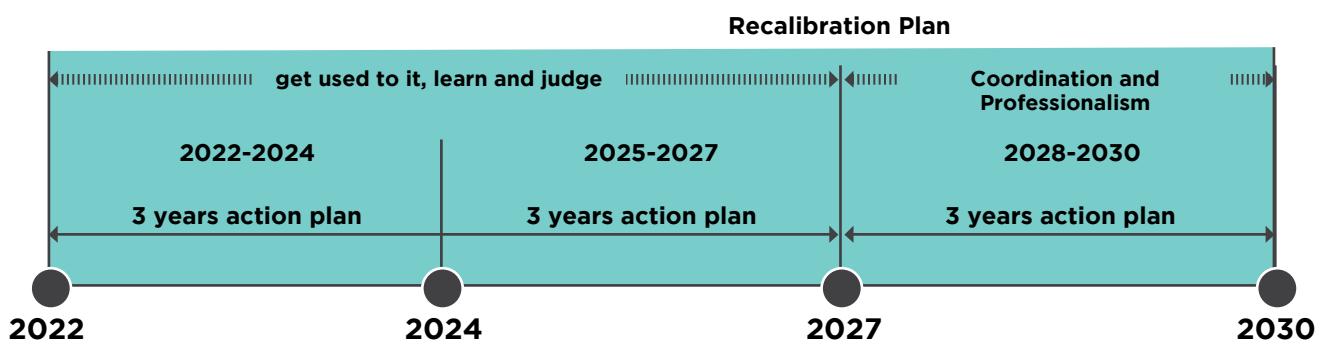


Figure 10: Implementation of Malaysia Road Safety Plan 2022-2030

out within this period to group the arising issues and the key findings more effectively. Private companies will also be involved more actively and extensively in road safety management. At this last stage of the plan, a road safety culture will have successfully been formed in every layer of society.

An action framework will support each action plan in the first and second phases to help track the progress and success of the plan's implementation. This action framework is summarised in Figure 11.



Figure 11: Action framework

The main component of this action framework is the formation of sub-committees (JK Kecil) according to the priority areas (PA). The sub-committees will identify various risks and issues based on physical evidence, determine a particular programme or intervention to solve or reduce risk, establish intervention indicators to measure the effectiveness of a programme and monitor the achievement of the PA using the main indicators. Continuous assessments will be carried out for each programme, identifying the areas that need improvement and making periodic and open progress reports to the government.

The details of the scope under the action framework are as follows:

(i) Formation of sub-committees for each PA

A sub-committee will be formed for each PA under MRSP 2022-2030 to monitor the implementation as discussed in the action plan. These committees will consist of all the stakeholders associated with their respective PA. The selection of appropriate agencies to preside over these committees will be determined by the members themselves. The agencies will determine the secretariat of each PA under the Ministry of Transport.

(II) Identifying risks and issues based on physical evidence

To ensure the success of MRSP 2022-2030, challenges and risks related to its implementation will be identified, monitored and addressed. Physical evidence and veritable data are critical for an accurate assessment in ensuring that all the interventions and programmes are carried out to achieve their respective objectives.

(III) Determining programmes or interventions to solve or reduce risk based on SMART

SMART is a management tool that emphasises five main elements: specific, measurable, achievable, relevant, and timeframe. The SMART concept will determine each road safety programme or intervention to be implemented by the respective stakeholders and set an allocation for its implementation. These programmes will be designed according to appropriate and relevant schedules and stages.

Although the Ministry of Transport is the primary coordinator for implementing MRSP 2022-2030, all the stakeholders are also responsible for implementing the plans and strategies developed by them in supporting this plan. They hold an immense responsibility in ensuring the success of the road safety agenda under their respective areas.

(IV) Establishing intervention indicators to measure programme effectiveness

Intervention indicators are established to measure the progress of initiatives and programmes. These will be reported in each action plan to show the methods of monitoring the action's progress. The effectiveness of a programme can be measured using the listed indicators based on predetermined performance indicators. The indicators and performance indicators will be reviewed and updated periodically under the respective action plan to stay relevant.



(V) Monitoring the PA achievements using Main Indicators

As the primary coordination agency, the Ministry of Transport will coordinate the overall plan implementation with all the stakeholders involved. Stakeholder discussions will be held periodically to attain effective implementation of MRSP 2022-2030. All the PA achievements will be monitored using the determined main indicators referring to each strategy and programme implemented and developed. The main indicators identified will be monitored based on the Key Performance Indicators (KPI) using the periodic assessment mechanism and follow-up research.

5.6 PRIORITY AREAS

10 PA will be implemented under this plan based on the Safe System Approach. In contrast with traditional approaches, the system does not blame the road user for a crash. Efforts to complete this travel system are the most effective way to reduce the rate of road crashes. Therefore, the plan manages the 10 PA as one system to integrate each component.

5.6.1 RESPONSIVE GOVERNANCE

Implementing an efficient and effective plan requires commitment from various stakeholders in every layer of the safety management ecosystem encompassing ministries and agencies, industries, and the diverse society.

At the national level, the Road Safety Council (MKJR) plays a role as a platform for discussing and coordinating road safety activities in Malaysia. Meanwhile, MKJR's role is to support the localisation effort prioritising effectiveness at a lower level. In Malaysia, an example of applying the localisation method is the creation of the Road Safety Plan in Penang and Batu Pahat. Although the coverage of this method's application is limited due to its localised nature, this method effectively addresses local issues as the local community is more knowledgeable about the local socio-political

conditions. In addition, this method can create a sense of belonging to each of the initiatives and programmes carried out.

The absorption and merging into the Road Transport Department (JPJ), known as the Road Safety Division (BKJR), starting from 1 May 2020 to empower and enhance the departments under the Ministry of Transport. Their duty as the leader in advocating road safety will continue to be carried out to increase road safety awareness and reduce the rates of death and injury caused by road crashes. Through this absorption, it is hoped that there will be further improvements and enhancements of the department's governance, specifically road safety, consequently bringing benefits to the people.

Efforts to improve road safety are a shared responsibility. Thus, cooperation in terms of funding must be boosted to fund road safety activities. The budget does not have to come from the Malaysian government alone. Initiatives by private parties and Non-Governmental Organisations (NGOs) are welcomed to support the road safety initiatives and programmes.

Therefore, responsive governance is needed to ensure smooth and continuous planning, implementation, monitoring, and evaluation for the road safety activities implemented. Strong leadership by the government and competent institutional and regulatory frameworks all serve as the pillar of more responsive governance.

MAIN OUTCOMES/MEASUREMENT INDICATORS

The primary outcomes/measurement indicators of the success of a responsive governance initiative are as follows:

- IP 1.1 Number of agencies involved in road safety activities
- IP 1.2 Number of updated legislation concerning road safety
- IP 1.3 Amount of funding received

SUB-AREAS AND IMPLEMENTATION STRATEGIES

PA 1 consists of three sub-areas (SA) and six Implementation Strategies (IS) to achieve the primary outcomes outlined. An overall summary of the SA and IS of PA 1 is provided in Table 3.

Table 3: Sub-areas and Implementation Strategies of PA 1

Sub-areas	Implementation Strategies
SA 1.1 Streamlining coordination and cooperation between stakeholders related to road safety	IS 1.1.1 Dignify leading agencies to regulate road safety activities IS 1.1.2 Reinforcing the structure, function, and commitment of stakeholders concerning road safety
SA 1.2 Improving and streamlining legislation related to road safety	IS 1.2.1 Strengthening the existing legislation related to road safety IS 1.2.2 Establishing a national committee to review the legislation related to road safety in a more comprehensive manner
SA 1.3 Ensuring adequate allocations for the implementation of road safety activities	IS 1.3.1 Generating funds for road safety activities IS 1.3.2 Establishing mechanisms to regulate road safety funding



DETAILS OF SA AND IS

SUB-AREAS	IMPLEMENTATION STRATEGIES
<p>SA 1.1 Streamline coordination and cooperation between stakeholders related to road safety</p> <p>A shared responsibility to improve the level of governance related to road safety starts with building a collective understanding among the stakeholder agencies. Therefore, this sub-area outlines two main implementation strategies to streamline coordination and collaboration among stakeholders.</p> <p>The main objective of both IS is to create a continuous communication channel among the stakeholders. This communication channel will be used to discuss and solve all issues related to road safety management. Besides that, both IS will also coordinate and integrate all actions taken by stakeholders to achieve the set targets.</p>	<p>IS 1.1.1 Dignify leading agencies to regulate road safety activities</p> <p>The Ministry of Transport will be responsible as the lead agency and the primary coordinator to implement MRSP 2022-2030. The Ministry of Transport through JPJ and MIROS will regulate and provide technical support to all stakeholders in implementing all the outlined programmes and interventions.</p> <p>For this purpose, the Ministry of Transport will ensure its implementation agencies. For example, JPJ and MIROS will continually improve their skills, expertise, and ability to carry out all the strategies.</p> <p>IS 1.1.2 Reinforcing the structure, function, and commitment of stakeholders concerning road safety</p> <p>The Ministry of Transport will make recommendations to improve stakeholders' structure, function, and commitment at national, state, and community levels to ensure efficient management and holistic and effective plan implementation. The localisation method needs to be expanded to ensure the implementation of the road safety initiative is more focused, efficient, and effective.</p>
<p>SA 1.2 Improving and streamlining legislation related to road safety</p> <p>This SA aims to ensure that all legislations can fulfil all the strategies to be implemented in this plan to stay relevant and meet the present needs. To improve the existing legislation, two main IS must be revised.</p>	<p>IS 1.2.1 Strengthening the existing legislation related to road safety</p> <p>The Road Transport Act 1987, existing acts and regulations that cover the provisions for the whole country, including Sabah and Sarawak, must be refined and translated to the current situation.</p> <p>IS 1.2.2 Establishing a national committee to review the legislation related to road safety in a more comprehensive manner</p> <p>Evaluation of the acts and laws must be carried out more systematically and periodically involving stakeholder agencies by establishing a national committee. A national committee will be established to coordinate the review of all legislative instruments on road safety.</p>
<p>SA 1.3 Ensuring adequate allocations for the implementation of road safety activities</p> <p>Allocation constraint is one of the main factors limiting the ability to carry out road safety activities. To ensure sufficient allocations, this sub-area will outline two main strategies.</p>	<p>IS 1.3.1 Generating funds for road safety activities</p> <p>Fundraising initiatives should be encouraged from various sources, including the public and private sectors. It ensures funding for implementing the planned road safety activities is secure and can be provided continuously.</p> <p>IS 1.3.2 Establishing mechanisms to regulate road safety funding</p> <p>Monetary funds obtained must be regulated through an effective monitoring mechanism to optimise the distribution of funds for road safety activities.</p>

5.6.2 EFFECTIVE MONITORING AND EVALUATION

Effective monitoring and evaluation will complete the road safety management cycle and drive the success of MRSP 2022-2030. The monitoring and evaluation process is one of the elements under Pillar 1 of the Plan for the Decade of Action for Road Safety 2011-2020. Still, it is often overlooked in many countries, as reported by the WHO in the Global Status Report on Road Safety (GSRRS). Many countries do not have a data system that records road crashes from various sources, including the police, insurance, and health.

The main issues in data collection are inaccurate data, unverifiable data, incomplete data, and inaccessible data. Without all this data, we cannot measure the achievement of the implemented programmes. Thus, in line with the GSRRS, data monitoring and evaluation of road crashes will be made Priority Area 2 (PA 2) in MRSP 2022-2030.

The United Nations General Assembly in Resolution 64/255 has recommended that the progress of the achievements of the Plan for the Decade of Action for Road Safety 2011-2020 be monitored based on 12 indicators, as per Table 4.

Table 4: Twelve (12) performance targets for voluntary global road safety

No	Target	Description
1	National action plan	An action plan for road safety involving various sectors with the targeted creation time by 2020
2	Global alignment	By the year 2030, all countries enter into one or more legal instruments under the UN pertaining to road safety
3	New roads	By the year 2030, all new roads reach the safe technical standards for all categories of road users or receive a rating of three stars or higher
4	Existing roads	By the year 2030, more than 75% of road travels are on roads that meet the technical standards that are safe for all road users
5	Vehicle standards	By the year 2030, 100% of new and used vehicles meet the high-quality safety standards such as the UN Rules prioritising the Global Technical Regulations or the nationally recognised equivalent
6	Speed	By the year 2030, a reduction by half in the number of drivers who drive over the set speed limit and achieving a reduction in injuries and deaths caused by speeding
7	Helmets	By the year 2030, increasing the compliance to almost 100% for the usage of helmets that fulfil standards
8	Protection of the vehicle driver and passengers	By the year 2030, increasing the compliance to almost 100% for the usage of seatbelts and child safety seats
9	Driving under the influence of drugs/alcohol	By the year 2030, reducing by half the number of injuries and deaths on the roads caused by drivers using alcohol/drugs
10	The use of mobile phones	By the year 2030, all countries will have national laws restricting or prohibiting the use of mobile phones while driving
11	Professional driver	By the year 2030, all countries will have regulations for driving and rest hours, especially for drivers of public vehicles
12	Timely emergency treatment	By the year 2030, all countries will have set and achieved the national target to minimise the duration between road crashes and the provision of professional emergency first aid services

To ensure effective evaluation and monitoring, road safety data must be verified following the international definitions.

MAIN OUTCOMES/MEASUREMENT INDICATORS

The main outcomes/measurement indicators for PA 2 Effective Monitoring and Evaluation are as follows:

- IP 2.1 Frequency of carrying out monitoring mechanisms.
- IP 2.2 Creation of National Road Safety Database.

- IP 2.3 Performance evaluation for road safety plans.
- IP 2.4 Plan re-adaptation reports after six years or according to current needs.
- IP 2.5 Access to road safety information.

SUB-AREAS AND ACTION PLANS

PA 2 contains three Sub-areas (SA) and six Implementation Strategies (IS) to achieve the main outcomes outlined. A summary of all SA and IS under PA 2 is shown in Table 5.

Table 5: Sub-areas and Implementation Strategies of PA 2

Sub-areas	Implementation Strategies
SA 2.1 Determining the monitoring mechanism for the implementation of road safety plans	IS 2.1.1 Establishing mechanisms to monitor the implementation of plans at national and state levels IS 2.1.2 Ensuring the validity and accuracy of road safety data among agencies for efficient sharing via the National Road Safety Database
SA 2.2 Evaluating and re-adjusting road safety plans	IS 2.2.1 Periodic study of the effectiveness of road safety activities IS 2.2.2 Re-adjusting plans based on the current situation and latest evidence
SA 2.3 Publicising the current situation and development to stakeholders	IS 2.3.1 Periodic reporting of the current situation and development of the road safety plan to stakeholders IS 2.3.2 Intensifying the activities of spreading information on road safety to the general public



DETAILS OF SA AND IS

SUB-AREAS	IMPLEMENTATION STRATEGIES
<p>SA 2.1 Determining the monitoring mechanism for the implementation of road safety plans</p> <p>A monitoring mechanism should be implemented for the road safety plan encompassing monitoring techniques at national and state levels and serving as a platform for monitoring and the frequency of monitoring performed.</p>	<p>IS 2.1.1 Establishing mechanisms to monitor the implementation of plans at national and state levels</p> <p>To monitor the success of MRSP 2022-2030 in every state, a committee will be created from the state level to the highest level of government. This proposed structure will be detailed in the MRSP 2022-2030 action plan after considering the opinions of all stakeholders.</p> <p>IS 2.1.2 Ensuring the validity and accuracy of road safety data among agencies for efficient sharing via the National Road Safety Database</p> <p>A database system will be created to ensure efficient and systematic data management. This database will ensure that all the collected data is valid. Data from various stakeholders can be shared efficiently by creating a National Road Safety Database. The main reference data is national road crash data provided by the Royal Malaysia Police (RMP), besides data from other stakeholders, which will also be considered for monitoring purposes. Data integrity must also be established besides following the definitions and requirements at the international level.</p>
<p>SA 2.2 Evaluating and re-adjusting road safety plans</p> <p>MRSP 2022-2030 should become the primary guide for all stakeholders to ensure road safety is on the best track in the same league as developed countries. However, MRSP 2022-2030 is not a conclusive document to be used the entire decade but acts as a living document that should be assessed and re-adjusted according to the latest data and scientific findings.</p>	<p>IS 2.2.1 Periodic study of the effectiveness of road safety activities</p> <p>Referring to this IS, MRSP 2022-2030 has listed 23 sub-areas and 58 strategies to be supported with various road safety activities and programmes. Studies on the effectiveness of the road safety programmes will be carried out by MIROS or local universities to evaluate and measure their impact on reducing deaths and injuries caused by road crashes.</p> <p>IS 2.2.2 Re-adjusting plans based on the current situation and latest evidence</p> <p>Any needed re-adjustment of MRSP 2022-2030 based on the current and latest situation using the experience of developed countries as a reference. The latest data can help if other issues involve road safety to ensure the plan targets can be achieved. Accordingly, implementing IS 2.1.2 is crucial to re-adjust the plan to be carried out based on the current situation and evidence.</p>

SA 2.3 Publicising the current situation and development to stakeholders

News about the current situation and development relating to road safety must be actively propagated to make it a common goal and interest. The rapid growth of technology enables more widespread access to information that is not limited to conventional means but can be done online.

This plan is applied not only to government stakeholders and private parties but also to the public, who are the most significant contributors to the success of this plan.

IS 2.3.1 Periodic reporting of the current situation and development of the road safety plan to stakeholders

Under this IS, the current achievements and developments of the road safety plan will be reported to the stakeholders periodically through the monitoring mechanisms that will be developed. Learning from previous experiences, the reporting of current issues and developments must be regularly done to the stakeholders so that this matter will not be neglected. In addition, alternative platforms such as organising seminars, webinars, conferences, and governances with the stakeholders will need to be used.

IS 2.3.2 Intensifying the activities of spreading information on road safety to the general public

As per SA 2.3, the general community or the public is part of the stakeholders who play an essential role in ensuring the success of this plan. Therefore, people must always receive information relating to road safety. It can be promoted by varying the information propagation activities beyond conventional channels by using online applications such as Facebook and Twitter. It is essential to communicate this access to every layer of society, including schoolchildren, university students, blue- and white-collared workers, local and foreign citizens, and the elderly.

5.6.3 SAFER MOTORCYCLE RIDING

Figure 12 shows the number of motorcycles involved in crashes in 2010–2019, and its fatality trend of motorcycle riders and passengers¹. The fatalities in 2010 was at 4,036 and kept increasing for the next five years until the peak of 4,485 in 2016. Since then,

the number of fatalities decreased until 3,959 in 2019. Nonetheless, the deaths involving motorcycle riders and passengers constitute, in average, 60% of total deaths annually.

Motorcycles have becoming a part of Malaysian culture with wide usage due to their affordability, ease



¹Report of the Statistics of Road Accidents Malaysia 2010-2019, Bukit Aman Traffic Investigation and Enforcement Department, Royal Malaysia Police.

Figure 12: Death trends of motorcyclists and pillion riders involved in road crashes 2010–2019

of use, and provision of door-to-door convenience. Motorcycles have become a vehicle of choice not only for personal use but also for work commuting. Its use is even more extensive following rapid growth of the gig economy in Malaysia.

Therefore, safety improvements of riders and motorcyclists on the roads in Malaysia are indeed necessary. Detailed studies are warranted to identify potential solutions feasible for effective implementation.

The PA 3 includes strategies encompassing motorcyclists safety in general. Refer to PA 5 for details about riding for work and PA 9 for micro transportation.

OUTCOMES/ KEY INDICATORS

Key outcomes/key indicators to measure success of safer motorcycle riding initiatives:

- IP 3.1 Number of crashes involving motorcycles
- IP 3.2 Number of deaths involving motorcycle crashes
- IP 3.3 Ratio of deaths to the total crashes involving motorcycles.

SUB-AREAS AND ACTION PLANS

This PA 3 consists of two sub-areas (SA) and five Implementation Strategies (IS) to achieve the main outcomes, as outlined in Table 6.

Table 6: Sub-areas and strategies of PA 3

Sub-areas	Implementation Strategies
SA 3.1 Reducing traffic conflicts involving motorcycles	IS 3.1.1 Improving the homogeneity of traffic involving motorcycles through appropriate policies and infrastructure
	IS 3.1.2 Improving riding competency through effective licensing programmes, advocacy, and continuous training
	IS 3.1.3 Strengthening law enforcement strategically
SA 3.2 Increasing the effectiveness level of motorcycle safety technology	IS 3.2.1 Enforcing mandatory use of Anti-lock Braking System (ABS) for new motorcycles
	IS 3.2.2 Improving motorcycle rider and passenger safety through technology on motorcycles and other vehicles
	IS 3.2.3 Ensuring that riders are competent to use motorcycle technology effectively



DETAILS OF SA AND IS

SUB-AREAS	IMPLEMENTATION STRATEGIES
<p>SA 3.1 Reducing traffic conflicts involving motorcycle</p> <p>Traffic conflicts refer to situations that could result in road crashes unless one of the parties involved takes appropriate action to avoid a collision.</p> <p>Studies have suggested traffic conflicts are a reliable early indicator of road crashes. Thus, reducing conflicts among motorcycle riders may reduce the risk of collision. Although traffic conflicts may occur at any road section, intersections, roundabouts, U-turns, housing areas, schools, are among other zones of high risk of conflicts. Therefore, the keyword to reduce traffic conflict is uniformity of vehicle type, traffic flow, and speed that can be achieved using various methods, especially through supportive infrastructure and competent riders who meet safety standards on the road.</p> <p>To achieve the desired result towards strengthening the culture and value of road safety among children and youth, three strategies have been outlined to support this sub-area.</p>	<p>IS 3.1.1 Improving the homogeneity of traffic involving motorcycles through appropriate policies and infrastructure</p> <p>Infrastructure plays an important role in ensuring traffic uniformity especially in terms of vehicle type and traffic flow. Separating the types of vehicles on the road whether by creating specific roads based on vehicle type or assigning the specific time period for each vehicle type to be on the road plays an important role for this purpose. Besides, uniformity in traffic flow direction and speed affects the balance between safety and transport accessibility. These elements play a role in determining a safe position for motorcycles while on the road with other vehicles.</p> <p>IS 3.1.2 Improving riding competency through effective licensing programmes, advocacy, and continuous training</p> <p>The competency of riders and other road users is closely related to traffic conflicts. A driver's competency includes knowledge, safer driving skills, and practising the safe culture while on the road. Various methods including training and licensing programmes for new riders and continuous refreshers for existing riders are the components that should serve as a basis in forming the standard for competent riders. These programmes should not only be focused on motorcycle riders but also be expanded to drivers of other vehicles in order to create motorcycle-aware driving.</p> <p>IS 3.1.3 Strengthening law enforcement strategically</p> <p>Strategic enforcement can reduce not only antisocial behaviours on the road (e.g. aggression, negligence, recklessness, and others) but also risk of crashes due to vehicle damages. Enforcement should not be exclusive to motorcycle riders but to other vehicles as well. This is because all parties are affected by any non-compliance with road laws especially the vulnerable motorcycle riders.</p>
<p>SA 3.2 Increasing the effectiveness level of motorcycle safety technology</p> <p>Safety technology opens up avenues to improve road safety among motorcyclists. An example is the blind spot monitoring technology on cars which gives an appropriate warning if there is a motorcycle or another vehicle in the area. This technology can help drivers be aware of the presence of motorcycles that are often in a car's blind spot area. However, the room for improvement in using</p>	<p>IS 3.2.1 Enforcing mandatory use of Anti-lock Braking System (ABS) for new motorcycles</p> <p>The motorcycle Anti-lock Braking System (ABS) is an active safety system to avoid motorcycles from slipping by preventing the wheel-lock (stop rotating completely) during braking. This allows the tyres to maintain grip on the surface, thus providing stability and maneuverability to the riders.</p> <p>The installation of ABS to motorcycle is very important especially to low powered motorcycles as it is able to prevent motorcycle crashes. Based on the road crash statistics in Malaysia, the introduction of the ABS system to motorcycles is expected to reduce motorcycle crashes and injury severity by up to 30%.</p>

technology for rider safety is still substantial and must be implemented. Thus, the following strategies have been agreed upon to improve the effectiveness of technology for the safety of motorcycles.



IS 3.2.2 Improving motorcycle rider and passenger safety through technology on motorcycles and other vehicles

The use of technology for motorcyclists' safety can be in two perspectives: technology on the motorcycle itself and technology on other vehicles benefiting the motorcyclists. Achieving this demands involvement of various parties and be possible through two approaches: developing new technology or adapting external technology for Malaysian scenario. Both of these require analysis of existing data to determine the type of technology that can benefit motorcyclists based on the following categories.

The first category prioritises technology on motorcyclists' fit-to-ride. The second category emphasises technology that improves motorcycles' conspicuity and visibility to allow users of other vehicles to react appropriately. The third category focuses on collision avoidance technology, while the fourth category refers to technology for injury severity reduction in the event of a crash such as airbags for motorcycles. Furthermore, further research and testing as well as engagement sessions with each stakeholder is critical before any technology to be gazette under the Road Transport Rules as one of the mandatory equipments on every new vehicle through the VTA process.

IS 3.2.3 Ensuring that riders are competent to use motorcycle technology effectively

Safety technology can produce the optimal impact only if used correctly. Therefore, it is necessary to ensure all users are competent to operate any technology. Motorcyclists need to understand the limitations of the technology to avoid misuse. This includes risky behaviours such as driving at higher speed due to overconfidence and over-dependence on the available technology. Proper understanding of the limitations and constraints would make the user to remain vigilant, and to only consider technology as a supportive element in critical situations. The responsibility of training and educating users should fall on various parties including manufacturers, vehicle distributors, Non-Governmental Organisations (NGO), and the government agencies involved.

5.6.4 SPEED MANAGEMENT

Speed management is one of a critical keys towards reducing the deaths and injuries of road crashes. The contribution of speed to severity is beyond theoretical. Wramborg² proposed three speed-impact relationships—assuming the opposite vehicles to have the same mass and speed, for every 1% increase in mean speed there is an increase of 4% in the risk of a fatal crash and 3% in the risk of a severe crash. Furthermore, the risk a pedestrian to be hit is 4.5 times more at 65 km/h relative to 50 km/h; while the risk of death from a side collision with a car at a speed of 65 km/h is 85%.

Besides, studies found drivers in general drive as much as 20 km/h faster than the set speed limit in Malaysia. MIROS in-depth crash investigation shows that, out of 367 cases, 41.7% were attributable to speeding, which is the second highest after reckless driving as shown in Table 7. In addition, almost 2.5 million fines were issued for speeding offences in 2016.

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The Safe System approach optimises movement speed while reducing the risk of road casualties. In a safe system, designers set the speed limit based on evidence of vehicles and road safety under the assumption road users making mistakes. The vehicle and road design can help prevent certain mistakes

besides reducing the severity of injury in the case of a road crash.

Besides, enforcement is also an effective strategy of speed management. Studies show that following the automated speed enforcement, the percentage of compliance with speed limits among drivers has increased from 61% to 96%.

MAIN OUTCOMES/MEASUREMENT INDICATORS

The main outcomes/indicators to measure the achievement of the Speed Management initiative are as follows:

- IP 4.1 Rate of compliance with speed limits among drivers
- IP 4.2 Number of crashes due to speeding

SUB-AREAS AND ACTION PLANS

PA 4 contains two Sub-areas (SA) and four Implementation Strategies (IS) to achieve the main outcomes outlined, as shown in Table 8.

²A New Approach to a Safe and Sustainable Road Structure and Street Design for Urban Areas, 2015

Table 7: Causes of road crashes based on an in-depth investigation by MIROS

Cause of road crash	Number of cases
Visibility	45
Driving under the influence	1
Fatigue	14
Brake damage	8
Capacity overload	2
Reckless driving	175
Road damage or design flaw	32
Safety management	5
Speeding	73
Tire damage	9
Construction management	3
Total	367

Table 8: Sub-areas and strategies of PA 4

Sub-areas	Implementation Strategies
SA 4.1 Reinforcing speed management via road infrastructure design	IS 4.1.1 Conducting periodic re-evaluation of speed limits for various road types (first time right) IS 4.1.2 Expanding the implementation of speed control measures such as traffic calming at suitable locations
SA 4.2 Expanding the use of technology in speed management	IS 4.2.1 Strengthening enforcement methods for speed management using technology IS 4.2.2 Expanding the use of technology for vehicle speed control

DETAILS OF SA AND IS

SUB-AREAS	IMPLEMENTATION STRATEGIES
<p>SA 4.1 Reinforcing speed management via road infrastructure design</p> <p>The design of the road should serve its function in line with the design speed and appropriate speed limit. At certain locations such as high-risk spots, additional road engineering measures ensure drivers to drive at safe speeds. Among the locations normally require physical speed reduction measures are housing areas, school zones, city areas, high-to-low speed transition zones, and near pedestrian crossings, as well as other high-risk places.</p>	<p>IS 4.1.1 Conducting periodic re-evaluation of speed limits for various road types (first time right)</p> <p>The safe speed limit for each road type should be determined based on its characteristics and should be displayed clearly. Speed limits based on vehicle type should also be expanded and enforced.</p> <p>IS 4.1.2 Expanding the implementation of speed control measures such as traffic calming at suitable locations</p> <p>Speed control methods, such as traffic calming measures in strategic and suitable locations including school zones and housing areas must be implemented to reduce vehicle speeds.</p> 
<p>SA 4.2 Expanding the use of technology in speed management</p> <p>The use of technology in speed management should be expanded to achieve quicker and long-lasting effect. The advantages of rapidly developing technology should benefit road users in terms of ensuring their safety. Adaptation of advanced technology for speed management is proven in developed countries. Among them are vehicular technology that prevents speeding as well as speed cameras.</p>	<p>IS 4.2.1 Strengthening enforcement methods for speed management using technology</p> <p>Enforcement is an important road safety strategy which is an effective measure to discipline road users in instilling vigilant driving attitudes and compliance with the set speed limits. The use of technology such as average speed cameras is proven effective in speed management and enforcement.</p> <p>IS 4.2.2 Expanding the use of technology for vehicle speed control</p> <p>Expanding the use of technology to control vehicle speed is another strategy that is proven effective internationally. Among the systems that can help is Intelligent Speed Assist (ISA). ISA is an in-vehicle system that supports the driver in helping them to comply with the speed limits wherever they are in the road network.</p>

5.6.5 SAFER WORK-RELATED JOURNEY

Every organisation has the responsibility to ensure their employees are healthy and safe at the workplace including when going to and coming back from the workplace.

Road crashes during work commute refer to crashes that occur to an individual under the following situations:

- (i) Travelling along the route between place of residence and the workplace;
- (ii) Traveling for any purpose directly related to their job; and
- (iii) Travelling between the workplace and eatery during the allocated break time.

The latest statistics show that road crashes involving workers during commute increased to 83% in 2019 compared to 2009. Relative to accidents at the workplace, the trend of deaths due to road crashes while commuting is higher. The statistics of 2019 show that 705 workers died due to crashes while commuting compared to 254 deaths due to workplace accidents (Figure 13).

MAIN OUTCOMES/MEASUREMENT INDICATORS

The main outcomes/indicators to measure the success of the Safer Work-Related Journey initiative are as follows:

- IP 5.1 Number of road crashes involving workers while commuting to and from work and during allocated breaks
- IP 5.2 Number of worker injuries while commuting to and from work and during allocated breaks
- IP 5.3 Number of worker deaths while commuting to and from work and during allocated breaks
- IP 5.4 Number of road crashes involving workers during work-related travel
- IP 5.5 Number of worker injuries during work-related travel
- IP 5.6 Number of worker injuries during work-related travel

SUB-AREAS AND ACTION PLANS

PA 5 consists of two Sub-areas (SA) and six Implementation Strategies (IS) to achieve the main outcomes outlined, as shown in Table 9.

³Employees' Social Security Act 1969 (Act 4)

⁴SOCSCO Annual Report 2019

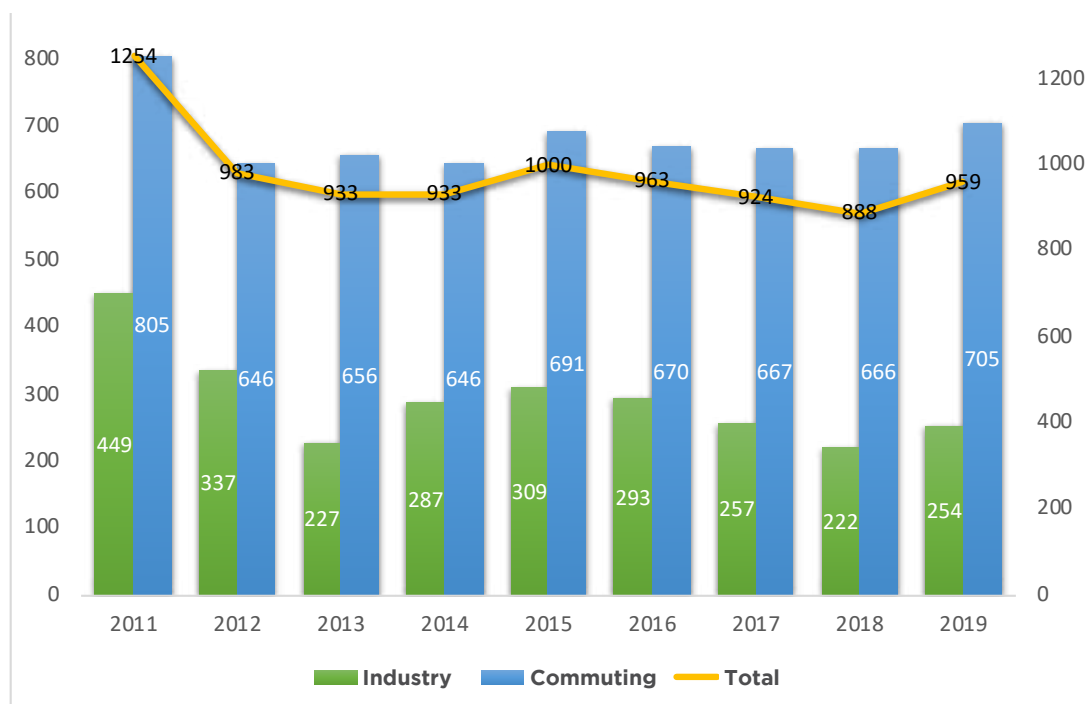


Figure 13: Statistics of worker deaths due to industrial and commuting crashes

Table 9 Sub-areas and Implementation Strategies of PA 5

<i>Sub-areas</i>	<i>Implementation Strategies</i>
SA 5.1 Intensifying the implementation of road safety management systems for employment sector	IS 5.1.1 Strengthening legislative provisions, implementation, and enforcement pertaining to the management of drivers, vehicles, and commute periodically IS 5.1.2 Promoting the practice of road safety management system IS 5.1.3 Expanding the road safety management system certification
SA 5.2 Improving work commute safety for the gig economy sector	SP 5.2.1 Strengthening legislative provisions, implementation, and enforcement for e-hailing services SP 5.2.2 Establishing legislative provisions, implementation, and enforcement for p-hailing and other gig economy services SP 5.2.3 Promoting the implementation of road safety management system practices in the gig economy sector



DETAILS OF SA AND IS

SUB-AREAS	IMPLEMENTATION STRATEGIES
<p>SA 5.1 Intensifying the implementation of road safety management systems for employment sector</p> <p>Employees are the most vital assets for an organisation. A high level of employers' commitment is critical to establish a good travel safety management system.</p> <p>In terms of legislative provisions relating to road safety management systems, the Occupational Safety and Health Industry Code of Practice for Road Transport Activities 2010 has been gazetted under subsection 37 (4) of the Occupational Safety and Health Act 1994 (Act 514). This code of practice is applicable to road transportation activities involving the vehicles used in all industries but is not limited to commercial vehicles, public service vehicles, goods vehicles, and tourism vehicles. Enforcement of compliance with this code of practice is not extensive despite the provision of power by Section 37 and 38 of Act 514.</p> <p>In addition, operators of buses and goods vehicles are also subject to Section 58(1) and Section 23(1) of the Land Public Transport Act 2010 as one of the conditions for the operator license. ICOP compliance is still low based on the audits JPJ performed in 2019 and 2020.</p> <p>In addition to legislative provisions, several initiatives have been carried out to improve the implementation of road safety management practices in organisations. One of these is the SOCSO-MIROS joint Commuting Safety Support Programme (CSSP). This programme, based on MS ISO 39002:2020, serves as a guide for organisations on good practice in implementing commuting safety management especially motorcycle safety. The programme focuses more on private companies than government agencies.</p> <p>MS ISO 39001:2013 is a standard adapted entirely from 39001:2012 to provide a comprehensive method for Road Traffic Safety Management Systems (RTSMS). This standard is general and is applicable to not only vehicle operators but also all organisations that interact on the road. Until now, the number of organisations in Malaysia certified under MS ISO 39001:2013 is still low despite the various programmes and initiatives implemented.</p>	<p>IS 5.1.1 Strengthening legislative provisions, implementation, and enforcement pertaining to the management of drivers, vehicles, and commute periodically</p> <p>The existing legislative provisions for road safety management at workplace should be fine-tuned and harmonised for better compliance and more systematic and effective enforcement.</p> <p>IS 5.1.2 Promoting the practice of road safety management system</p> <p>The safe system should be practised in every organisation encompassing driver management, vehicle management, and travel management. The implementation of this management system should also be expanded to government agencies. Besides, certified trained individuals can help employers instill the road safety aspect in employees. Certification mechanisms for a company should be introduced to further encourage the implementation of the road safety management system.</p> <p>IS 5.1.3 Expanding the road safety management system certification</p> <p>RTSMS certification can be expanded by giving incentives to organisations. Awareness of the importance and benefits of certification should be carried out in a focused, continuous, and periodic manner through cooperation between the government, private sector, and NGOs.</p>



SA 5.2 Improving work commute safety for the gig economy sector

Gig economy sector known as employees those who are involved to carry out a task or work where they are paid and operate through platform of online service provider as well as digital applications. In the transportation sector, e-hailing is in booking service through the vehicle by the application mobile that synchronize with people around them which involve of fare and distance among them⁶.

Currently, companies that provide e-hailing services are regulated by APAD through the issuance of licenses after Public Transport Act (Amendment) 2017 came into force on 12 July 2018. The types of vehicles that allowed for e-hailing service such that have more than two doors and four wheels, taxis, car rental, and luxury taxis. This provision does not yet apply to e-hailing services using motorcycles.

Food and parcel delivery services that using in categories of class of motor vehicles including motorcycles and cars are known as parcel hailing or p-hailing. The p-hailing boom during the COVID-19 pandemic season which given them as boost to business as well as give way for Malaysian to generate income especially on p-hailing services using motorcycles.

Nevertheless, road crashes involving p-hailing riders has been recorded during the PKP phase at alarming level in (Figure 14). Monitoring will be carried out by using CCTV on the main roads around Kuala Lumpur by MIROS. They found that 64% of p-hailing riders committed various traffic offenses during peak hours and among the most offenses were red light collisions⁷.

IS 5.2.1 Strengthening legislative provisions, implementation, and enforcement for e-hailing services

Legislative provisions for e-hailing services especially those involving motorcycles should be refined and harmonised with the existing provisions to ensure systematic and effective implementation and enforcement.

IS 5.2.2 Establishing legislative provisions, implementation, and enforcement for p-hailing and other gig economy services

Legislative provisions for p-hailing services should be established especially for services involving motorcycles to guarantee their and other road users' safety. More effective monitoring is also needed to ensure that p-hailing employees comply with the rules. There is also a need to study the law provision mechanisms for other gig economy sectors that have the potential to be introduced in Malaysia such as "servicehero" designated drivers, and so on.

IS 5.2.3 Promoting the implementation of road safety management system practices in the gig economy sector

Awareness of the importance and benefits of the road safety management systems need to be increased among the providers of gig economy services. The safe system approach should be instilled in the service management offered.

⁵Economic Recovery Plan (PENJANA), Frequently Asked Question (FAQ), Program Dana Padanan Caruman Ekonomi Gig Platform No. 2/2020, 1 September 2020

⁶Guidelines for E-Hailing Services Under Shipping Business No.2/2018, 31 October 2018

⁷Report on P-Hailing Rider Behaviour through CCTV Monitoring Study
⁸PDRM, Crashes Involving Foodpanda and Grabfood Riders

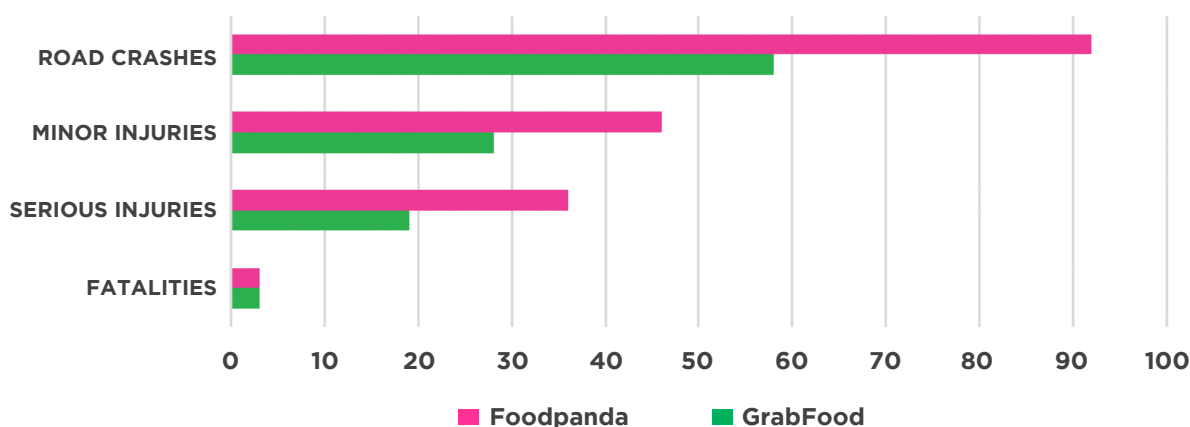


Figure 14: Statistics of crashes involving Foodpanda and Grabfood employees (18 March-19 June 2020)⁸



5.6.6 SAFER JOURNEY FOR HIGH-RISK GROUP

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The National Youth Policy 2015 has defined senior citizens in Malaysia as an individual aged 60 and above; while youth refers to individuals aged 15 to 30 years with a division into three detailed levels of youth. This definition, however, is not aligned with the definition used in the Children Act 2001 which places the definition of a child as individuals under the age of 18 years.

Thus, to harmonize road safety activities for children, youth and senior citizens in PA 6, the definition of children and youth used is as follows:

1. A child refers to individuals aged 0 to 14 years
2. Youth refers to individuals aged 15 to 30 years
 - i. Early Youth : individuals aged 15 to 18 years
 - ii. Middle Youth : individuals aged 19 to 24 years
 - iii. Final Youth : individuals aged 25 to 30 years
3. Senior citizen refers to individuals aged 60 years and above

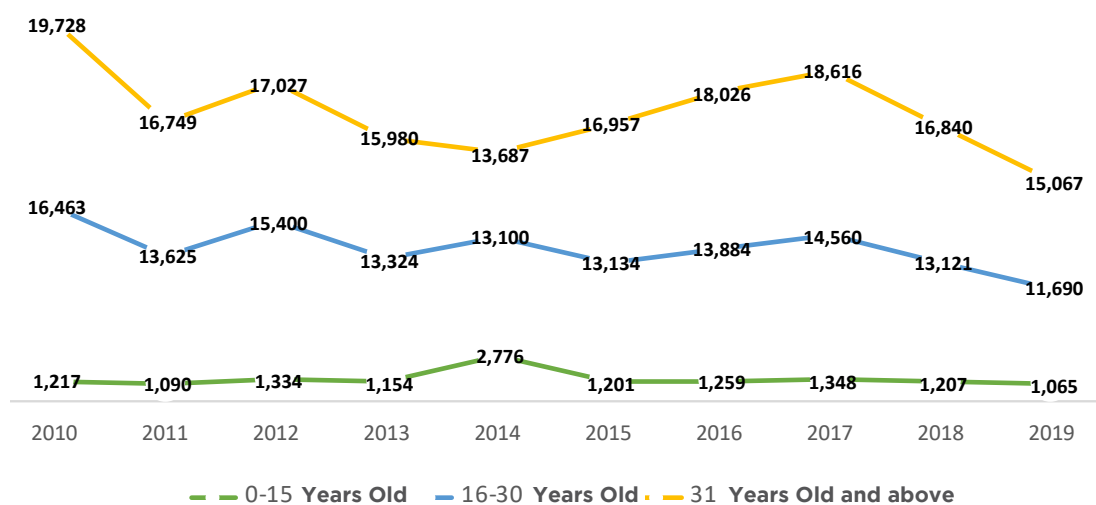


Figure 15: Trend of road crash victims by age for 2010-2019

Apart from the above groups, people with disabilities (OKU) are also road users exposed to high risk. Given their circumstances are different from regular road users, the risks they face also vary depending on the environment and other factors.

Figure 15 shows the chart for road crash victims in Malaysia by age for 2010 to 2019. The trends clearly show that children and youth are the most at risk of becoming victims of road crashes. This phenomenon is not specific to Malaysia.

Since most youths use motorcycles as their primary mode of transportation, PA 3 include focuses on riding by motorcycle, while PA 5 includes activities involving road safety and employment. Apart from that, PA 9 focuses on transportation modes that involve micro vehicles.

PA 6 include strategic focus on education and enforcement activities. Further, PA 6 also focuses on changing the minds and behaviours of road users towards protecting these groups of high-risk road users.

MAIN OUTCOMES/MEASUREMENT INDICATORS

The main results/measurement indicators for a Safer for High Risk Feeding Journey are as follow:

- IP 6.1 Number of road crashes of children, youth, elderly and the disable (OKU).
- IP 6.2 Number of deaths of children, youth, the elderly, and the disabled (OKU) due to road crashes.
- IP 6.3 Number of injuries to children, youth, the elderly and the disabled (OKU) due to road crashes.

SUB-AREAS AND ACTION PLANS

PA 6 consists of two sub-areas (SA) and five Implementation Strategies (IS) to achieve the main outcomes outlined, as shown in Table 10.

Table 10: Sub-areas and Implementation Strategies of PA 6

Sub-areas	Implementation Strategies
SA 6.1 Strengthen the culture and values of road safety among children, youths, elderly and the disabled (OKU) through effective education	IS 6.1.1 Strengthening various methods of formal and informal road safety education to children, youth, the elderly and the disable (OKU) periodically IS 6.1.2 Empowering every layer of social units to strengthen the educational outcomes of children youth, the elderly and the disable (OKU)
SA 6.2 Improving legal compliance among children, youths, elderly and the disabled (OKU) through comprehensive enforcement	IS 6.2.1 Strengthening legal provisions related to safety of children, youth, the elderly and the disable (OKU) on a regular basis IS 6.2.2 Ensuring compliance with the law through various efficient and effective enforcement activities on the road including the use of appropriate technology IS 6.2.3 Establishing a mechanism for social norms enforcement to empower the community on the importance of road safety

DETAILS OF SA AND IS

SUB-AREAS

SA 6.1 Strengthen the culture and values of road safety among children, youths, elderly and disabled (OKU) through effective education.

Education plays a big role in improving road safety in Malaysia. Effective education plays a role in inculcating values and attitudes prioritising road safety which in turn be translated through rational decision making, stable emotions, and skills.

Road safety education can be done through various methods whether formal or informal by targeting not only children, youths and the disabled (OKU) but also the older generation as families or caregivers who are responsible for them. Support from the surrounding community is critical in the formation of road safety values and culture from the early stages.

Presently, the formal education programme established at the national level is the Road Safety Education (PKJR). The PKJR programme, developed in 2005 and improved in 2016, has been implemented through insertion into Malay language subjects at primary and secondary school throughout Malaysia. The program has also won the prestigious Prince Michael International Road Safety Award for the Road Safety Education Project (PKJR) in 2018.

Despite its comprehensive establishment in all schools, the level of implementation can still be improved to obtain more effective results.

To ensure road safety education delivers on the key outcomes of PA 6, the needs and patterns of mobility for each level of children and youths should be identified so that any interventions to become more effective. Depending on the age and socioeconomic conditions, most children and early youths are passive road users, i.e. as passengers of vehicle, pedestrians or cyclists. Some of them may have started riding motorcycles for limited distances despite not having any license.

Middle-aged youth, on the other hand, are more likely to ride motorcycles for longer distances and start driving larger vehicles such as cars. Depending on socioeconomic needs such as employment, their exposure on the road will also increase.

From this brief description, some road safety issues are, but not limited to, include helmet wearing, use of child safety seats, walking skills, use of unlicensed vehicles and others that may be relevant for the target group.

IMPLEMENTATION STRATEGIES

IS 6.1.1 Strengthening various methods of formal and informal road safety education to children, youth, the elderly and the disabled (OKU) periodically

Formal or informal methods of road safety education can be strengthened through the development of action plans based on scientific evidence in terms of using psychological and sociological knowledge that can be translated at the implementation level. All educational activities should be evaluated to determine their effectiveness and to enable benefit-cost analysis to be done as well as improve future activities.

IS 6.1.2 Empowering every layer of social units to strengthen the educational outcomes of children youth, the elderly and the disabled (OKU)

Education requires repeated reinforcement so that applied values are sculpted into habits. Therefore, the responsibilities are on every layer of society to strengthen the learning outcomes that have been and are happening among children, youth, the elderly, and the disabled (OKU). Communities that are sensitive to road safety reprimand each other and acknowledge safe behaviours to form road safety values and culture. To achieve this, every layer of society should have appropriate knowledge and awareness of road safety.



SA 6.2 Improving legal compliance among children, youths, the elderly and disabled (OKU) through comprehensive enforcement

The Road Transport Act 1987 is the pillar of road safety enforcement in Malaysia. Apart from PDRM and the Road Transport Department (JPJ), traffic enforcement is also carried out by the Local Authority for certain offenses.

Studies found the effectiveness of education in improving road safety is less effective if lacks support from the enforcement. On the other hand, enforcement without education can create conflict among road users which in turn resulting to negative impact on enforcement activities. Thus, the key word here is harmony between education and enforcement. Road safety enforcement has proven to be effective in quickly changing the behaviour of road users. Enforcement perception studies among road users indicate significant rooms for improvement.

Therefore, to increase legal compliance among children, youths, the elderly and disabled (OKU), the following strategies have been formed to increase the level of effectiveness of road safety enforcement.

IS 6.2.1 Strengthening legal provisions related to safety of children, youth, the elderly and the disable (OKU) on a regular basis

Clear legal framework forms the basis for effective enforcement. The review of legal provisions should be in line with technological developments. Specific mechanisms for updating legal provisions across various stakeholders are important to ensure the resulting law is beneficial to all.

IS 6.2.2 Ensuring compliance with the law through various efficient and effective enforcement activities on the road including the use of appropriate technology

Laws without enforcement produces sub-optimal impact on road safety. Thus, the interpretation of the law and its translation into enforcement activities are equally important. Strategic activities are able to provide long-term effects with optimal use of resources. The application of psychological and surprise elements in enforcement activities can help to increase its effectiveness. In addition, accurate and up to date data is essential to drive strategic enforcement activities.

IS 6.2.3 Establishing a mechanism for social norms enforcement to empower the community on the importance of road safety

Social norms refer to informal agreement influencing (often restrict) behaviours among members of society. As Malaysian society adheres to collectivistic culture, social norms that emphasise road safety forms a society that is sensitive to road safety needs, including violations of the rules. Specific mechanism for community empowerment can help reinforce social norms that emphasise road safety which consequently act as voluntary enforcement agents to support those safety oriented norms.



5.6.7 SAFER INFRASTRUCTURE

In a land transportation system, road infrastructure plays an important role in fulfilling the need for efficient mobility for people and goods and providing access to various commercial and social activities. Besides that, the availability of suitable infrastructure guarantees a smooth flow of traffic and improves the safety of all road users.

Statistics from the Ministry of Works (KKR) recorded that the main road infrastructure, consisting of paved roads, is 250,023.4 km in length in Malaysia⁹. Of this, 189,800.1 km are the paved roads categorised as Federal Roads and State Roads. These paved roads are the backbone of traffic flow and are used around the clock to move people and goods. Therefore, continuous checking of the condition of these paved roads must be carried out to ensure the people's safety, especially in locations that have been identified as areas of frequent crashes. Besides paved roads, road components and facilities such as road barriers, lighting, pedestrian crossings, and pedestrian lanes should also be given attention to ensure the overall safety of all road users.

A study shows there is a relationship between infrastructure design and road safety¹⁰. The engineering and design of a road can influence the severity of injuries suffered by the victims of a road crash¹¹. Road design that adheres to standards and best practices at the international level can create self-explaining roads for drivers. This will prompt drivers to drive safely as a driving response to such road design.

Besides road infrastructure, the infrastructure provided pertaining to the public transport system

will also be emphasised under this priority area. In this context, a study¹² shows that a modal shift from personal vehicles to public transport has the potential to reduce deaths caused by road crashes because public transport is a safer mode of transportation compared to private vehicles. Thus, increased usage of the public transport service can contribute to lower the risk of road crashes.

The measure aligns with one of the strategies defined under the National Transport Policy 2019-2030 (NTP 2019-2030), which is to increase the usage of public transport modes compared to personal vehicles. NTP 2019-2030 has set a target to make the public transport chain the backbone of spatial growth plans and a sustainable transportation mode, especially in urban areas. The strategies to be determined under the NTP will aim to encourage the usage of public transportation systems as the preferred mode of transportation among Malaysians compared to their own vehicles.

MAIN OUTCOMES/MEASUREMENT INDICATORS

The main objective of this priority area is to ensure the provision of safer infrastructure to all groups of road users including users of public transport services.

Achievements of this priority area will be measured using the following key indicators:

- IP 7.1 Percentage of kilometres for new roads received a rating of three stars and above.
- IP 7.2 Percentage of kilometres for old roads received a rating of three stars and above.

SUB-AREAS AND ACTION PLANS

PA 7 consists of two Sub-areas (SA) and six Implementation Strategies (IS) to achieve the main outcomes outlined. A summary of all SA and IS for PA 7 is shown in Table 11.

⁹KKR, 2018.

¹⁰Ezra Hauer, 2019.

¹¹WHO, 2007.

¹²WHO, 2004.

Table 11: Sub-areas and Implementation Strategies of PA 7

Sub-areas	Implementation Strategies
SA 7.1 Improving the level of road safety especially in high-risk areas	IS 7.1.1 Conducting road safety audit programmes or other evaluation programmes, such as road safety inspection, periodically or routinely IS 7.1.2 Monitoring improvements for the areas identified as having high crash occurrences IS 7.1.3 Updating standards and regulations according to current needs IS 7.1.4 Expanding star ratings for all types of roads and high-risk areas, such as schools
SA 7.2 Improving the public transport chain infrastructure	IS 7.2.1 Improving infrastructure, access, and connectivity of public transport chains SP 7.2.2 Promoting investment in public transport chain development



DETAILS OF SA AND IS

SUB-AREAS	IMPLEMENTATION STRATEGIES
<p>SA 7.1 Improving the level of road safety especially in high-risk areas</p> <p>High-risk areas can be identified proactively by applying a comprehensive road evaluation system. Continuous evaluation involving analysis of frequent road crash areas using national road crash data will be implemented through this road evaluation system. Intervention measures can then be executed in the areas that have been identified to improve the safety level of those areas.</p>	<p>IS 7.1.1 Conducting road safety audit programmes or other evaluation programmes, such as road safety inspection periodically or routinely</p> <p>The implementation of road safety audit activities is one of the road engineering techniques used to identify safety issues at the planning and design stage of road construction projects. This activity if implemented on existing roads can identify potentially dangerous areas before they become areas of frequent road crashes.</p> <p>Besides that, other proactive evaluation methods such as road safety inspections¹³ can be used to identify the areas with high crash risk.</p> <p>Such programmes can be implemented periodically or routinely in terms of road planning and maintenance to achieve the main objective of this priority area.</p> <p>IS 7.1.2 Monitoring improvements for the areas identified as having high crash occurrences</p> <p>Based on IS 7.1.1, locations of frequent road crashes and suitable intervention/treatment approaches for said locations will need to be implemented to improve the safety level at the locations.</p> <p>Improvements can be carried out in the short, medium, and long term but priority is given to improvements that can offer a quick win and have a high benefit-to-cost ratio, such as road visibility improvement and sidewalk safety improvement.</p> <p>To ensure the effectiveness of the intervention measures, continuous monitoring of the locations involved must be done periodically. Findings from these monitoring endeavours can be used to ensure all intervention measures are implemented according to plan.</p> <p>SP 7.1.3 Updating standards and regulations according to current needs</p> <p>This strategy emphasises updating on the standards and regulations in accordance with current needs and on par with the global level including road construction, signage, and road infrastructure. In addition, existing standards that have been used for a long time must be reviewed in order to improve the infrastructure designed.</p> <p>SP 7.1.4 Expanding star ratings for all types of roads and high-risk areas such as schools</p> <p>The star rating programme for roads in Malaysia has been in place since 2007 involving 3,700 km on main routes through the International Road Assessment Program (iRAP).</p>



¹³PIARC 2012

Based on the evaluation performed, it was found that 91% of Federal Roads and 13% of highways outside urban areas were rated three stars or lower. In 2017, the percentage of road networks with a rating of three stars and above increased from 52.4% to 95.5% for urban highways based on the immediate improvement performed and drivers' compliance with the road speed limits. This achievement shows that this evaluation programme can improve the level of road safety in this country.

Although there exist international evaluation programmes, the local evaluation programme, namely the Malaysian Road Assessment Programme (MyRAP) must continue to be implemented to adapt the evaluation to local situations and needs. This star rating programme can also be expanded to high-risk areas, such as schools and business activity zones.

SA 7.2 Improving the public transport chain infrastructure

Improving the connectivity and accessibility of public transport to encourage the modal shift from personal vehicle to public transport is a strategy that is encouraged at the international level to reduce deaths caused by road crashes.

IS 7.2.1 Improving infrastructure, access, and connectivity of public transport chains

The launch of Line 1 of the Mass Rapid Transit (MRT) on 17 July 2017 marked the beginning of a new era in intracity transport systems in Malaysia. Since the MRT began operation, there has been an increase in the number of railway and bus passengers with the daily average number of passengers increasing from 51.3 million in 2018 to 63.9 million in 2019. In 2020, the number of passengers decreased to 17 million per year due to the COVID-19 pandemic.

To improve the first and last mile connectivity services and support public transport usage, additional services such as e-hailing can be expanded besides active vehicle mode application, such as micromobility vehicles and walking.

However, there are still accessibility issues in public transport services especially in connecting residential areas with the city centre/activity centres, connecting the city centre with satellite towns, and between city centres and rural areas causing high dependence on personal vehicle usage in this country. Therefore, strategy 7.2.1 will emphasise infrastructure development to expand the accessibility and connectivity of the public transport system network.

IS 7.2.2 Promoting investment in public transport chain development

For the purpose of expanding access and providing an effective public transport service system, investment to develop this service sector must be increased.

Besides funding the acquisition of public transport vehicles, continuous investment is also highly crucial to fund the provision of public transport infrastructure to improve the quality of operator service and facilities for the public. The source of the investment may not necessarily be from the government but can also come from private sources.



5.6.8 SAFER VEHICLE

Under this priority area, the vehicles in question encompass all motor vehicles except mobile machinery (including manufacturing machinery and farming machinery), motorcycles, and micromobility vehicles. The main focus of this priority area is to increase vehicle safety in terms of roadworthiness and the application of active safety and passive safety in the vehicles involved.

Based on road crash statistics from PDRM for 2010-2019, the number of deaths caused by road crashes involving a motorcar or car is the second highest after motorcycles. Factors associated with technical aspects of the vehicle have also been identified as one of the contributors to the occurrence of road crashes including those involving death, based on an in-depth investigation by MIROS as shown in Table 7.

Although 81.6% of newly registered passenger cars achieved a rating of at least 4 stars in 2015, there are still records of approximately five million cars that are older than 15 years. For this vehicle category, the safety level especially in terms of roadworthiness and technical safety specifications must be given attention to reduce the risk of a crash. Suitable approaches and strategies will be developed to improve the safety level of the vehicles involved.

Emphasis should also be given to expanding the application of smart technology in vehicles such as installing Advanced Driver Assistant System (ADAS) components such as Forward Collision Warning, Lane Changing, Driver Monitoring System, and so on. Adaptation of the technology and systems

developed related to autonomous vehicles can also be expanded such as the use of the radar, smart cameras, and sensors to make driving safer and more efficient. These high technologies have the potential to reduce the number of road crashes by reducing human interventions and errors during the vehicle driving phase.

MAIN OUTCOMES/MEASUREMENT INDICATORS

The achievement of this priority area will be measured or monitored using the following main indicators:

- IP 8.1 Number of road crashes involving cars
- IP 8.2 Number of deaths involving cars
- IP 8.3 Number of injuries involving cars
- IP 8.4 Number of road crashes involving lorries
- IP 8.5 Number of deaths involving lorries
- IP 8.6 Number of injuries involving lorries
- IP 8.7 Number of road crashes involving buses
- IP 8.8 Number of deaths involving buses
- IP 8.9 Number of injuries involving buses

SUB-AREAS AND ACTION PLANS

PA 8 consists of three Sub-areas (SA) and eight Implementation Strategies (IS) to achieve the main outcomes outlined. These scopes focus on the issue of roadworthiness especially involving existing vehicles, active and passive safety of vehicles, and preparation for the arrival of the new generation vehicles. A summary of all SA and IS for PA 8 is shown in Table 12.

Table 12: Scopes and strategies of PA 8

Sub-areas	Implementation Strategies
SA 8.1 Ensuring that vehicles on the road fulfil roadworthiness standards, especially for old vehicles	IS 8.1.1 Encouraging periodic personal vehicle inspections IS 8.1.2 Establishing a disposal mechanism for old vehicles
SA 8.2 Improving the level of vehicle safety in terms of active safety and passive safety	IS 8.2.1 Establishing centres of excellence for active and passive vehicle safety research and testing IS 8.2.2 Improving evaluation standards and mechanisms for active and passive vehicle safety based on local issues IS 8.2.3 Increasing the validity of the compliance and enforcement of regulations and standards related to passive and active safety systems for all types of vehicles IS 8.2.4 Increasing user awareness in selecting a safer vehicle
SA 8.3 Establishing an adaptation mechanism for the new generation cars technology	IS 8.3.1 Developing new legal bills and guidelines for new generation cars IS 8.3.2 Developing a safety testing mechanism and integrating smart infrastructure in new generation vehicles



DETAILS OF SA AND IS

SUB-AREAS

SA 8.1 Ensuring that vehicles on the road fulfil roadworthiness standards, especially for old vehicles

The implementation of New Car Assessment Program for Southeast Asia (ASEAN NCAP) and compliance with United Nations (UN) Technical Regulations, 1958 Agreement¹⁴ as a regulation in terms of Vehicle Type Approval (VTA) under the Road Transport Act 1987 [Act 333] has contributed to increased technical and manufacturing safety levels of new motor vehicles.

However, there are still shortcomings in terms of managing old vehicles that could pose a safety risk which must be addressed. The process of disposal or replacement of old vehicles also coincides with the Sustainable Development Goals (SDG) in environmental conservation through the recycling process. Therefore, efforts to establish an effective disposal and replacement mechanism for old vehicles are much needed.

Based on the stipulations of Act 333, only commercial vehicles are required to undergo periodic inspections according to the specified period. The main purpose of periodic inspections is to ensure the vehicle is safe to be used on the road.

However, personal motor vehicles are not obliged to undergo periodic inspections. Personal motor vehicle inspections are only required in specific situations such as in the application process for a change in vehicle ownership or on the instruction of the authorities.

Without mandatory periodic inspections, there is no standard and valid mechanism for determining the roadworthiness of a personal vehicle. Therefore, an initiative to make it mandatory to perform periodic inspections of personal vehicles should be studied further.

IMPLEMENTATION STRATEGIES

IS 8.1.1 Encouraging periodic personal vehicle inspections

For personal vehicles that have exceeded a certain age, incentives in the form of rewards can be used to encourage the owner to perform periodic inspections. Among the possible incentives that can be considered is a reduction in the LKM fee payment rate or a reduction in the motor vehicle insurance premium rate if the vehicle undergo periodic inspections.

In addition, awareness campaigns regarding the importance of periodic inspections should be carried out through various mediums to ensure that all vehicle owners are aware of the importance of periodic vehicle inspections.

IS 8.1.2 Establishing a disposal mechanism for old vehicles

Legislation, standards, and guidelines for the disposal of vehicles must be established to enable every vehicle owner and the industry to implement a disposal process that is more effective, safer, and protects the environment.

To encourage the development of the vehicle disposal industry, specific programmes can be provided to the industry and individuals. Among the programmes that can be carried out is establishing a policy to send old vehicles owned by government agencies for disposal. This step will serve as a starting point in developing the vehicle disposal industry in Malaysia.

¹⁴Agreement concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations (1958 Agreement). Malaysia is a treaty country to this Agreement.



SA 8.2 Improving the level of vehicle safety in terms of active and passive safety

In Malaysia, the Technical United Nations Regulations (UNR), 1958 Agreement was gazetted under the Motor Vehicles (Construction and Use) Rules, 1959.

As of 2020, 114 UNRs had been gazetted out of the total of 157 UNRs¹⁵. The adaptation of UNR is one of the recommendations of **Stockholm Declaration and UN Conference Resolution 74/299** that have been implemented by the Malaysian government.

Adaptation of the UNR will be continued to ensure that evaluation, compliance, testing, and certification systems are in line with international development and will be a main condition under the Vehicle Type Approval (VTA).

In addition, ASEAN NCAP is also one of the efforts to improve the level of vehicle safety in Malaysia. The star rating programme has helped expand the use of vehicle safety technology such as airbags for the driver's seat and front passenger, electronic stability control (ESC), and seatbelt application reminder systems.

According to ASEAN NCAP 2017-2020 protocol, a vehicle must be equipped with ESC technology to receive a four star rating. In 2019, 84.6% of vehicle models received a four star and above rating out of the 13 vehicle models tested.

This shows that the programme is proven effective in upgrading the level of new vehicle safety components in this country. This success was achieved because the star rating based on a car's level of safety has been used as a reference by road users when buying a new car. Evaluation programmes like this will be continued, grown, and expanded upon to improve the safety level of all vehicles in Malaysia.

¹⁵<https://unece.org/trans/main/wp29/wp29regs>

IS 8.2.1 Establishing centres of excellence for active and passive vehicle safety research and testing

The effectiveness of active and passive safety systems in a vehicle is important to reduce the risk of road crashes and the severity of collisions. To ensure the active and passive safety systems are always relevant and in sync with the current requirements, continuous research and testing need to be carried out.

A centre of excellence can serve as a platform for the relevant industry, security experts, and researchers to conduct high-quality study and testing as well as to support the effectiveness of the monitoring mechanism on compliance with the VTA framework at the domestic level. These activities will ultimately be able to contribute to improving the level of vehicle safety in the aspects of crashworthiness, visibility, collision prevention, and others.

IS 8.2.2 Improving evaluation standards and mechanisms for active and passive vehicle safety based on local issues

Activities related to studies, development, and improvement of vehicle technical standards will be boosted through the implementation of this strategy. The need for new legislation and standards will also be studied based on local issues such as road conditions, mixed traffic, and driver behaviour.

Other UNR adaptations under the 1958 Agreement will be scrutinised further in terms of their appropriateness in the context of Malaysia.

Both of these actions will ensure continuous improvements can occur in the aspects of active and passive vehicle safety.

Vehicle safety evaluation programmes will continue by upgrading the evaluation criteria for active and passive safety involving automatic emergency break (AEB) technology, blind spot detection system, and Adaptive Cruise Control (ACC). These vehicle safety evaluations can also be extended to used vehicles using crash data analysis similar to what is being implemented in New Zealand, which is the Used Car Safety Ratings (UCSR).

IS 8.2.3 Increasing the validity of the compliance and enforcement of regulations and standards related to passive and active safety systems for all types of vehicles

Efforts to develop a monitoring mechanism for compliance with the UN Regulations must be undertaken in order to improve the level of compliance for all vehicle types, especially cars, buses, and lorries.



SUB-AREAS

IMPLEMENTATION STRATEGIES

Several regulations such as UNR62 and UNR66 pertaining to technical approval for the vehicle structure and MS828 standards pertaining to reflector attachments on vehicles were gazetted several years ago. However, compliance with the regulations and standards is low because it is not supported by enforcement activities for compliance with the regulations and standards.

Infrastructure for testing compliance with standards must also be developed on domestic level to that the effectiveness of safety systems can be verified by the authorities.

IS 8.2.4 Increasing user awareness in selecting a safer vehicle

The importance of active and passive safety technology must be communicated to road users through various communication mediums. For example, vehicle salespersons must be responsible in explaining the functions of safety components to road users and the limitations of the technology to prevent misuse by vehicle drivers. Besides that, the safety evaluation can also be extended to the used vehicle market so that road users will include safety as one of the selection factors.

SA 8.3 Establishing an adaptation mechanism for the new generation cars technology

According to a study, 90% of road crashes are caused by human error¹⁶. Human behaviour, such as non-compliance with road laws, fatigue, and driving over the speed limit are among the main contributors of road crashes.

However, the emergence of new technology in artificial intelligence or AI has opened doors towards reducing or replacing the role of humans in driving a vehicle. Studies on new generation vehicles or autonomous vehicles that use AI technology are intensively being done in developed countries.

IS 8.3.1 Developing new legal bills and guidelines for new generation cars

Updates to existing laws and regulations must be implemented to support the use of the new generation vehicles in Malaysia. In contrast with the conventional vehicle, new generation vehicles will have a wider scope of automated driving. Various aspects must be inspected, including the liability towards automated vehicle driving, the safety of automated systems, and others.

SP 8.3.2 Developing a safety testing mechanism and integrating smart infrastructure in new generation vehicles

New generation and autonomous vehicles require real-time data such as road and environmental conditions, traffic flow, movement of other vehicles, road infrastructure data, and weather conditions to be able to function fully and safely.

Before the new generation vehicles including those with autonomous technology can be allowed on the road, comprehensive research and testing must be carried out to determine their safety. Therefore, the testing mechanisms for new generation vehicles must be developed for this purpose.

¹⁶National Motor Vehicle Crash Causation Survey, NHTSA, 2015

The international Society of Automotive Engineers (SAE) has set six levels of autonomous driving for autonomous vehicles, from the lowest level which is level zero, up to level five of autonomous driving which can perform the driving task fully autonomously. In preparing for the autonomous vehicles of the future, the Japanese government has acted by amending the acts and also approving the sale of level three autonomous vehicles in their country. Level three autonomous vehicles are able to carry out the driving task using a fully autonomous system in certain conditions such as during traffic congestions. This new technology opens up opportunities to reduce human error in driving vehicles. Therefore, Malaysia must start to prepare itself by developing suitable legislative bills, forming testing mechanisms, and integrating smart infrastructure with this new generation vehicles.

Efforts to intensify smart infrastructure development to support new generation and autonomous vehicle applications should also be undertaken in line with the plans in Malaysian ITS Blueprint 2019-2023.





5.6.9 SAFER MICROMOBILITY

Based on the definition in the Road Transport Act 1987 [Act 333], a micromobility vehicle is any vehicle powered by an electric power source, internal combustion engine or manpower, and has a maximum speed of 50 km/h. Among the examples of micromobility vehicles in the domestic context are bicycles, electric bicycles, mopeds, personal mobility aids (or mobility scooters), and electronic scooters.

PDRM crash data recorded the total deaths involving bicycles of 192 in 2010, which decreased to 107 in 2019 (see Figure 16).

Based on observations, it is apparent that the demand for micromobility vehicles has risen in Malaysia especially for recreation, sports, and personal transport needs in completing the public service provision at the First and Last Mile connectivity level, and in the development of green cities.

Micromobility vehicles are more widely used in city centres and tourist centres, such as Kuala Lumpur, Cyberjaya, and Putrajaya. The safety aspect in using such vehicles must be emphasised given that road crash cases involving micromobility vehicles and other vehicles have resulted in deaths in several other countries. Besides road crashes, uncontrolled usage will cause disruptions to the efficiency of land public transport and expose users to the risk of being cheated or others.

Therefore, to ensure the safe use of micromobility vehicles, compliance with road laws, and ultimately fulfilling the objective of its usage, legal rules and relevant guidelines must be established whether at the federal level or at the state and local authority level.

MAIN OUTCOMES/MEASUREMENT INDICATORS

The achievement of this priority area will be measured using the following main indicators:-

- IP 9.1 Number of road crashes involving micromobility vehicles
- IP 9.2 Number of injuries involving micromobility vehicles
- IP 9.3 Number of deaths involving micromobility vehicles

SUB-AREAS AND ACTION PLANS

PA 9 consists of two scopes and five strategies to achieve the main outcomes outlined. These scopes focus on the issues of micromobility vehicle usage management, micromobility vehicle usage awareness, and infrastructure allocated for micromobility vehicles. The Sub-areas and Implementation Strategies of PA 9 are shown in Table 13.

Figure 16: Total deaths involving bicycles in 2010-2019 (Source: RMP)

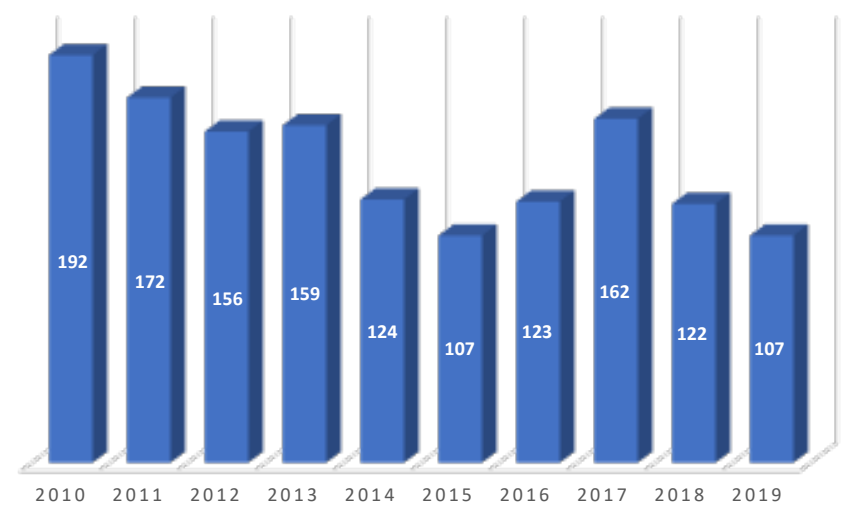


Table 13: Scopes and strategies of PA 9

Sub-areas	Implementation Strategies
SA 9.1 Creating a mechanism for the management and awareness of micromobility vehicle usage	IS 9.1.1 Improving the legal framework for micromobility vehicle usage IS 9.1.2 Implementing enforcement towards users of micromobility vehicles IS 9.1.3 Leveraging various mediums of communication to foster awareness of safe micromobility vehicle usage
SA 9.2 Expanding the infrastructure for micromobility vehicles in suitable locations	IS 9.2.1 Improving the guidelines and standards for micromobility vehicle infrastructure IS 9.2.2 Developing the infrastructure and designated lanes for micromobility vehicles at identified locations



DETAILS OF SA AND IS

SUB-AREAS

SA 9.1 Creating a mechanism for the management and awareness of micromobility usage

The use of micromobility vehicles on the road can pose a high risk of crashes with other vehicles owing to the large difference in size, control method, level of user competency in vehicle control, and difference in speed compared to other motor vehicles. A suitable legal framework and regulations must be developed to determine a safe method for the usage of micromobility vehicles.

IMPLEMENTATION STRATEGIES

IS 9.1.1 Improving the legal framework for micromobility vehicle usage

In developing the regulatory and legal framework, aspects such as permitted routes for micromobility vehicle usage according to the micromobility vehicle category must be considered. Due to the size and speed differences in micromobility vehicles, their use on highways, Federal Roads, and State Roads poses a high risk. Thus, the legal framework development must focus on the roads that will be considered for usage.

Besides that, the use of appropriate personal protective equipment (PPE) can be made mandatory while using micromobility vehicles.

IS 9.1.2 Implementing enforcement towards users of micromobility vehicles

Continuous enforcement must be implemented for the use of micromobility vehicles when its legislation has been gazetted. This will ensure that micromobility vehicles will be used at safe and permitted locations. Besides that, enforcement regarding the use of micromobility vehicles without PPE should be emphasised so a culture of safe micromobility vehicle usage can be cultivated.

SP9.1.3 Leveraging various mediums of communication to foster awareness of safe micromobility vehicle usage

Awareness campaigns can be organised using various mediums of communication so that the safety message can reach all road users regarding the best practices for safe micromobility vehicle usage. These campaigns focus on locations with high usage of micromobility vehicles. Messages such as using the PPE and using micromobility vehicles only on designated lanes may be delivered so micromobility vehicle users can learn the correct way to operate a micromobility vehicle.



SA 9.2 Expanding the infrastructure for micromobility vehicles in suitable locations

As one of the efforts to encourage a healthier lifestyle, the relevant authorities in Malaysia have provided designated lanes for cyclists. These designated lanes will also ensure that cyclists will be separated from the main traffic flow to avoid the risk of a collision. In this context, the provision of designated lanes for micromobility vehicles is crucial in guaranteeing safe usage.

Given that the usage of micromobility vehicles including bicycles will continue to increase, all the relevant parties should review the existing guidelines and standards so that designated lanes complete with safety features can be provided more extensively to users of micromobility vehicles.

IS 9.2.1 Improving the guidelines and standards for micromobility vehicle infrastructure

To guarantee users' safety, micromobility vehicles must only be used on the designated lanes. To ensure the safety is taken into consideration, studies on improving the guidelines and standards must be carried out to be in line with current needs. Given that each category of the micromobility vehicles differs in size and speed, guidelines for the related infrastructure development must consider every category of the micromobility vehicles according to needs and safety factors. Among the important aspects that must be reviewed are the width of the designated lane, colour of the lane paint, signboards, and speed limits for each category of the micromobility vehicles.

Using standardised guidelines will avoid confusion among users when they use micromobility vehicles in other areas.

SP 9.2.2 Developing the infrastructure and designated lanes for micromobility vehicles at identified locations

Studies need to be carried out to identify the areas that need the infrastructure and designated lanes for micromobility vehicles based on the projected micromobility vehicle usage. In such areas, micromobility vehicles can serve as the first and last connections in the public transport network. Therefore, this infrastructure construction should be considered together with the development of public transportation in a given area.



5.6.10 POST-CRASH MANAGEMENT

The number of injuries caused by road crashes in Malaysia referred to the healthcare system is a critical part of the healthcare system. This can be proven by the high number of injuries caused by road crashes every year, as shown in Figure 17.

Medical treatment in the hospital is also an important road safety intervention after simple aid and before treatment in the hospital, while recovery services in post-treatment care can be provided to road crash victims until the patients recover to their normal health.

TOTAL OF INJURY TYPES 2010-2019

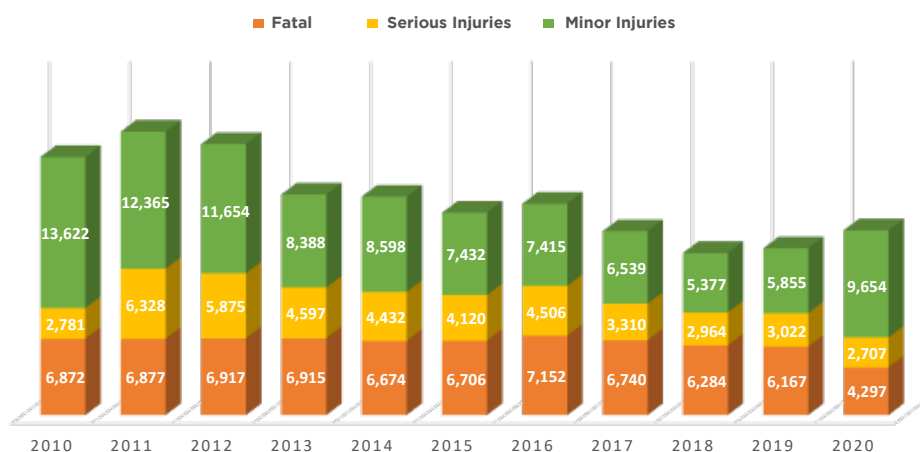


Figure 17: Number of deaths and injuries due to road crashes 2010-2019¹⁷

¹⁷Statistical Report for Road Accidents, 2019

NUMBER OF INJURED BODY REGION DUE TO ROAD CRASHES IN 2018



Figure 18: Categories of limb injuries by type of road crashes in 2018¹⁸

¹⁸Statistical Report for Road Accidents, 2018

Figure 18 shows the categories of limb injuries by type of crash. Head injuries have the highest death risk. Therefore, immediate emergency response after a road crash is crucial towards reducing the death risk of a victim. Simple and immediate aid by the public can save the lives of victims while waiting for the arrival of emergency personnel.

Medical treatment is related to the emphasis on post-crash management which must be improved, especially concerning the emergency response time. This encompasses the pre-hospital care system which involves removing the victim from their vehicle after a collision until the treatment and long-term recovery of the road crash victim.

Pre-hospital and Ambulance Services are important and critical services in providing medical services to the patients. These services include providing medical treatment and intervention for the patient or victim on-scene and during ward transfer between hospitals by trained officers under the supervision of a medical officer.

The consolidation of Malaysian emergency numbers is an initiative towards improving the emergency response. The response system becomes easier when there is only one central emergency number access, which is 999. Through this system, the coordinates of the emergency caller can be identified more accurately. In Malaysia, the Malaysian Emergency Response Services 999 (MERS 999) work together with four main agencies, namely the Ministry of Health Malaysia (MOH), PDRM, the Fire and Rescue Department of Malaysia (BOMBA), and the Malaysia Civil Defence Force (MCDF) in operating the crash management response. Currently, there are 21 Medical Emergency Coordinating Centres (MECC) throughout Malaysia.

After the patient has completed the treatment process, the next stage is rehabilitation. Rehabilitation is a process that helps patients recover after injury and plays a role in healing the patient so that they can become independent and return to work. The rehabilitation process includes care, treatment, and support at the maximum level

to enable the patient to become independent after being involved in a crash.

In summary, PA 10 is created to improve the efficiency of post-crash emergency response and to help the rehabilitation of road crash victims so that the patients can return to the community and carry out activities independently.

MAIN OUTCOMES/MEASUREMENT INDICATORS

The main outcomes/measurement indicators of PA 10, Post-Crash Management are as follows:

- IP 10.1 Percentage of medical emergency response time achieved
- IP 10.2 Number of certified first responders
- IP 10.3 Number of surgical and medical specialists in trauma treatment
- IP 10.4 Number of patients who return to work
- IP 10.5 Number of deaths involving trauma treatment (road crash)

SUB-AREAS AND ACTION PLANS

PA 10 consists of two Sub-areas (SA) and six Implementation Strategies (IS) to achieve the main outcomes outlined, as shown in Table 14.

Table 14: Sub-areas and Implementation Strategies of PA 10

Sub-areas	Implementation Strategies
SA 10.1 Improving emergency services response rates	IS 10.1.1 Improving the ambulance emergency response system to be able to provide assistance within the golden hour to road crash victims IS 10.1.2 Improving the pre-hospital trauma management system IS 10.1.3 Expanding the first responder service capacity within communities
SA 10.2 Improving trauma treatment services in hospitals, rehabilitation, and social integration	IS 10.2.1 Improving trauma management systems in hospitals IS 10.2.2 Enhancing and expanding the coverage of rehabilitation services IS 10.2.3 Helping with the recovery of road crash victims who suffer injuries or loss of ability so that they can return to their community or perform activities independently

DETAILS OF SA AND IS

SUB-AREAS	IMPLEMENTATION STRATEGIES
<p>SA 10.1 Improving emergency services response rates</p> <p>Continuous cooperation between the government agencies involved and NGOs must be strengthened at all levels in order to improve emergency response operations. Human resource and ambulance constraints are the main challenges in ensuring that each case is acted upon within 15 minutes or less (for priority 1 life-threatening cases). In 2018, the MOH had a total of 2,033 ambulances throughout Malaysia. However, this number could not accommodate the extremely high demand for service. Besides that, traffic congestion, geographical location of road crashes, and limited telecommunication network coverage are also major challenges in ensuring that emergency response can be provided immediately. The average achievement of ambulance emergency response time for priority 1 cases has not reached 100% due to the obstacles mentioned above.</p> <p>To overcome these obstacles, effective from 2014, St. John Ambulance Malaysia (SJAM) and the Red Crescent Society (PBSM) have given their cooperation by locating their ambulances at hotspot areas in Klang Valley. This initiative was continued in 2016 by the MOH with the cooperation of BOMBA to improve the emergency response operation time while carrying out pre-hospital and ambulance services. Meanwhile, ambulance response time is monitored and prioritised for areas with high emergency call rates for life-threatening cases. Although the average achievement for priority 1 cases has not reached its target, the average dispatch time has reached 100% of below five minutes.</p>	<p>IS 10.1.1 Improving the ambulance emergency response system to be able to provide assistance within the golden hour to road crash victims</p> <p>The MOH is leading the governance system in improving pre-hospital and ambulance services. All the ambulance services provided by government agencies, NGOs, universities, and the private sector can be regulated systematically by the MOH. Effective and holistic coordination is imperative for a quick emergency response process, from dispatching the ambulance to the crash site until the victims are sent to the nearest hospital capable of treating them according to their particular case.</p> <p>Highway concession authorities can also help in increasing the resource improvement such as in the procurement of ambulance vehicles, provision of ambulance services, or emergency dispatch teams on highways to provide emergency first aid to road crash victims. For example, establishing motorcycle ambulance units equipped with basic equipment in high traffic areas is a way that can provide victims with treatment within a short time period as a first aid measure.</p> <p>IS 10.1.2 Improving the pre-hospital trauma management system</p> <p>Enforcement agencies, highway concession authorities, and other agencies involved especially the first to arrive at the incident scene must be strengthened in terms of specialised training in emergency first aid to help the victims of road crashes. Meanwhile, all ambulance services are upgraded and must have full basic equipment and qualified medical personnel are dispatched according to the level of emergency. Furthermore, through the National Trauma Policy that will be implemented, the treatment and care system for trauma patients will be implemented more structurally, such as in the level of treatment needed in the hospital and location of the hospital. This system emphasises the importance of comprehensive treatment and care in all areas of trauma clinical specialisation starting from the pre-hospital stage until rehabilitation to attain the best results.</p> <p>IS 10.1.3 Expanding the first responder service capacity within communities</p> <p>In ensuring early response action while waiting for medical personnel to arrive at the incident location, training and certification should be given to the public or relevant communities regarding emergency first aid for road crash victims. Training modules for volunteers has been prepared by the MOH and this training can be provided through various community platforms such as the Healthy Community Country Builder (KOSPEN) Programme and the Kampung Community Management Council (MPKK).</p>

SA 10.2 Improving trauma treatment services in hospitals, rehabilitation, and social integration

Emergency and Trauma Departments are made available throughout the country to treat trauma cases. Trauma cases are managed multi-disciplinarily involving various areas of specialisation. Trauma victims will be referred to a nearby specialist hospital for hospitals without a certain specialisation.

Currently, rehabilitation has been identified as one of the health strategies to restore or maintain the roles of individuals in the community including individuals who suffered injuries after a road crash. Rehabilitation strategies encompass three things: the ageing population, increase in non-communicable diseases, and its link to the increase in the level of disabled individuals.

The MOH constantly endeavours to improve the quality of delivery for rehabilitation medical services. Currently, there are 72 rehabilitation medical specialists in 20 MOH-owned hospitals across the country. Health access is enhanced by assigning more rehabilitation specialists at hospitals that do not yet have specialists. Besides KKM hospitals, physiotherapists and therapists are also assigned at health clinics to provide rehabilitation treatment at the community level.

The MOH provides treatment to every layer of society from infancy to the geriatric level. The aim of rehabilitation is to enable the patient to return to the community and carry out Activity of Daily Living (ADL) independently. In 2018, through the PERKESO Return to Work (RTW) programme, a total of 3,829 insured people joined the programme and successfully recovered compared to the initial target of 3,100 people. Since the programme was launched in 2017, 21,966 participants have successfully recovered and returned to the workforce.

IS 10.2.1 Improving trauma management systems in hospitals

Trauma management systems can be reinforced by providing training to medical staff such as Trauma Life Support and Advanced Trauma Life Support. Besides that, infrastructure improvements such as providing Damage Control Resuscitation Suites or Trauma Suites in several hospitals in stages can also be reinforced. To provide the best service at the Emergency and Trauma Department, the human resource capacity, especially trauma specialists, must be increased to provide better treatments. Thus, equipment improvement and upgrading, as well as the number of medical rehabilitation specialists in the Emergency and Trauma Department at all hospitals, should be increased.

IS 10.2.2 Enhancing and expanding the coverage of rehabilitation services

Medical rehabilitation services must be upgraded and reinforced throughout Malaysia. The necessary upgrades are in terms of the existing facilities, placement, and two-way cooperation between rehabilitation hospitals. For example, for the continuity of rehabilitation treatment, the patient will be referred to SOCSO Rehabilitation Centre Melaka when the patient is ready to return to work and is eligible for compensation. Likewise, in the case where a patient from SOCSO Rehabilitation Centre Melaka needs to undergo acute rehabilitation, they will be referred to Cheras Rehabilitation Hospital.

IS 10.2.3 Helping with the recovery of road crash victims who suffer injuries or loss of ability so that they can return to their community or perform activities independently

The rehabilitation programme provided is intensive and comprehensive for all victims of road crashes. Assistance by medical professionals from various disciplines can help the victims return to work and become more independent in their daily lives. Recovery assistance provided through the disability management system and medical care to the patient includes the Return-to-Work programme conducted by SOCSO, which helps its contributors who are injured or suffering from disease to recover and return to work sooner, healthier, and safer.



6.0



6.0 SUMMARY

The Malaysian Road Safety Plan (MRSP) 2022-2030 has set a vision to make **“Malaysia, a country with zero road fatality”** as proof of Government’s continuous commitment to elevate road safety and protect the welfare of all road users in Malaysia. MRSP 2022-2030 has also set a mission to **“Engendering the culture of road safety towards the nation’s prosperity”**. The mission is to encourage society’s change of on the safety aspects and compliance with road rules and subsequently becomes the norm.

As a form of key measurement achievement, MRSP 2022-2030 has set a target to achieve reduction in the number of road fatalities by at least 50 percent in 2030 compared to the number of deaths recorded in 2019. This direction is also in line with the call and target of Resolution 74/299, in which the United Nations (UN) has declared 2021-2030 as the second decade action for road safety immediately after the completion of the first decade of action in 2020.

As Malaysia’s third road safety plan, it takes into consideration various experiences, lessons, findings and takeaways from the previous two plans. Based on the feedback, recommendations,

data group and research findings of the studies that were carried out previously, a framework to improve the level of road safety for the decade 2022-2030 in Malaysia will focus on 10 priority areas covering 58 key strategies.

The strategies contained under these 10 priority areas will eventually drive the implementation of specific actions and road safety programs at the national level, at the state or regional level, and at the local level. The interaction, symbiosis, and synergy between various resources and levels of expertise at all Government’s administrative levels as well as the local community will be able to support the efforts in localizing and engendering the culture of road safety in the lives of Malaysians.

The key success in achieving all the targets as outlined in this plan is highly dependent on the support, commitment, and cooperation of all stakeholders. Therefore, all parties are invited to jointly mobilize energy, gather resources, and focus our determination to implement all the plans and strategies that have been organized in order to improve the people’s well-being and support the country’s socio-economic development for decades to come.



LIST OF STAKEHOLDERS INVOLVED IN DRAFTING MALAYSIA ROAD SAFETY PLAN 2022-2030

- Land Public Transport Agency
- Alliance for Safe Community
- Malaysia Civil Defence Force
- Asia Pacific University
- Child Passenger Safety Malaysia
- Kuala Lumpur City Hall
- Federation of Malaysia Consumers Associations
- Kuala Lumpur General Hospital
- Hospital Rehabilitasi Cheras
- Sungai Buloh Hospital
- Malaysia Automotive, Robotics and IoT Institute
- Fire and Rescue Department of Malaysia
- Malaysian Public Works Department
- Department of Occupational Safety and Health
- Road Transport Department Malaysia
- Malaysian Institute of Road Safety Research
- Department of Statistics Malaysia
- Department of Standard Malaysia
- Ministry of Youth and Sports Malaysia
- Ministry of Home Affair Malaysia
- Ministry of Works Malaysia
- Ministry of Health Malaysia
- Ministry of Finance Malaysia
- Ministry of Communications and Multimedia Malaysia
- Ministry of Women, Family and Community Development
- Ministry of Education Malaysia
- Ministry of Higher Education Malaysia
- Ministry of International Trade and Industry
- Ministry of Domestic Trade and Consumer Affair
- Ministry of Housing and Local Government Malaysia
- Ministry of Science, Technology and Innovation
- Ministry of Human Resources
- Malaysian Highway Authority
- Commercial Vehicle Licensing Board Sabah
- Commercial Vehicle Licensing Board Sarawak
- Penang Island City Council
- Sepang Municipal Council
- Malaysia Road and Transportation Safety Association
- Malaysian Automotive Association
- Motorcycle and Scooter Assemblers and Distributors Association of Malaysia
- National Institute of Occupational Safety & Health
- Pan Malaysia Bus Operators Association
- Putrajaya Corporation
- Red Crescent Society
- General Insurance Association of Malaysia
- Putrajaya Community Road Safety Education Association
- Malaysia Public Transport Users Association
- Malaysian P-hailing Sender Association
- Malay Express Bus Operators Association of Peninsular Malaysia
- Social Security Organization
- PLANMalaysia
- Royal Malaysian Police
- PUSPAKOM
- St. John Ambulans Malaysia
- The Institution of Engineers Malaysia
- The Malaysian Society for Occupational Safety and Health
- Unit Perancang Ekonomi, Jabatan Perdana Menteri
- Universiti Kebangsaan Malaysia
- Universiti Malaysia Pahang
- Universiti Malaysia Perlis
- Universiti Malaysia Sabah
- Universiti Malaysia Sarawak
- Universiti Putra Malaysia
- Universiti Pertahanan Nasional Malaysia
- Universiti Sains Malaysia
- Universiti Tun Hussein Onn Malaysia
- Universiti Utara Malaysia
- University Community Engagement



ABBREVIATIONS

ABS	Anti Breaking System
AwAS	Automated Awarenes Safety System
PA	Priority Area
COVID-19	Corona Virus Disease 2019
ISA	Intelligent Speed Adaptation
KDNK	Gross Domestic Product
UN	United Nation
RMP	Royal Malaysia Police
MCO	Movement Control Order
MRSP	Malaysia Road Safety Plan
RM	Ringgit Malaysia
SDG	Sustainable Development Goals
VTa	Vehicle Type Approval
YAB	The Honorary
YB	The Honorable
YBhg	Congregation
4E	Education Environment Enforcement Engineering

