

REVIEW OF ACTIVE MOBILITY REGULATIONS FOR SAFER PATH SHARING

Recommendations by the Active Mobility Advisory Panel

Submitted to Coordinating Minister for Infrastructure and Minister
for Transport, Mr Khaw Boon Wan on 24 August 2018

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1. Executive Summary

- 1.1 The Active Mobility Advisory Panel (AMAP) released its first set of recommendations on the rules and code of conduct for cycling and the use of personal mobility devices (PMDs) in March 2016. These recommendations were accepted by the Government, and incorporated into the Active Mobility Act (AMA). Over the past two years, the Panel has observed the growing popularity of active mobility modes of transport. This growth has been facilitated by an expanding cycling network and its supporting facilities.
- 1.2 Unfortunately, the increase in active mobility uptake has been accompanied by concerns about path safety due to a rise in the number of accidents on public paths. The Government has requested the Panel to review and update the active mobility regulations with a focus on ensuring safety for all users of public paths.
- 1.3 To deter reckless riding, foster rider responsibility, and facilitate enforcement efforts in tracking down errant riders, the Panel's first recommendation in February this year was the registration of electric scooters (e-scooters). The Panel is pleased to note that the Government has accepted this recommendation and will implement a registration framework by early 2019.
- 1.4 In April and May 2018, the Panel embarked on a nation-wide public consultation exercise to understand ground sentiments and guide our recommendations. The public consultation comprised three segments: (i) a public survey which received over 6,000 responses, (ii) a travel diary activity in which close to 100 participants rode bicycles or PMDs under set parameters and provided feedback on their experiences, and (iii) focus group discussion sessions involving about 100 participants in total. The Panel also engaged relevant industry players and experts on path safety.
- 1.5 During the public consultation exercise, while some participants felt that a lower speed limit might discourage use of active mobility devices, they recognised that a lower speed limit would give riders more time to react to unexpected scenarios. Participants also felt that, for the riders' own safety, they should slow down, stop, and look out for oncoming traffic before crossing roads, but agreed that dismounting and pushing their devices was not necessary. There was wide support for the use of helmets on roads as it would reduce the extent of injuries in the event of a collision, given the vulnerability of cyclists in close interaction with heavier vehicles.
- 1.6 In addition to the public consultation and engagements, Panel members also expressed the views of the communities that they represented, consulted other stakeholders and leveraged on their personal expertise and experience. After deliberating extensively, the Panel has decided to recommend the following:

- 1) Lower the speed limit on footpaths from 15km/h to 10km/h;

- 2) Mandate the practice of “stop and look out for oncoming traffic” at road crossings for all active mobility device users; and
- 3) Mandate wearing of helmets for active mobility device users travelling on the roads.

- 1.7 Many elderly and individuals who have walking difficulties travel around on personal mobility aids (PMAs) such as motorised wheelchairs or mobility scooters. To prevent abuse of motorised PMAs by able-bodied persons seeking to circumvent the e-scooter registration regime, and to preserve the use of PMAs for those who require mobility assistance, the Panel recommends introducing a maximum device speed criterion of 10km/h for motorised PMAs.
- 1.8 The Panel deliberated whether third party liability insurance should be made mandatory for active mobility device users. The Panel consulted relevant industry players and considered the impact of mandatory insurance on path users, including the diverse groups of active mobility device users. On balance, the Panel does not recommend mandating insurance at this point in time; instead, greater focus should be placed on the upstream prevention of accidents. The Panel continues to strongly encourage active mobility device users to take up personal and third party liability insurance. The Panel notes that some employers already voluntarily provide insurance to their employees who are active mobility device users, and proposes to work with the Government to encourage large employers of active mobility device users such as food delivery companies to provide adequate insurance.
- 1.9 Active mobility has become an integral part of our transport landscape and is a key component of a sustainable transport system in a liveable city environment. As the landscape evolves and matures, the Panel will continue to monitor the situation to assess if further refinements to the regulations are needed to support the take-up of active mobility in a safe, responsible, and sustainable manner. Such efforts will have to go hand-in-hand with continued educational efforts to promote the safe and gracious sharing of paths. After all, safety is ultimately the shared responsibility of all road and path users.

2. Background

A. THE ACTIVE MOBILITY ADVISORY PANEL

- 2.1 The Active Mobility Advisory Panel (AMAP) was set up in July 2015 to deliberate on the rules and regulations that govern the active mobility landscape, which includes cycling and the use of personal mobility devices (PMDs). The Panel regularly reviews these rules and regulations to ensure that they remain relevant for a changing environment. The Panel comprises representatives from key active mobility stakeholder groups including seniors, youths, cyclists, motorists, users of PMDs, as well as grassroots leaders.
- 2.2 On 17 March 2016, the Panel recommended a set of rules and code of conduct for cycling and the use of PMDs on public paths such as footpaths and cycling/shared paths. These recommendations were accepted in full by the Government, and incorporated into the Active Mobility Act (AMA) which commenced on 1 May 2018.
- 2.3 In 2018, the Panel commenced a second review with a focus on improving safety on public paths. The resultant recommendations are set out in this report.

B. TAKING STOCK: IMPROVEMENTS IN INFRASTRUCTURE, REGULATIONS AND EDUCATION

- 2.4 In the two years since the Panel submitted its first recommendations to the Government, the Panel has seen many positive developments in the active mobility landscape in Singapore.
- 2.5 **Infrastructure:** The Panel has observed that more cycling paths have been built. With the completion of dedicated cycling networks in housing estates such as Ang Mo Kio, Bedok and Jurong Lake District, the expansion of the Park Connector Network, and the improvement of supporting facilities such as bicycle parking areas, bicycle crossings and map-boards, it has now become more convenient, accessible and safe for people to use bicycles and PMDs for commuting and recreation. Nevertheless, such infrastructural improvements will take time to be fully realised island-wide, and it is important that we continue cultivating a gracious path-sharing culture.



(Left) Launch of Jurong Lake District's cycling path network in Jul 2017; (Right) AMAP members using the new cycling paths in Bedok

- 2.6 Regulations:** The AMA came into force on 1 May 2018, implementing many of the Panel's earlier recommendations on the rules and code of conduct regulating riding behaviour on public paths as well as restrictions on the weight, width, and speed of devices. The Panel also recognises the active enforcement effort by agencies such as LTA and NParks to tackle reckless riding and speeding on public paths. This would help allay concerns of pedestrians and over time, instil and ensure a safe riding culture.
- 2.7 Education:** While enforcement is necessary to punish and deter the minority of errant riders, education plays an even more important role to ensure that all riders understand the necessity of sharing paths safely and graciously, as well as practising safe riding behaviours in accordance with the rules and code of conduct. The Panel thus provided input into the syllabus and format of the Safe Riding Programme developed by LTA and the Singapore Road Safety Council, which has been rolled out since February 2018. The Panel has also recommended that the Government complement the regulations with stronger public education and enforcement efforts.
- 2.8** There have also been several campaigns on safe riding. This includes a recent nation-wide publicity campaign to educate the public of the new rules and code of conduct under the AMA. LTA has also introduced the Active Mobility Patrol Volunteer Programme to encourage community participation in promoting good social grace and path sharing culture.



(Left) Active Mobility Act campaign in Berita Minggu newspaper; (Top Right & Bottom Right) Safe Riding Programme

C. CURRENT LANDSCAPE

- 2.9 The Panel is pleased to observe an increase in the take-up in active mobility, be it for short journeys within residential towns or first and last mile trips to transport nodes such as MRT stations and bus interchanges. This is a positive development and we are glad that many people have found it convenient to use active mobility modes of transport to get around. As active mobility becomes a viable mode of transport for more people, it will help alleviate the traffic congestion on roads today, and at the same time reduce carbon emissions and promote healthy lifestyles.
- 2.10 Nevertheless, while cycling has been around for a long time, the use of motorised PMDs is still a relatively new phenomenon which is growing in popularity. As with the introduction of any new mode of transport, it will take time for all user groups to adjust, and for existing path users like pedestrians to get used to the presence of PMDs on public paths.
- 2.11 It is important to address emerging behaviours expediently to lay a strong foundation for the future. The Panel has noticed a growing number of reckless e-scooter riders, endangering themselves as well as other path and road users. This has led to a significant increase in the number of reported accidents involving PMDs, bicycles and power-assisted bicycles (PABs) on public paths, from 19 in 2015 to 42 in 2016 and to 128 in 2017. A number of them have resulted in serious injuries. We have also heard feedback from motorists that the reckless behaviour of cyclists and PMDs at road crossings have resulted in many accidents or near misses involving motor vehicles and active mobility device users.
- 2.12 Amidst this backdrop, many members of public have expressed strong concerns about safety and requested for additional regulations on active mobility device users. These range from the registration of PMDs, the lowering of speed limits, to more drastic measures such as the complete ban of motorised devices from footpaths. There have also been questions about recourse to compensation for victims of active mobility-related accidents. On the other hand, certain active mobility groups have requested for a relaxation of the rules to facilitate greater uptake and easier use of active mobility devices. PMD interest groups and food delivery riders have requested to raise the device weight limit of 20kg to improve the stability of their devices, while others have strongly resisted any regulations that would raise the costs of active mobility such as mandatory insurance.
- 2.13 It is the Panel's responsibility to balance these competing views and consider what is in the larger and long-term interest of Singapore and its residents. The use of active mobility is and has become a key part of the transport landscape, benefitting many people from different walks of life who use active mobility as a convenient and cheap form of transport, especially for first and last mile journeys and short commutes. At the same time, safety remains paramount and must take precedence over pure convenience. It is the Panel's view that with the proper environment, education and enforcement, active mobility usage can continue to grow while maintaining public paths as a safe space for all users.

2.14 Hence, the Panel has embarked on a review of the rules and code of conduct in areas that will improve the safety of not just other path users, but also active mobility device users themselves. The Panel remains guided by three key principles which have remained constant since the Panel's formation:

- 1) Safety is the key priority;
- 2) Rules should be simple and clear; and
- 3) Rules and code of conduct should strike a good balance between the competing needs of different users.

2.15 The review areas are (1) the registration of e-scooters and correspondingly, (2) the tightening of regulations to prevent the abuse of personal mobility aids, (3) the speed limits on footpaths, (4) the behaviour of active mobility device users at crossings, (5) the use of helmets, and (6) the requirement for third party liability insurance.

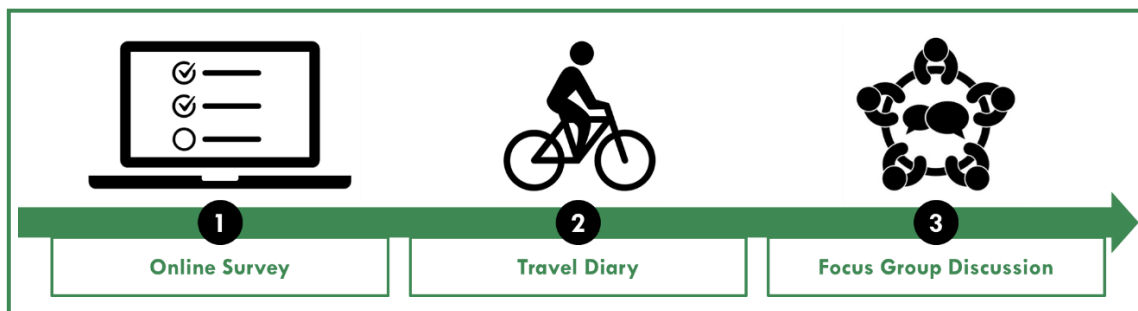


Participants practising safe riding behaviours during the 90-min Safe Riding Programme

3. Public Consultation and Engagement Process

- 3.1 To ensure that the needs and perspectives of all stakeholders are taken into consideration, the Panel carried out a nation-wide public consultation exercise and engaged relevant industry players and experts.

A. PUBLIC CONSULTATION



Public consultation process adopted by the Panel to gather views from the public

- 3.2 To gather feedback on the speed limit on footpaths, behaviour at road crossings and use of helmets, the public consultation exercise comprised three segments: (i) a public survey, (ii) a travel diary activity, and (iii) a series of focus group discussions. This allowed the Panel to gather both quantitative and qualitative insights to inform its deliberations.

i. Public Survey

- 3.3 The survey was available online throughout the month of April 2018 and received over 6,000 responses from the public, with participation from all demographic groups and path user groups including pedestrians, cyclists, and PMD users.

- 3.4 Key findings from the survey are:

- 77% of respondents supported a lowering of the existing speed limit from 15km/h on footpaths (see [Figure 1](#))
- 60% of respondents felt that active mobility device users should slow down or stop and look out for oncoming traffic before riding across, as compared to 39% of respondents who felt that active mobility device users should dismount and push their devices (see [Figure 2](#))
- 77% of respondents felt that the wearing of helmets should be mandatory on roads (see [Figure 3](#))

Figure 1: Results from survey question on what should be the maximum speed that cyclists and PMD users are allowed to travel on footpaths

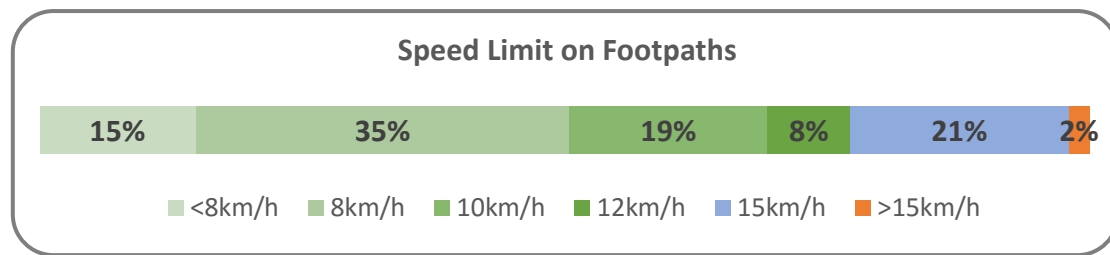


Figure 2: Results from survey question on what cyclists and PMD users should do at road crossings

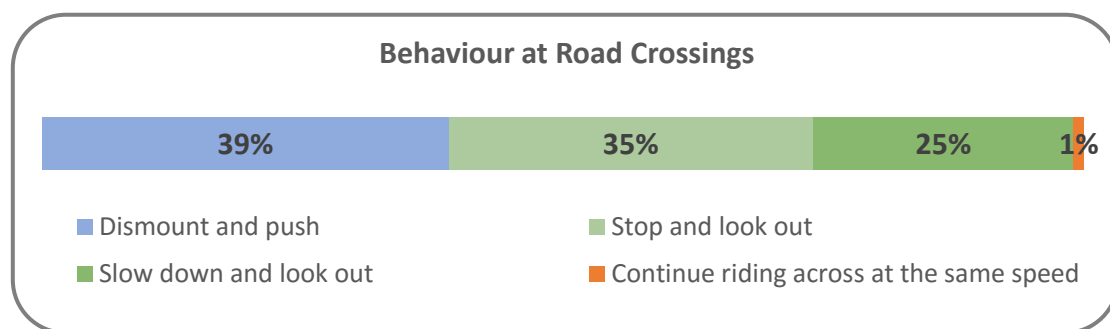
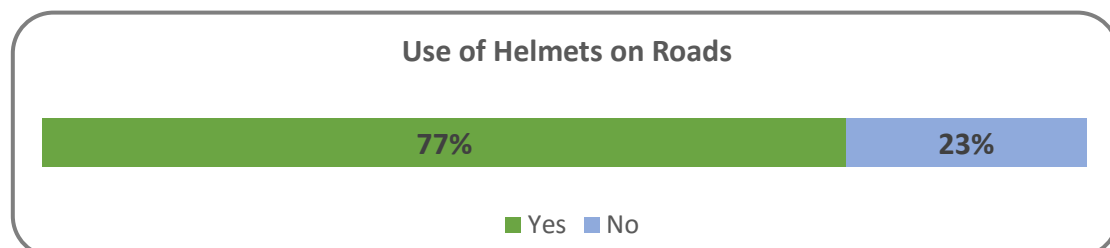


Figure 3: Results from survey question on whether it should be mandatory for all cyclists riding on the roads to wear helmets



ii. Travel Diary

- 3.5 Under the travel diary activity organised throughout May 2018, participants were tasked with (i) riding bicycles or PMDs under various specified speed limits and (ii) practising certain behaviours at road crossings, such as 'dismount and push' or 'stop and look out'. They recorded their experiences in a travel diary and noted down the challenges in adhering to the tasks given (see [Figure 4](#)). Close to 100 regular cyclists and PMD users completed this activity.

Figure 4: Feedback from Travel Diary Participants



Travelling within different speed limits	Practising different behaviours at road crossings
<p><i>"Slower speed gives time for the rider to react and avoid unpleasant situations."</i></p> <p><i>"In crowded areas such as bus stops, I would naturally slow down to below 12km/h or even 10km/h. But when the path is empty, I feel like I am hogging the path."</i></p> <p><i>"You need to be a good cyclist to be able to balance and ride smoothly at 10km/h, especially if you are carrying a load or a pillion rider."</i></p> <p><i>"If the speed limit is too low, it may well discourage cycling, especially if you cycle to commute."</i></p>	<p><i>"Stopping at crossings gives me time to check for drivers, because sometimes they may not see you. Even if it is not a rule, I would do this for my own safety."</i></p> <p><i>"Quite tiring to keep having to dismount, push, and get on again."</i></p> <p><i>"If I dismounted and walked alongside my PMD at crossings, I would actually be taking up more space."</i></p> <p><i>"It is good practice to slow down or stop at crossings, but if there are no cars approaching, this may not be necessary as it breaks the momentum."</i></p>

- 3.6 Most travel diary participants preferred travelling at higher speeds. In crowded areas such as bus stops, they found it acceptable to travel under 10km/h and 12km/h. Some participants shared that if the speed limit was lowered from the current 15km/h, it may discourage the use of active mobility devices for commuting.
- 3.7 With regard to behaviour at crossings (traffic light junctions, zebra crossings and informal crossings), participants generally felt that stopping and looking out before riding across was more acceptable than dismounting from their device at every crossing. They cautioned that dismounting repeatedly could be challenging especially for the elderly, or for those with a load or a pillion rider. Some also shared that if there were no cars approaching the crossing, it may not make sense to stop.

iii. Focus Group Discussions

- 3.8 Three focus group discussion (FGD) sessions were conducted in May 2018, involving about 100 participants in total. Each session had a good mix of participants including pedestrians, cyclists, PMD users, and motorists.
- 3.9 The FGD sessions began with an experiential component, where participants experienced e-scooter riders travelling past them at different speeds. This allowed all participants to appreciate how the numerical speed limits translate to an actual experience as a pedestrian. A video capturing reflections from participants of the travel diary activity was also screened.



(From top left in clockwise direction) AMAP Chairman Senior Parliamentary Secretary Faishal interacting with participants; A trained e-scooter rider travelling past participants at a designated speed; An AMAP member observing the discussions; AMAP members listening to views shared by participants

- 3.10 Following this, participants were organised into groups of 6 to 8 for small group discussions to exchange views on:
- Whether the speed limit on footpaths should be maintained or lowered;
 - Whether 'dismount and push' should be made a rule or kept as a guideline, and what other behavioural rules and guidelines could help improve safety at road crossings; and
 - Whether the use of helmets should be made mandatory.

- 3.11 Key findings and quotes from the discussions can be found in [Figures 5 to 7](#).

Figure 5: Key Findings and Quotes from Discussions on Speed Limit

“Pedestrians can be unpredictable in the paths they use. Kids also tend to run around. It would be hard for a cyclist who is going at 15km/h to change course or adapt to the way people walk.”

– Pedestrian

“At the end of the day, it is education and mutual understanding between the different users.”

– PMD User



Participants sharing the reasons why they felt the speed limit on footpaths should be lowered or maintained

Figure 6: Key Findings and Quotes from Discussions on Behaviour at Road Crossings

"I cycle to work. If I were to dismount to push, I will be getting off 30 times. It is ridiculous and very inconvenient."

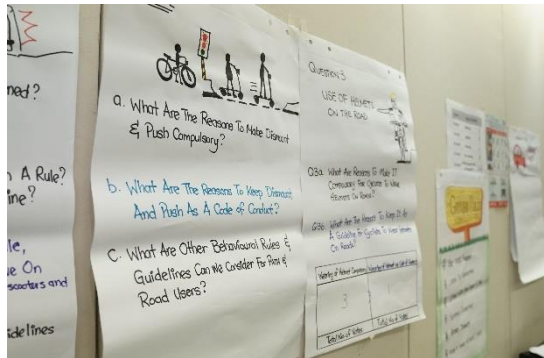
– Cyclist

"My own experience is that drivers sometimes do not slow down or stop for me. We should both stop and make eye contact."

– PMD User

"PMD users have to understand that they appear like pedestrians. As a driver when I look across to check my blind spot, I only see a person 20 feet away and I think that I can drive across the zebra crossing without needing to stop. They don't have to dismount. They just have to stop and look."

– Motorist



Participants having a rich exchange on what behaviours they felt should be exhibited at road crossings

Figure 7: Key Findings and Quotes from Discussions on Use of Helmets

"A helmet is very important. I had a very bad experience personally. Even when travelling on a shared path at 25km/h, if you fall, a helmet can be life-saving."

– Road Cyclist

"You choose the road because you are going fast. As long as you are going fast, you should wear a helmet. I suggest to make it compulsory on the road."

– Cyclist

"What about the shared bike users who need to go on the roads sometimes, especially when the footpath disappears or is too crowded?"

– Shared Bike User



Participants sharing their views on whether they feel helmets should be mandatory when on roads

- 3.12 From the FGDs, most participants agreed that a lower speed limit on footpaths would give riders more time to react to unforeseen circumstances. Aside from the speed limit, participants felt that situational awareness and gracious behaviour were also important. Active mobility device users should slow down when there are pedestrians around, or when approaching a blind spot, and should alert others of their presence before passing by them.
- 3.13 With regard to behaviour at crossings, active mobility device users, particularly cyclists, felt that dismounting and pushing was not practical and voiced concerns about safety if the device was carrying a pillion rider or a load. Motorists also agreed that it would suffice for device users to stop and look out at road crossings before riding across. In addition, it was raised that

motorists should also stop or slow down at road crossings as safety is a shared responsibility. There were suggestions for both parties to make eye contact and signal their intent.

- 3.14 On the wearing of helmets, many participants felt that it was important for riders who use the road to do so for safety and protection. However, some also noted that there is a diverse user profile currently cycling on the roads without helmets, such as shared bicycle users, foreign workers and the elderly, and all would be affected should this be made a rule. Some participants also cautioned that mandating helmets may dampen the uptake of active mobility modes due to the added inconvenience and cost.



(Left) Participants from all walks of life sharing their views and experiences; (Right) A participant sharing the views raised in his small group discussion during the closing segment

B. INDUSTRY ENGAGEMENT

- 3.15 The Panel worked with the General Insurance Association to engage the insurance industry. The Panel found that there are existing products providing third-party liability insurance for active mobility device users such as the Personal Mobility Guard by NTUC Income, ePROTECT personal mobility by eTiQa and AA Personal Mobility Plus by Automobile Association of Singapore Insurance Agency (AAS-IA) and Liberty Insurance Pte Ltd. The Panel discussed how such products can be promoted to, and made more accessible to the public at large. The Panel also engaged agencies such as the Singapore Mediation Centre and the State Courts to understand other ways in which victims of active mobility related accidents can seek compensation.



- 3.16 Riders working for food delivery companies who use active mobility devices such as bicycles and PMDs are also a cause of concern amongst members of the public. Hence, the Panel engaged food delivery companies to understand the safety measures they have put in place to ensure the safety of their riders as well as other path users. We understand that some of them, such as Deliveroo, have purchased personal and third party liability insurance for all their riders, covering any third party claims against the riders in the event of an accident during the course of the rider's work.



(Left) AMAP Chairman and members observing a Safe Riding Programme conducted for food delivery riders; (Right) AMAP members meeting with Deliveroo representatives on third party liability insurance for their food delivery riders, as well as other initiatives to promote adoption of safe riding behaviours

3.17 The Panel also engaged with agencies involved in elder care or the disability community such as the Ministry of Social and Family Development, the Agency for Integrated Care, and voluntary welfare organisations like the Society for the Physically Disabled. This was to seek their views on the community members' needs for PMAs in terms of size, construction or speeds. The Panel learnt how PMAs had transformed the lives of many individuals by providing them with an option to overcome their walking difficulties. The Panel also learnt that the construction of PMAs would differ for individuals, depending on the amount of support they required. The Panel found that while some elderly users ride PMAs as a replacement for walking short to medium distances, there are some users who use PMAs for commuting over longer distances.

4. Panel's Recommendations

- 4.1 The Panel deliberated extensively on the findings of the public consultation exercise and industry engagements. The Panel members also solicited views from the communities they represented, and fed these back to the Panel during the discussions. After much deliberation, the Panel makes the following recommendations to enhance the safety of pedestrians as well as the safety of active mobility device users.

A. ENHANCING THE SAFETY OF PEDESTRIANS

i. E-Scooter Registration

- 4.2 The Panel recognised that there has been a growing number of e-scooter riders traveling in an inconsiderate and reckless manner, endangering themselves and other path users. Therefore, in February 2018, the Panel recommended the mandatory registration of e-scooters on public paths to deter reckless riding, foster greater rider responsibility, and facilitate enforcement efforts in tracking down errant riders (see [Annex A](#) for AMAP's recommendation letter).
- 4.3 The Panel recommended not to require mandatory registration for other types of PMDs such as electric hoverboards and unicycles as their usage is less widespread and their speeds are lower when used. Instead, the Panel recommended to closely monitor the ground situation to assess the need for future measures going forward. The Panel also recommended that PMAs such as motorised wheelchairs and mobility scooters be exempted from registration as they are meant to provide mobility for the mobility challenged.
- 4.4 We are glad that the Government has accepted our recommendations and will be implementing an e-scooter registration regime from early 2019.

ii. Device Criteria for Personal Mobility Aids

- 4.5 As PMAs are meant to provide mobility options to those who are mobility challenged, e.g. the elderly or the disabled, there are currently fewer regulations on these devices. Unlike PMDs, PMAs are allowed to travel on pedestrian-only paths¹, and are not subject to regulations limiting their weight, width and speed. PMAs also fall outside the scope of the e-scooter registration regime.
- 4.6 However, the Panel has noted that there have been some retailers falsely advertising overweight e-scooters or e-scooters with seats as motorised PMAs, as well as able-bodied persons misusing motorised PMAs. PMAs should not be used as a means for retailers or able-

¹ Pedestrian-only paths generally refer to pedestrian overhead bridges and certain bridges with low railing height and steep ramps. Cycling and the riding of PMDs are not allowed on pedestrian-only paths.

bodied users to circumvent the PMD regulations and the upcoming e-scooter registration regime.

- 4.7 To safeguard the use of such devices for those with genuine mobility challenges, the Panel recommends introducing a maximum device speed criterion of 10km/h for motorised PMAs. This will reduce the incentive for able-bodied persons to switch to motorised PMAs as they will be subject to a lower device speed than the 25km/h allowed for motorised PMDs. The Panel understood from its engagements with occupational therapists that for their patients' safety, they do not generally recommend devices that travel above 10km/h to their patients. PMAs are also generally heavier and wider than PMDs as they need to provide support and stability to those with mobility challenges. Given this, and the allowance of PMAs to be used on pedestrian-only paths, it is all the more important that their device speed be limited, rather than allowing them to potentially travel up to 25km/h on shared paths.
- 4.8 This recommendation should not be too onerous on genuine PMA users, since most PMAs today already comply with this criterion. This is in contrast to other options that were considered, such as the implementation of a registration regime for PMAs or the requirement for users to prove that they have walking difficulties.

iii. Speed Limit on Footpaths

- 4.9 In 2016, the Panel had recommended a footpath speed limit of 15km/h. However, in the two years since, the Panel has heard strong concerns from the general public that 15km/h is too fast for footpaths. This is because footpaths experience heavy pedestrian traffic, with many vulnerable path users like the elderly and children. Footpaths are also narrower than shared/cycling paths, causing active mobility devices to pass by pedestrians at close proximity, thereby making pedestrians feel unsafe if devices are travelling at fast speeds. Moreover, footpaths may have tight bends or blind spots, or interact with passengers alighting from buses or cars. These necessitate a lower speed limit for travel on footpaths.
- 4.10 The feedback received by the Panel through the public consultation exercise generally supported a lowering of the speed limit on footpaths. This will allow for more time for the active mobility device user and other path users to react in unforeseen circumstances, and lower the severity of injuries if accidents do occur. The Panel therefore recommends lowering the speed limit on footpaths from 15km/h to 10km/h. We note that some users have expressed concern that a lower speed limit may dampen the uptake of active mobility. However, given the significant increase in active mobility accidents, we are of the view that this lower speed limit is necessary at this point in time to improve safety on public paths.
- 4.11 Riders should always exercise due care and consideration for other users by not travelling too fast relative to pedestrians whom they share the paths with. They should always give way to pedestrians and slow down when approaching crowded areas or blind spots. Overtaking and passing of pedestrians should only be done at walking speed. At the same time, pedestrians

should stay aware when travelling on public paths, and proactively look out for devices in their vicinity. The Panel therefore recommends strengthening educational efforts for both pedestrians and active mobility device users to better guide them on what to expect and how to share the paths safely.

B. ENHANCING THE SAFETY OF ACTIVE MOBILITY DEVICE USERS

i. Behaviour at Road Crossings

4.12 The Panel consulted both active mobility device users and motorists in considering what the appropriate behaviour at road crossings should be. It was emphasised that the predictability of behaviour was very important. For example, motorists expressed the concern that it was not easy to tell whether an individual was a pedestrian or a PMD user, and thus it was difficult to gauge whether they had sufficient time to drive across the crossing. In addition, PMD users who travel fast could suddenly appear in their line of sight, leaving them with little time to react. On the other hand, PMD users shared that it was not clear whether motorists would stop to allow the PMD user to cross.

4.13 Thus, the Panel recommends making it mandatory for active mobility device users to stop and look out at road crossings before riding across at a slow speed. This would provide more reaction time for both active mobility device users and motorists, improve the predictability of behaviours at crossings and reduce the risk of accidents. The Panel also recognises that motorists have a part to play in ensuring safety at road crossings. Thus, the Panel also strongly encourages motorists to likewise slow down at crossings, and stop for all path users who are crossing, including cyclists, PMD users and pedestrians. The Panel also recommends continual education of the respective road users on the safe behaviours to practise at road crossings.

ii. Use of Helmets

4.14 For riders' safety, the Panel recommends to mandate the use of helmets when travelling on the roads. In practice, this will only apply to cyclists on roads as PMDs are not allowed on the roads under the Road Traffic Act. On roads, cyclists travel alongside larger and faster vehicles, and are the most vulnerable users. In the event of an accident, wearing a protective helmet would reduce the impact and injuries suffered by the rider. This is also in line with existing rules requiring PAB riders and passengers to wear helmets when on the roads to ensure rider safety.

4.15 Noting feedback and overseas studies that implementing such a rule off-roads could dampen the uptake of active mobility, the Panel does not recommend mandating the use of helmets off-roads, where speeds are slower and cyclists are not considered the more vulnerable party. Nevertheless, cyclists and PMD users travelling on footpaths and cycling/shared paths are strongly encouraged to wear helmets for their own safety.

- 4.16 The Panel does not intend for the mandatory helmet rule to apply to riders who are crossing the road as part of their journey on footpaths and cycling/shared paths, or riders who are temporarily on the road to avoid an obstruction.

iii. Insurance and Compensation Framework

- 4.17 With the registration of e-scooters, the lowering of speed limit on footpaths from 15km/h to 10km/h, and the maturing of Singapore's path-sharing culture, the Panel hopes that the incidences of serious accidents will reduce over time.
- 4.18 There have been calls to mandate the purchase of third party liability insurance by all active mobility device users, to ensure that there is adequate compensation in the event of accidents. However, the Panel also notes that there is great diversity in device users, from the elderly individual cycling to the market for groceries, to families with young children cycling or using PMDs in the parks for leisure. Mandating third party liability insurance at this point in time may significantly reduce the uptake of active mobility. On balance, the Panel does not recommend mandating insurance at this point in time; instead, greater focus should be placed on the upstream prevention of accidents. Nevertheless, the Panel strongly encourages all frequent active mobility device users to purchase third party liability insurance to protect themselves against claims made by a third party in the event of an accident.
- 4.19 The Panel also notes that there are several avenues for accident victims to seek compensation. The Panel recommends raising awareness of and accessibility to these existing avenues of seeking compensation, such as by encouraging mediation as a form of dispute settlement and explaining the process of initiating a civil suit in a more simplified manner. For this, the Panel recommends that LTA work with associations such as Singapore Mediation Centre and the Law Society of Singapore.
- 4.20 Furthermore, the Panel recommends for LTA to work with various key stakeholders to encourage the uptake of third party liability insurance. LTA could work with the Workplace Safety and Health Council to encourage food delivery companies to ensure that their riders are covered by third party liability insurance. LTA could also engage retailers to offer third party liability insurance with the sale of active mobility devices, and interest groups to tie up with insurance providers to offer third party liability insurance to their members.

5. Conclusion

- 5.1 The Panel's recommendations in this report are focused on creating a safer environment for all, taking into consideration the evolving active mobility landscape. The above recommendations, if taken on board by the Government, should be implemented as soon as possible. We should also place more emphasis on ensuring active mobility device users exercise due care and diligence when sharing paths and roads.
- 5.2 Safety is a shared responsibility between all road and path users. The Panel also recognises the importance of educating pedestrians and motorists on the active mobility rules and code of conduct. Over time, through continued education, we hope to build up behavioural norms for safe and gracious sharing of space and reduce the occurrence of accidents.
- 5.3 We will continue to monitor the situation to assess if further refinements are needed in order to facilitate the take-up of active mobility in a safe, responsible, and sustainable manner.

6. Acknowledgements

- 6.1 The Panel would like to thank all who generously shared your feedback and suggestions through the public survey, travel diary activity, focus group discussions, as well as other channels. The Panel would also like to thank the respective organisations and companies who met and engaged with us. Your views have been essential in helping us arrive at the recommendations in this report.

ANNEX

Annex A: AMAP's Recommendation Letter to Register Electric Scooters

22 February 2018

Mr Khaw Boon Wan
Coordinating Minister for Infrastructure
Minister for Transport

Dear *Minister Khaw*,

RECOMMENDATION ON THE REGISTRATION OF ELECTRIC SCOOTERS

The Active Mobility Advisory Panel (AMAP) submitted its recommendations on the rules and code of conduct for cycling and the use of personal mobility devices (PMDs) in March 2016. Since then, we have observed that most active mobility users ride on public paths in a safe and gracious manner. We should continue to encourage such positive behaviour going forward.

However, the Panel has also observed that there has been a growing number of electric scooter ('e-scooter') riders travelling in an inconsiderate and reckless manner. This endangers themselves as well as other path users, and has led to an increase in the number of PMD-related accidents on public paths. We should address this expediently so that this does not negatively impact the active mobility landscape in the long term.

The Panel therefore recommends the mandatory registration of e-scooters used on public paths to ensure riders behave in a responsible manner. Registration would deter reckless riding, foster greater rider responsibility and facilitate enforcement efforts in tracking down errant riders. This will create a safer riding environment and promote responsible take-up of active mobility and sharing of paths.

For other types of PMDs such as electric hoverboards and unicycles, the Panel is of the view that their usage is less widespread and their speeds are lower when used. Thus, there is no need to require mandatory registration for these devices. Instead, the Panel recommends to closely monitor the ground situation to assess the need for further measures going forward. The Panel also recommends that motorised wheelchairs and mobility scooters are exempted from registration as they are meant to provide mobility for the physically challenged.

The Panel calls for the registration process for e-scooters used on public paths to not be too onerous for device users, in order to ensure ease of compliance.

The Panel notes that the rules and code of conduct guiding active mobility usage have to evolve to adapt to the changing active mobility landscape. The Panel has begun reviewing other key areas, and will submit our recommendations in due course.

Yours sincerely,

A handwritten signature in blue ink, consisting of several fluid, overlapping strokes that form a stylized representation of the name Muhammad Faishal Ibrahim.

Associate Professor Muhammad Faishal Ibrahim
Chairman, Active Mobility Advisory Panel

Annex B: Summary of AMAP's Recommendations in 2018

ENHANCING THE SAFETY OF PEDESTRIANS	ENHANCING THE SAFETY OF ACTIVE MOBILITY DEVICE USERS
<ul style="list-style-type: none"> • Register electric scooters to deter reckless riding, foster rider responsibility, and facilitate enforcement efforts (<i>accepted by the Government in March 2018</i>) • Introduce a maximum device speed criterion of 10km/h for motorised personal mobility aids to safeguard their use for those with genuine mobility challenges • Lower the speed limit from 15km/h to 10km/h on footpaths, to reduce the risk of accidents and severity of injuries in the event of a collision 	<ul style="list-style-type: none"> • Mandate for active mobility device users to stop and look out at road crossings, so as to improve the predictability of behaviour at crossings and reduce the risk of accidents • Mandate the use of helmets for active mobility device users travelling on roads to ensure the safety of more vulnerable road users

- To raise awareness of and accessibility to existing avenues for victims of accidents involving active mobility devices to seek compensation
- To work with various key stakeholders, such as large employers of active mobility device users and retailers, to encourage take-up of third party liability insurance
- To strengthen educational efforts for both pedestrians and active mobility device users on the safe sharing of public paths and roads.