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Road Safety Management Capacity Assessment for Samoa

Final Report

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DISCLAIMER

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EXECUTIVE SUMMARY

Background

The Road Safety Situation in Samoa

The Independent State of Samoa (Samoa) faces a substantial challenge to deliver on the United Nations (UN) Global Decade of Action 2020 to 2030 Plan to reduce fatalities and serious injuries (SI) by at least 50 percent and to set targets to reduce fatalities and SI in line with this commitment. This is the case for all groups of road users and especially vulnerable road users such as pedestrians, cyclists and motorcyclists and users of public transport.

Based on the estimates of 18 fatalities and 330 SI (World Bank 2020), the annual economic cost to Samoa of road crash injuries, and expressed in 2016 monetary terms, was some US$29.49 million or 3.6 percent of gross domestic product (GDP). While this is challenging for the Government of Samoa (GoS), means to reduce this substantial economic cost exist and with strong commitment could be readily applied to deliver economic and social benefits.

In 2016, the World Health Organization (WHO) estimated that the crash fatality rate in Samoa was 11.3 fatalities per 100,000 of population. This compares in 2016 with an estimated rate of 4.4 in better performing countries in the region and with good global practice of 2.6 to 2.8 fatalities per 100,000 of population for the four best performing countries (World Bank 2020). From the crash data provided by GoS agencies, the review found that a high proportion (38 percent) of SI were pedestrians and that more than 30 percent of SI occurred for people below the age of 15. Over 50 percent of SI were for people aged below 20 years of age. Buses and trucks are over-represented in SI crashes with involvement in some 40 percent of these incidents. There is a high representation of children aged between zero and 10 years of age in the SI data as both pedestrians and vehicle occupants, indicating the need for improved child safety. Further, in 2018-2019 some 47 percent of fatalities involved a drink driving offender, which is a high proportion by international comparisons that estimate alcohol-related fatalities between five to 35 percent of total crash fatalities (WHO 2018). The Blood Alcohol Concentration (BAC) legal alcohol limit for vehicle drivers in Samoa is 0.08 percent, which is higher than good international practice (which is a 0.05 percent BAC limit for drivers and a zero BAC limit for young drivers in their first three years of driving). Finally, it was also noted that SI occurring on Savai'i was relatively high when compared to that for all of Samoa.

In response to its road safety challenges, GoS created the Samoa National Action Plan (SNAP) for the Decade of Action for Road Safety 2011-2020 (2015), which sets a target to reduce the annual road crash fatalities in Samoa from 10 per 10,000 vehicles in 2015 to five per 10,000 vehicles in 2020. The country is making progress with this goal as fatalities were confirmed to have reduced to 6.2 per 10,000 vehicles in 2018-2019.

Scope of the Road Safety Management Capacity Assessment

This Road Safety Management Capacity Assessment (RSMCA) seeks to gain a broad understanding of the GoS road safety management capacity in order to support the country's development of a new SNAP to improve road

safety outcomes, and to then effectively implement those actions. Further detail regarding a proposed updated SNAP 2021-2030 can be found in chapter one and four of this assessment.

The assessment includes a focus on crash data management and a later activity will also support a pilot of the World Bank's Data for Road Incident Visualization Evaluation and Reporting (DRIVER) crash database and provide hands on capacity building in crash analysis for Traffic Police under MoPP. The assessment follows the seven critical road safety institutional management functions, including: results focus; coordination; legislation; finance and resource allocation; promotion and advocacy; monitoring and evaluation, and research and development of knowledge transfer, to identify key challenges and provide recommendations for improvement.[1]

Key Findings on Road Safety Management Capacity

Throughout the Assessment, it was apparent that a major reform of institutional management capacity is necessary and should be a national priority. Critical points relevant to each institutional management function and interventions are highlighted below:

Institutional Management Functions

1. Achieving identified road safety outcomes requires many effective institutional management functions to be in place in a country. A strong results focus is the most critical of these functions and much effort is required by the GoS to improve its current results focus. Results focus includes leadership, lead agency, governance structure, roles and responsibilities and resourcing of relevant departments, target setting, data systems and data analysis, strategy, action plans and research framework activities.

2. A review of the existing national structure for road safety management found that the limited current role of the National Road Safety Committee (NRSC), which has not met since May 2019[2], and governance arrangements for road safety decision-making and consultation, are inadequate. As a result, there is insufficient drive to encourage combined results focus across government and to link practitioners utilizing consultation through to Agency Chief Executive Officers and then to Ministers. Road safety in Samoa cannot be fully effective without these decision-making, consultation, peer agency and upwards communication support arrangements in place.

3. Most existing road safety related legislation is sound but there are major opportunities to reduce the legal BAC limit for drivers, young drivers and heavy vehicle drivers. The absence of rear seatbelt wearing legislation is an obvious gap identified in the review of safer road user interventions.

4. Investment in specific infrastructure safety programs is limited and there are major needs and opportunities to expand enforcement to reduce fatalities and SI. There is an urgent and fundamental requirement for the value of life saved and of a SI avoided to be calculated for Samoa (if it does not currently exist) to enable business cases for potential benefits of specific interventions to be prepared and compared to the associated costs of the intervention.

5. There appears to be limited focused and strategic dialogue about road safety across government agencies and provision of information and associated advocacy (promotion) up to Ministers. Road safety thinking internationally has changed substantially and senior officers and parliamentarians should be briefed about these

major shifts in thinking and approach to understand these major changes, the potential economic and social benefits available, and reflect upon the consequences for advancing safety progress.

6. There was limited evidence of monitoring and measurement of road safety performance other than by the Accident Compensation Corporation (ACC), which has some good systems. Regular feedback from relevant agencies to NRSC members' departments about performance should be the basis for short-term adjustments to various Safe System pillar activities and the SNAP.

7. **There is a need to address practical knowledge transfer demands on the Samoan road authorities.** These would include paramedic training of local staff for ambulance roles, and a capacity to calibrate alcohol testing devices and speed guns in Samoa.

Interventions Level

A review of road safety management capacity at the intervention level (developing and implementing new measures) identified issues for attention in all of the UN Safe System[3] intervention pillars across the four intervention categories in the Global Road Safety Facility (GRSF) road safety management model (Checklists 2-5 in appendix D). The findings of the assessment pertaining to each Safe System pillar are summarized below.

Road Safety Management (Pillar 1)

Management of road safety in Samoa requires urgent review and strong consideration of a change in strategic approach. There is low apparent awareness of the road safety situation in Samoa and limited resources are allocated to road safety, apart from MoPP, ACC and MoH. The necessary policy impetus required from the Ministry of Works, Transport and Infrastructure (MWTI) and the Land Transport Authority (LTA) to deliver the basis for improved road safety performance was not evident and MWTI's role in convening the road safety partners on a regular basis has diminished. The NRSC is not currently functioning—it last met in May 2019—and the roles and responsibilities of the NRSC and component agencies are not clear. Its role is currently limited to campaigns and some other matters and is not inclusive of overall accountability for the whole of the Samoan road safety situation.

The road safety responsibilities of the GoS agencies and ministries require thorough review and adoption, preferably in regulatory form. Accountability for specific road safety responsibilities by agencies within that overall framework are specified in legislation and should be followed. However, the overall accountability for road safety performance must rest with the NRSC. MWTI should be supported to be a strong and engaged lead agency, providing road safety leadership; monitoring; governance; decision-making; convening and chairing the NRSC; and championing changes in policy and actions necessary to improve road safety outcomes.

In order to adequately support the role of MWTI as lead agency and LTA as the agency responsible for road infrastructure safety and safe speed limits within a Safe System framework, specific road safety positions should be established within both agencies. The road safety roles of MoH and ACC should be confirmed and the number of road safety resources within MoPP should be strengthened.

The NRSC should have strengthened support, decision-making (and recommending) and consultation functions. It should meet at least four times each year and have its effectiveness strengthened through the establishment of a new Ministerial Road Safety Council for Road Safety with whom it would meet each quarter.

Each of the key road safety agencies should have responsibility for overseeing the implementation of the proposed updated SNAP 2021-2030 and Targets. Monitoring its delivery and performance should also occur and be supported by MWTI and all other agencies.

As a key principle of an updated SNAP, Samoa should aim for a 50 percent reduction in fatalities and SI by 2030 from 2020, with a long-term target of zero fatalities by 2050. As part of this, the NRSC and Ministry of Finance (MoF) should establish a monetary value for avoiding fatality and SI for Samoa to enable business cases for investment in benefit-cost positive road safety interventions to be prepared.

Safe Roads and Mobility (Pillar 2)

LTA are responsible for constructing and maintaining the road network in a safe condition, including setting appropriate speed limits, and until June 30, 2020 for carrying out driver licensing and vehicle registration activities (transferred to MoPP as of July 1, 2020). LTA do not operate any infrastructure safety blackspot programs for high crash risk locations on the existing network or conduct any analysis of crashes by type or road user group. They also do not apply road safety audit processes to new GoS road projects, although this process has been applied on World Bank funded road projects such as the Samoa Climate Resilient Transport Project (SCRTP).

It is essential that Samoa develop a road crash data system to include crash location referencing and facilitate ready access, use and analysis by key agencies, especially LTA and ACC. This process will begin with the DRIVER pilot later in 2020. This will allow for the implementation of a black spot program that targets problem locations with evidence based, cost effective treatments. As part of maintenance activities, LTA should look to deliver improved road signage, upgraded line marking, footpaths, and so on. This requirement should also be extended to road safety audits on major local road projects.

Safe Vehicles (Pillar 3)

There is currently no requirement for imported vehicles to meet United Nations Economic Commission for Europe (UNECE) international crashworthiness standards. Used vehicles up to eight years of age can be imported. There is no known safety regulation for safety features for buses when imported.

Recommended actions include undertaking mandatory inspections of vehicle operating conditions and restricting the importation of vehicles that are non-compliant with Samoa's vehicle safety requirements. Policy initiatives should be developed to improve the safety condition of the Samoan vehicle fleet, including requiring a number of basic UNECE vehicle standards, such as Electronic Stability Control (ESC), to be fitted to imported vehicles and lowering the age of imported vehicles to five years (from eight years at present) to improve the presence of modern vehicle safety features in the fleet. The heavy vehicle regulations should be updated to reflect the recommendations of the Stantec 2020 Report, as adopted in principle following workshops in Samoa in late 2019. Safety regulations for buses warrants review given the number of Samoans travelling daily in these vehicles and the likely relatively high number of passengers injured annually.

Safe Road Users (Pillar 4)

Enforcement of drink driving is very much limited by available MoPP and MoH resourcing and should be expanded. Regulations should be updated to legislate the reduction of the legal BAC limit to 0.05 percent for all drivers and to zero BAC for all younger drivers under 22 years of age. This should also be applied to all drivers of heavy vehicles over 4.5-ton gross vehicle mass (GVM), and drivers of taxis and rideshare services.

Seatbelt legislation is not in place to require rear seatbelt fitting and their use.

There is no graduated licensing system (GLS), which would provide for gradual release of stricter conditions for drivers over a period of three or more years from solo licensing at 17 years of age onwards. Samoa should plan to introduce a GLS, inclusive of a learner permit for supervised practice hours, a provisional license for three years to at least 21 years of age, and then a full license. Road safety education programs should be reintroduced throughout the Samoan schooling system and for the general public.

Training and enabling procedures need to be identified and resourced to effectively implement programs, particularly priority behavioral changes. New targeted school road safety programs require cooperative development between the Ministry of Education, Sport and Culture (MESC) and other agencies with a focus on addressing practical road safety risks faced by school students.

Post-Crash Response (Pillar 5)

It is critical that the number of ambulances and trained paramedics is increased throughout Samoa. The Samoa Fire and Emergency Services Authority (SFESA), together with the MoH, are responsible for care and retrieval of crash victims from the roadside to post crash emergency treatment at the major hospital and related facilities. The ACC provide injury insurance services for all those injured in road crashes including treatment and rehabilitation and recovery costs. They also operate monitoring of road crashes in Samoa, based on police-collected data, for their injury insurance scheme purposes which provides an invaluable data input for all road safety agencies. Post-crash care is currently limited by the number of ambulances with appropriate equipment and by the lack of trained paramedics within Samoa.

Safe Speeds (Pillar 6)

Despite general speed limits on both urban and rural roads in Samoa (56 km/h) being reasonably aligned with Safe System design principles, road sections where there are major pedestrian flows present need revised speed limits. This is an issue particularly in the absence of footpaths and adequate safe pedestrian crossing opportunities in the linear village sections of major roads, such as the section of West Coast Road between Apia and Faleolo Airport. The speed limit within the center of Apia is 40 km/h. This speed is considered above Safe System levels and should be reduced to 30 km/h since this is a highly pedestrianized area.

Speed limit violations need greater enforcement by Traffic Police, and more speed radar guns (~4 No.) should be acquired. A particular focus should be on compliance of public buses with speed limits. To achieve this, global positioning system (GPS) technology should be mandated with continued operation of future route licenses. These should be subject to no more than three speed infringements per bus per year.

Key Recommendations

In chapter four, selected recommendations for new or improved interventions are detailed at length in an extensive proposed updated SNAP 2021-2030, which is aligned with the Safe System pillars. The proposed updated SNAP 2021-2030 (and associated enabling measures unlikely to be published in the public version of the SNAP) should be a priority for GoS, ideally emphasized by a national priority target to reduce road fatalities and SI by an agreed proportion.

It is the review team's consideration that the proposed updated SNAP 2021-2030 should include a target of a 50 percent reduction in road crash deaths and SI by 2030 from 2020 levels.

Key interventions recommended in the proposed updated SNAP 2021-2030 include:

- Expanded police enforcement to address drink driving, speeding and lack of seatbelt wearing and expanded enforcement of public bus speed compliance through mandated GPS technology as a condition of continued operation of route licenses;
- Lower speed limits in areas with higher pedestrian activity, including near schools, churches and community centers;
- For the introduction of more pedestrian protection platforms at current or desired pedestrian crossing locations, and more footpaths in busier pedestrian movement locations;
- The introduction of infrastructure safety programs including blackspot treatments, extended maintenance and mass action treatments;
- The introduction of a GLS for young drivers (zero alcohol, and other features in early years) for three years (to 21 years of age minimum) before a full license can be obtained; and
- A recognition of the need to procure additional, equipped ambulances and provide trained paramedics for these vehicles and taking action to introduce UNECE vehicle safety regulations to be complied with in all imported vehicles with a reduced maximum age of imported used vehicles of no more than five years.

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[1] There are some minor gaps in knowledge evidenced throughout the Assessment, due to the review team not being able to obtain the necessary data or information. The dissemination workshop, to be held in late 2020, will be used to address these gaps, and the report will be updated accordingly.

[2] As of June 2020.

[3] The Assessment has adopted the Safe System approach for road safety management and interventions as adopted by the United Nations (UN) Decade of Action for Road Safety and confirmed as the basis for the next Decade of Action in Stockholm in February 2020. The Safe System Approach can be considered as a Vision (Towards Zero fatalities), a set of Principles (human fallibility, human fragility and shared responsibility between users and system providers) and a group of Elements (road safety management, safe roads, safe speeds, safe vehicles, safe road users and post-crash care) that interact to determine the severity of crash outcomes. The longer-term safe system objective is to ensure that fatalities and serious injuries from operation of the road system are eliminated through a forgiving road system.

ABBREVIATIONS

ACC	Accident Compensation Corporation
AFP	Australian Federal Police
AG	Attorney General
ASA	Advisory Services and Analytics
BAC	Blood Alcohol Concentration
BCR	Benefit Cost Ratio
CoC	Chamber of Commerce
DRIVER	Data for Road Incident Visualization Evaluation and Reporting
ERAP	Enhanced Road Access Project
ESC	Electronic Stability Control
GBD	Global Burden of Disease Annual Health Impacts Study, IHME, University of Washington
GDP	Gross Domestic Product
GLS	Graduated Licensing System
GoS	Government of Samoa
GPS	Global Positioning System
GRSF	Global Road Safety Facility
GSRRS	Global Status Report on Road Safety
GVM	Gross Vehicle Mass
iRAP	International Road Assessment Programme
ITF	International Transport Forum
LMICs	Low- and middle-income countries
LTA	Land Transport Authority
MESC	Ministry of Education, Sport and Culture
MoF	Ministry of Finance
MoH	Ministry of Health
MWTI	Ministry of Works, Transport and Infrastructure
MoPP	Ministry of Police and Prisons
NGO	Non-governmental Organization
NOLA	Nuanua O Le Alofa
NRSC	National Road Safety Committee
OECD	Organization for Economic Cooperation and Development
PIC	Pacific Island Country
PPS	Petroleum Product Supplies
RSMCA	Road Safety Management Capacity Assessment
SCRTP	Samoa Climate Resilient Transport Project
SFESA	Samoa Fire and Emergency Services Authority
SI	Serious Injuries
SNAP	Samoa National Action Plan
Sum4All	Sustainable Mobility for All
TDL	Temporary Driver's License
UN	United Nations
UNECE	United Nations Economic Commission for Europe
USD	United States Dollar
WHO	World Health Organization

REVIEW DESCRIPTION

STUDY SCOPE

The Road Safety Management Capacity Assessment (RSMCA) is an activity within a broader Advisory Services and Analytics (ASA), which aims to gain a holistic and thorough understanding of the road safety management capacity of three selected Pacific Island Countries (PICs)—Samoa, the Solomon Islands and Vanuatu—in order to support their respective governments to develop national strategies and plans of action to improve road safety outcomes, with a focus on crash data management. The ASA will also support a pilot of the World Bank's Data for Road Incident Visualization, Evaluation, and Reporting (DRIVER) road crash database in Samoa and provide hands on capacity building in crash analysis.

The ASA is being funded by a Global Road Safety Facility (GRSF) grant from the United Kingdom Agency for International Development (UK AID). GRSF, a global partnership program administered by the World Bank, was established in 2006 with a mission to help address the growing crisis of road traffic deaths and injuries in low and middle-income countries (LMIC). The GRSF strategic objectives are described in Figure 11. The GRSF grant will help the Government of Samoa (GoS) to have a clear image of their road safety situation, risks and challenges, and further on to establish the basis for a national crash database. To ensure sustainability through capacity-building and awareness-raising activities, knowledge will be shared with local stakeholders.

Figure 1: Global Road Safety Facility strategic objectives (GRSF 2019)

The key objectives of this ASA are as follows:

- Utilize GRSF recommended methodology to gain a thorough understanding of road safety management capacity;
- Assess institutional management arrangements as an important focus of the analysis of the road safety system in Samoa;
- Consider the existing national road safety strategy—Samoa National Action Plan (SNAP) for the Decade of Action for Road Safety 2011-2020—and propose updates for the next period;
- Provide capacity building on crash investigation and evidence-based road safety measures to ensure success and sustainability, with a focus on vulnerable road users such as females, children, and persons with disabilities; and,
- Focus on crash data management, including providing hands on capacity building and crash analysis.

An auxiliary objective is to build capacity to use crash data to identify problems and implement road safety evidence-based measures in Samoa. Furthermore, given the negative impacts of severe weather events on road safety, which will be further exacerbated by climate change, the ASA will help to address the way that road safety is managed in the face of climate change, by training police officers to gain better skills in crash investigation.

The results from the DRIVER pilot in Samoa will be shared with counterparts in selected other PICs, with the aim of scaling up the system across the region. Only with accurate data can road safety be effectively managed and improved, and results measured. In support of this, as of October 2019, the World Bank's Environmental and Social Framework (World Bank 2019) calls for road safety to be considered on all World Bank-funded projects.

The World Bank is also currently providing assistance to the road sector in Samoa through several projects, including the Samoa Climate Resilient Transport Project (SCRTP), which commenced in 2018. SCRTP will support the GoS to improve the climate resilience of the road network and provide key assistance required to contribute towards effectively managing climate resilient and safe road sector assets. One of the sub-components of SCRTP is dedicated to establishing and operationalizing a database for recording and analyzing road crash data. The database will combine the existing siloed data, housed in different government agencies, into a single readily accessible platform under the Ministry of Work, Transport and Infrastructure (MWTI). The system will make use of DRIVER, to be piloted through this road safety ASA. SCRTP has other sub-components and activities focused on road safety, such as Road Safety Audits for project roads, a driver licensing training pilot focusing on women, and a road safety engineering technical assistance activity. This GRSF ASA will provide crucial data and insight for the successful delivery of the road safety program under SCRTP, plus other ongoing World Bank-financed projects.

REVIEW METHODOLOGY

The RSMCA meetings were carried out in accordance with the World Bank GRSF guidelines and country capacity checklists. The level of investigation was strategic, and jurisdictional road safety management capacity was assessed with reference to three best practice dimensions: results, interventions and institutional management functions. This is shown in Figure 2 below.

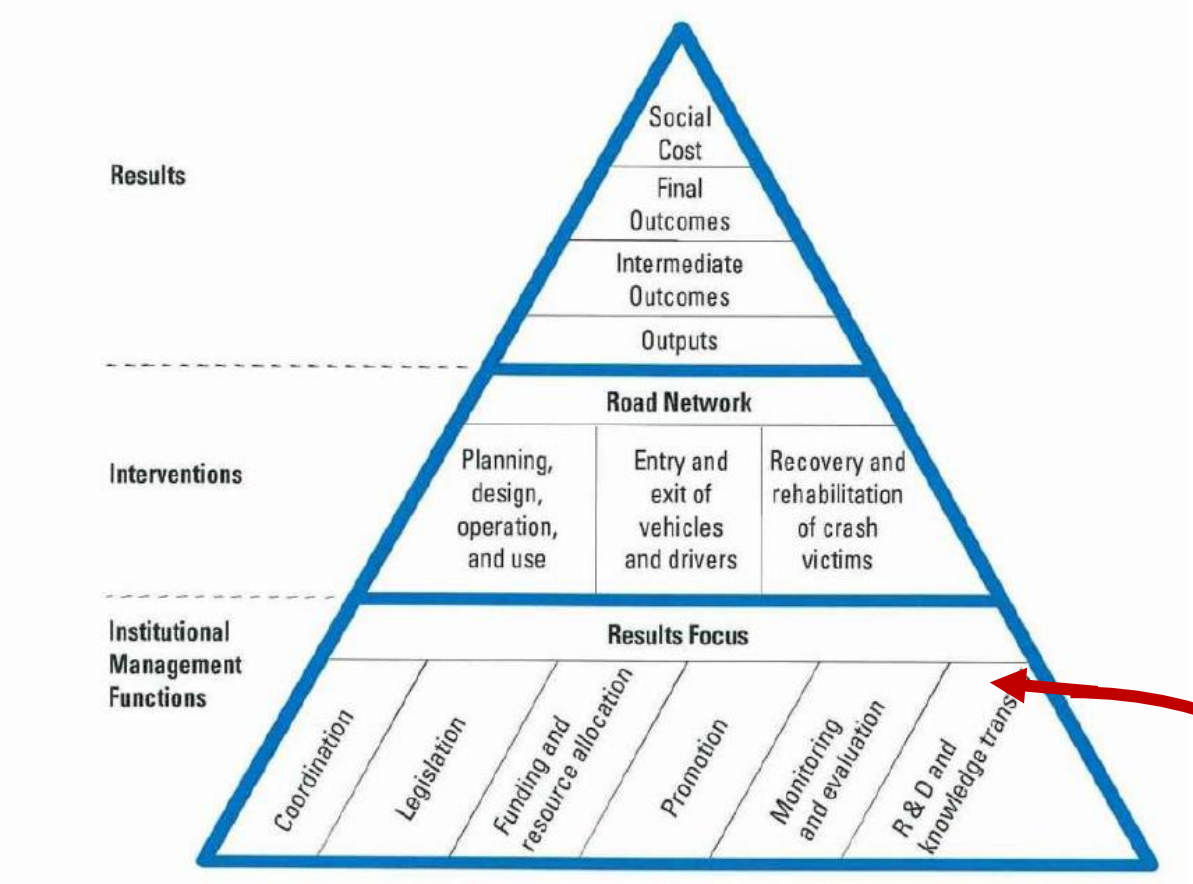

Figure 2: The Road Safety Management System[4]

A Capacity Review focuses on these Seven *Institutional Management Functions* (especially the *results focus* function) as well as on *Interventions*

An updated version of the road safety management diagram in figure 2, which includes adjusted descriptions of the items making up the intervention level to match the United Nations (UN) Safe System pillars is included in appendix A.

The GRSF Guidelines for Road Safety Management Reviews and Safe System Projects (Bliss and Breen 2013) are based on important key concepts that underpin effective road safety management in any country. These

concepts provide the basis for assessment of the adequacy of current arrangements in a country. Proper account needs to be taken of current road safety management capacity weaknesses that present a formidable barrier to progress. The required improvement or development to attain a suitable level of capacity to deliver improved road safety performance can then be identified. Further information regarding these concepts is included in appendix A.

In addition, this RSMCA is in line with the Safe System approach to road safety (OECD and ITF 2008), which has been adopted by the UN as the basis for the Decade of Action Plan 2010 to 2020, and is widely applied at various levels of development and understanding around the world to reduce road fatalities and serious injuries (SI). They highlight the importance of addressing all elements of the road safety management system, taking a staged approach to country road safety investment, and targeting the highest concentrations of deaths and injuries across the road network. Further information regarding the Safe System approach has been included as appendix B.

The GRSF Capacity Review Guidelines contain a number of detailed checklists (numbered one to 12), which are to be applied in any country review of road safety management capacity. These are listed in some detail in appendix D.

The capacity review process for Samoa has a number of activities drawing upon the GRSF checklists. These activities are listed below in Table 1, with the associated GRSF checklist(s) used to guide the assessment, as well as the relevant UN Safe Systems pillar, where applicable.

Table 1: Project components and guiding Global Road Safety Facility checklists and Safe Systems pillar

Activity	GRSF Checklist	Safe System Pillar
Discussion with the National Road Safety Committee on coordination and combined strategy.	Checklist 1: Results focus at system level	Road safety management
One on one interviews with road safety stakeholders over a one-week mission in country.	All checklists and pillars	All pillars
Review of the existing national structure for road safety management.	Checklist 6: Coordination Checklist 7: Legislation Checklist 8: Funding and resource allocation Checklist 9: Promotion Checklist 10: Monitoring and evaluation Checklist 11: Research and development and knowledge transfer Checklist 12: Lead agency role and institutional management functions.	Road safety management
Appraisal of road safety management capacity at the intervention level by applying the Checklists of the GRSF Road Safety Guidelines and the associated UN Safe System Pillar	Checklist 2: Planning, design, operation and use of the road network Checklist 3: Entry and Exit of vehicles to & from the road network Checklist 4: Entry and Exit of road users to & from the road network	Safe Roads, Safe Speeds and Safe Road Users Safe vehicles Safe Road Users (Drivers/ riders)

	Checklist 5: Recovery and rehabilitation of crash victims from the road network.	Post-Crash Care
Review of and provision of comments on the current Road Safety National Strategies and Action Plans	All checklists and pillars	All pillars
Provide recommendations to improve the required road safety management capacity to improve current situation and reach national goals (as agreed in this process) drawing on the assessments indicated above	All checklists and pillars	All pillars

ACTIVITIES AND SCHEDULE

The RSMCA commenced on February 17, 2020 in Apia, Samoa, upon a meeting with the National Road Safety Committee (NRSC). This was followed by a series of interviews with senior representatives of key governmental agencies and other relevant stakeholders (see appendix C for a complete list of individuals met) during the period February 17, 2020 to February 21, 2020 (a total of 14 meetings). The information gained from these meetings largely formed the basis of discussion in this report.

It should be noted that travel restrictions associated with the COVID-19 outbreak precluded some team members from being able to visit Samoa and directly participate in the interviews. This is an ongoing challenge for the delivery of the outputs of this grant. A complete list of activities associated with the RSMCA are described in appendix A.

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[4] This is informed by Bliss and Breen, 2013, building on the frameworks of Land Transport Safety Authority, 2000; Wegman, 2001; Koornstra et al, 2002; Bliss, 2004.

1. CONTEXT AND OVERVIEW

1.1. ROAD SAFETY CONTEXT IN SAMOA

This section provides an overview of the current scale of the road safety challenge in Samoa. Appendix E includes additional general information and data on road safety in Samoa, sourced through the World Bank and World Health Organization (WHO). In response to its road safety challenges, the Government of Samoa (GoS) created the Samoa National Action Plan (SNAP) for the Decade of Action for Road Safety 2011-2020 (Government of Samoa 2015), which sets a target to reduce the annual road crash fatalities in Samoa from 10 per 10,000 vehicles (2015) to five per 10,000 vehicles in 2020.

1.1.1. REVIEW OF EXISTING DATA

According to the Accident Compensation Corporation (ACC), between July 2018 and June 2019, the Samoan national road toll was 16 fatalities, and there were 64 serious injuries (SI). This was a reduction from the previous 12 months, with a 20 percent reduction in fatalities and a seven percent reduction in SI (see Figure 33). Of all SI recorded in the 2018-2019 financial year, 38 percent (24 total) involved pedestrians, with the remaining SI involving vehicle occupants.

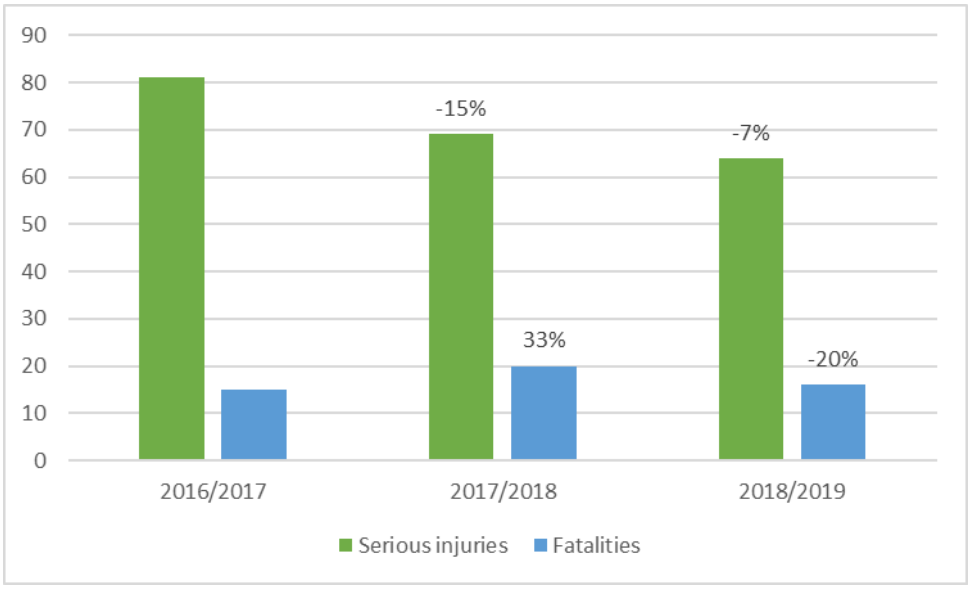

Figure 3: Total number of serious injuries and fatalities due to road crashes (ACC 2020)

47 percent of fatalities (seven out of 15 total) and 16 percent of SI (10 out of 64 total) are drink driving related. These are very high levels, especially since global alcohol-related fatalities average between five to 35 percent

(WHO 2018). This suggests levels of drink driving enforcement need to be increased as a priority to effectively reduce drink driving levels and related deaths.

As shown in Table 2, over 30 percent of SI occurred in people below the age of 15 and over 50 percent in people aged below 20 years of age. This is reinforced by data received by the Ministry of Health (MoH), summarized in

Table 3.

Table 2: Total number of serious injuries by gender and age group 2018-2019 (ACC 2020)

Age group	Male	Female
0-14	10	10
15-19	7	6
20-29	7	1
30-39	8	0
40-49	7	0
50-59	3	0
60+	3	2
Total	**45**	**19**

Table 3: Total number of people admitted to hospital as a result of a motor vehicle accident in 2019[5]

Hospitalization details of Injured	Count
Pedestrian injured 0 – 14 years	8
Pedestrian injured – other	11
Cyclist injured	4
Driver injured	3
Passenger injured	6
Occupant of pick-up truck injured – 0 to 14 years	4
Occupant of pick-up truck injured – other	12
Bus occupant injured	5
Unspecified vehicle accident injured	29

Based on data from MoH, it should also be highlighted that almost half of pedestrian injuries involve children, which warrants immediate measures to ensure child safety.

The geographic spread of crashes for 2018-2019 is highlighted in Figure 4 and Figure 5. The proportion of crashes in Savai'i is high, with 25 percent of fatalities and 42 percent of all injuries from road crashes in Samoa, relative to its population (only approximately 20 percent of Samoa's population reside in Savai'i). One quarter of fatalities occur in the Rural Upolu Area, and another quarter in Upolu town (Apia) area. The West Coast Area experiences 19 percent of all fatalities. When compared with the population per geographic spread, a person living in Savai'i is more likely to be involved in a crash fatality and injury. There is approximately one fatality and six injuries per 10,000 of population.

Figure 4: Geographic spread of crashes resulting in injury (ACC 2020)

Figure 5: Geographic spread of crashes resulting in fatalities (ACC 2020)

Figure 6 and Figure 7 illustrate the crash involvement by vehicle type for the past three years. The majority of crashes involve private vehicles; however, the proportion of crash injuries and crash fatalities involving buses

and trucks is substantial. The low prevalence of motorcycles in Samoa means that crashes involving motorcycles is also low, particularly compared to other nations in the Pacific and South-East Asia.

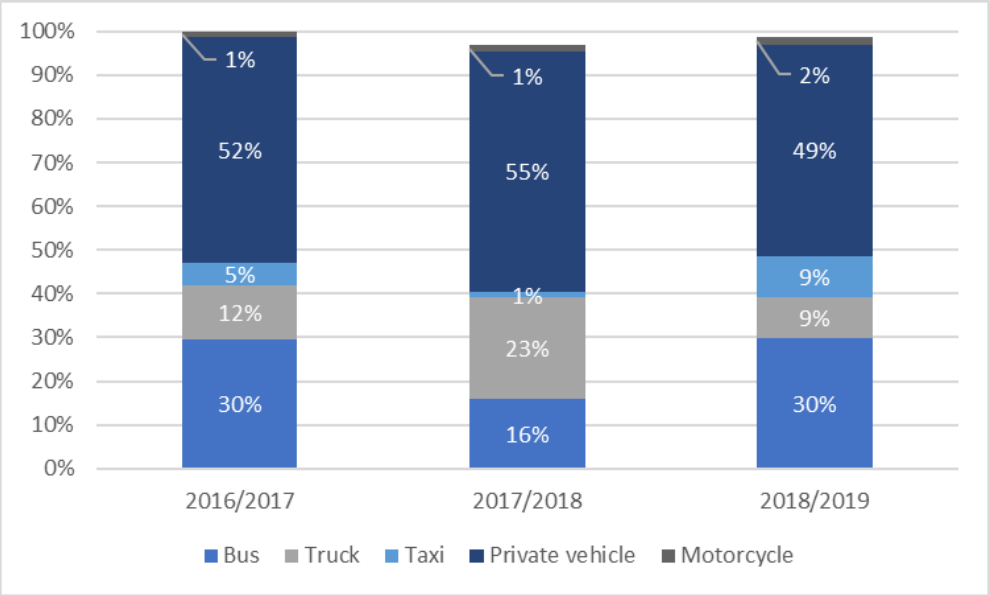

Figure 6: Vehicle type involvement breakdown by crashes resulting in injury (ACC 2020)

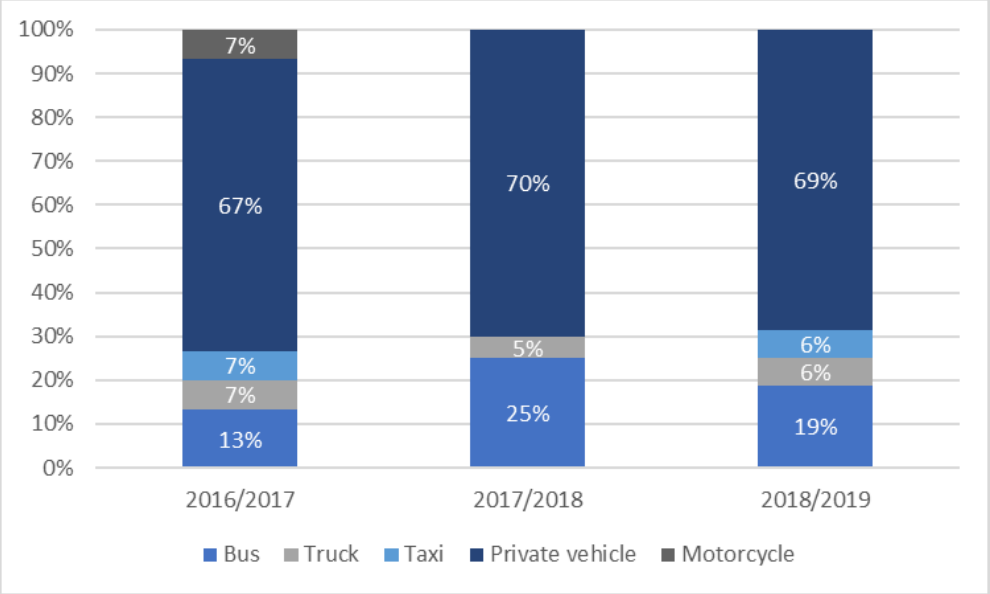

Figure 7: Vehicle type involvement breakdown by crashes resulting in fatalities (ACC 2020) **Error! Bookmark not defined.**

Data presented in the WHO Global Status Report on Road Safety (GSRSS) 2018 (WHO 2018) indicates that:

- In 2015-2016, 47 percent of all fatalities were pedestrians, six percent were cyclists, 24 percent were passengers in four-wheeled cars and light vehicles, 18 percent were drivers in four-wheel cars and light

vehicles and six percent were drivers and passengers in buses. Figure 8 indicates that bus involvement in crashes resulting in fatalities increased from 13 percent in 2016-2017 to 19 percent in 2018-2019;
- Pedestrians and road users under 10 years and under 19 years are clearly at elevated levels of risk;
- There is no legislation requiring the wearing of rear seatbelts;
- There was a fatality rate of 11.3 per 100,000 population in 2016; and
- With 15 fatalities in 2018-2019, the fatality rate per 100,000 population is less than 10.

An extract from the GSRSS is also included in appendix F.

The annual economic cost of road crash fatalities and SI, based on estimates of 18 fatalities and 330 SI (World Bank 2020), and expressed in 2016 monetary terms, was some US$29.49 million or 3.6 percent of gross domestic product (GDP). Means to reduce this substantial economic cost exist in Samoa and, while challenging, with strong commitment from GoS they could be met to deliver economic and social benefits. Further, the Stockholm Declaration, from the international meeting of Ministers for Road Safety in February 2020, calls upon Member States to contribute to reducing road traffic deaths by at least 50 percent from 2020 to 2030. This is in line with the UN High-Level Political Forum on Sustainable Development's pledge to continue action on the road safety related Sustainable Development Goal (SDG) targets, including 3.6 after 2020, and to set targets to reduce fatalities and SI, in line with this commitment, for all groups of road users and especially vulnerable road users such as pedestrians, cyclists and motorcyclists and users of public transport.

1.1.2. GENERAL OBSERVATIONS

- There is a very high representation of children up to 14 years of age in the SI data, as both pedestrians and vehicle occupants;
- Crash data is not spatially plotted on a map, so high crash risk road lengths or locations are not systematically identifiable as requiring analysis and treatment; and,
- Penalties under the Road Traffic (Payment of Fines) Act (2009) and the Road Traffic Act (1960), appear to provide a deterrent for those detected breaking the law, but their deterrent effect (level of fines and rate of collection of fines) could be reviewed.

1.2. REVIEW OF THE SAMOA NATIONAL ACTION PLAN (2011-2020)

The SNAP for the Decade of Action for Road Safety 2011-2020 was prepared by the GoS in an effort to improve and promote road safety in Samoa. The following section of this assessment provides a review of the SNAP 2011-2020 to gauge insight into where the GoS are at in terms of their thinking and planning for improving road safety outcomes. It also introduces a proposed updated SNAP 2021-2030, which brings together key recommendations outlined in this assessment, and is outlined in detail in chapter four of this report.

The current SNAP has endeavored to identify actions for implementation, which were to reduce fatalities to a rate of five per 10,000 vehicles by 2020.

Some reductions appear to have been achieved as there were 16 fatalities for the 2018-2019 financial year, down from 22 fatalities estimated by WHO in 2016. The actual rate of fatalities per 10,000 vehicles in 2018-2019 was 6.2 (based on 16 fatalities and 25,793 registered vehicles (LTA 2019)). The target rate set out in the current National Strategy for the end of 2020 is five fatalities per 10,000 vehicles.

The objectives of the current SNAP include the sub-sections analyzed below.

ROAD SAFETY MANAGEMENT

The current SNAP sets out the membership of the NRSC, which is chaired by the Ministry of Works, Transport and Infrastructure (MWTI) (or it is assumed, their delegate) and specifies the roles and responsibilities of the NRSC as follows:

1. The NRSC may:
   - Develop and approve programs of education and public awareness related to issues of road safety;
   - Authorize official initiatives aimed at educating drivers and promoting safe driving practices;
   - Solicit support from nongovernmental organizations, both within Samoa and in other countries, for the conduct of road safety programs and the raising of public awareness about of road safety and the safe use of roadways and land transport infrastructure; and
   - Do any other act or participate in any other activity approved by the Land Transport Authority (LTA) or the Minister, or as provided in any law, in the interests of promoting national road safety.

2. The NRSC shall report at least twice every year on its activities and proposed activities to the Authority and the Minister.

3. Subject to any directions given by the Board of Directors, the Chief Executive Officer (MWTI) may allocate staff and other resources of the Authority to assist the work of the NRSC, and to implement the approved programs and initiatives.

These responsibilities of the NRSC do focus on promotion and public awareness education for safe road use. A broader road safety role in considering and improving overall road safety performance across the whole of Government for Samoa is not specified.

This adjustment to a broader remit will be critical for turning all road safety agencies' individual departmental efforts into a coordinated road safety program. For example, the NRSC should confirm MWTI as the Lead Road Safety Agency, encourage resourcing of all key road safety departments with required staff to carry out road safety responsibilities, and set up training programs for those staff to build expertise. NRSC should be considering strategic directions and overall activities and actions across all six pillars of the Safe System.

Further areas of improvement regarding road safety management and results that could be considered for the SNAP can be found in chapter two of this assessment.

SAFER ROADS

Actions in the current plan reference blackspot programs and route and mass action plans. However, the review team found no evidence of programs conducted in these areas. In addition, a focus on constructing pedestrian platforms as safety crossings at all major pedestrian activity locations is a relatively low cost but highly effective measure, which would reduce fatal and injury crash risk for vulnerable pedestrians and save pedestrian lives. They are effective because they slow vehicles down and in many locations on the Samoa road network higher speed roads are not rural roads. This action should also be included in an updated SNAP.

SAFER VEHICLES

Actions include undertaking mandatory inspections of vehicle operating condition and restricting the importation of vehicles over a certain age and those that are non-compliant with Samoa's vehicle safety requirements. While these are important matters, along with ensuring the effective administration of the vehicle registration systems, there is no available evidence of policy initiatives to improve the safety condition of the Samoan vehicle fleet. This would include requiring a number of basic United Nations Economic Commission for Europe (UNECE) vehicle standards such as Electronic Stability Control (ESC) to be fitted to imported vehicles, and lowering the age of imported vehicles to five years (from eight years at present) to improve the presence of modern vehicle safety features in the fleet.

Heavy vehicle regulations should also be updated to reflect the recommendations of the Stantec 2020 Report as adopted in principle following workshops in Samoa in late 2019.

SAFER ROAD USERS

Actions for safer road users are addressed by three sections in the current SNAP:

- Safer Drivers;
- Road Safety Education; and,
- Traffic Law Enforcement.

Safer Drivers actions focus on driver testing and training and a behavioral training program. While drivers must pass knowledge tests to achieve a license, the current practice of off-road training for learner drivers is not to be encouraged. This can promote over-confidence and should be replaced with a requirement for on-road driving practice, recorded in a logbook of approximately 80 hours (before being eligible to sit for a license test) with a supervising driver who has a full license. Research indicates that supervised novice drivers who develop

experience by driving in real traffic conditions reduce their fatal and serious injury crash risk when driving solo after licensing. This learner driver approach would be part of a potential graduated licensing system which seeks to progressively match increased risk on the roads to the increased driving experience young drivers have achieved, (that is no alcohol, not more than one peer passenger and so on, in the first years of driving). More detail regarding driver license requirements are detailed in section 3.3 of this assessment.

In relation to *Road Safety Education*, the Ministry of Education, Sport and Culture (MESC) have indicated that they have moved away from incorporating road safety in the school curriculum. More details regarding road safety education can be found in section 2.5 of this assessment.

Traffic Law Enforcement targets adequate enforcement of road laws and rules to achieve good compliance levels by road users and seeks to strengthen legislation and levels of enforcement. These actions remain highly relevant and are fully supported for the proposed updated SNAP 2021-2030. The legal alcohol limit should be reduced to 0.05 percent blood alcohol concentration (BAC) and to zero BAC for all public transport and heavy vehicle drivers, young drivers and riders under 21 years of age, and repeat drink driving offenders.

Measures to introduce alcohol interlocks for drink driving offenders are supported but only after drink driving enforcement has been expanded and is working to deter this highly unsafe behavior. More detail is provided in section 2.3 of this report.

As recommended by Stantec (2020), the Road Traffic Regulations 1961 should be re-written and penalties for traffic offences, which have not been adjusted for many years, warrant early review as to their adequacy and ability to improve road safety through providing a real deterrent. Data on collection rates for offence fines were not obtained and any inadequacy in collection rates requires early analysis and attention to support deterrent effects of offences issued. An added emphasis on targeting speeding and drink driving (with additional resources including new equipment to be purchased and capacity for local calibration of speed guns and breathalyzers to be developed, probably through the Scientific Research Organization of Samoa), seatbelt wearing and detection of unlicensed driving, is required.

A legislative requirement for wearing of seatbelts in the rear of vehicles where belts are fitted (vehicle import regulations should require seatbelts fitted for all seats) and enforcement of this legislation should be introduced and then robustly enforced. A program to install speed limit signs in rural and urban areas is included in the current action plan, but this action has been pursued despite it being required in coming years to support improved speed compliance.

As set out in chapter one, public bus speeding warrants special emphasis and attention. MWTI is trialing geo-tracking of buses to monitor their speeds with levels of compliance, forming a useful potential input into future consideration of bus company applications for periodic renewals of route licenses.

A stronger focus on police training in road crash investigation activities should be a recognized priority and a program of training is planned under this ASA later in 2020.

POST-CRASH CARE

Actions in the current SNAP (described as post-accident care) are worthwhile but further action is recommended. Training of local health staff as paramedics to expand available resources is necessary as is the availability of more and better equipped ambulances on both Upolu and Savai'i.

SAFER SPEEDS

This is not specifically listed as a pillar heading in the current SNAP, but it should be included in an updated SNAP. Speed is the road crash risk factor which has the greatest influence in determining death and serious injury outcomes of road crashes. Enforcing speed compliance by motorists is addressed under safer road users. However, on roads such as the West Coast Road which connects through urban ribbon development, the travel speeds need to be safer and lower than at present, and much lower where pedestrians walk alongside the road. This is particularly the case for school children adjacent to schools, and for the public accessing facilities such as churches and community buildings. More information regarding speed management can be found in section 3.1.2 of this assessment.

ACCESS FOR ALL

This provision is a worthy strategic focus in the current version of SNAP. This is reflective of recent work carried out by the World Bank in the *Global Roadmap of Action, Toward Sustainable Mobility* Report (Sustainable Mobility for All 2019), which sums up the key components of sustainability for transport mobility. The four key characteristics for sustainable mobility are:

- Universal Access;
- Efficiency;
- Safety (the major focus of this review); and
- Green Mobility.

The *Universal Access* characteristic of sustainable mobility requires to provide for the needs of persons-with-disabilities, pedestrians and cyclists.

The actions set out in the Access for All key strategic focus area of the current SNAP are supported for continued inclusion for the proposed updated SNAP 2021-2030. Discussions with Nuanua O Le Alofa (NOLA) should be utilized to further inform this set of Actions. Safe public transport for all should be a focus for the GoS to respond to SDG 11.2.

This requires action on bus and taxi speeds (with monitoring results being taken into account when an operator seeks to extend their license to operate a route); introduction of a zero BAC limit for public transport drivers; safer bus construction; provision of bus bays; and effective enforcement by police.

FUNDING OF ACTIVITIES

The Funding of Activities section of the existing SNAP is an important recognition of the crucial role that preparedness to invest in road safety measures will play for improving road safety performance in Samoa. The decision-making on potential investment in road safety programs should be based on the assessment of solid business cases prepared to advocate for road safety programs, which offer demonstrably strong economic returns as well as social benefits. ACC should be involved in assisting the preparation of business cases to ensure that the benefit cost of early programs is not understated. They may well find the estimated benefits of certain programs commercially attractive to their operations, as is the case for the Transport Accident Commission in Victoria, Australia, who invest in many enforcement, public awareness, augmented police enforcement and road safety practitioner training programs. Training of key staff in LTA, MWTI, ACC, MoH and MoF will be necessary.

1.2.1. PROPOSED UPDATED SAMOA NATIONAL ACTION PLAN (2021-2030)

It is recommended that an updated SNAP is developed to build on the RSMCA findings and considers key ongoing elements of the existing SNAP. As of 2020, the delivery performance of the existing SNAP is moderate. A large number of the proposed actions were not started, and commitment to achieve the SNAP as a priority was not evidenced by the nominated implementing agencies. It is also not evident that the estimated budget for each of the strategic focus areas was allocated accordingly. The achievement of the overall aim of the SNAP—to reduce the annual fatalities in Samoa from 10 per 10,000 vehicles (in 2011) to five per 10,000 vehicles (by 2020)—cannot be calculated by available data with certainty. However, there does seem to be some progress, with fatalities reduced to a rate of 6.2 per 10,000 vehicles in 2018-2019. It should be noted that there is inherent variability in the fatality numbers of a scale such as those in Samoa (that is, less than 20 fatalities). Nonetheless, progress is tracking in the right direction. However, more commitment is required to achieve the actions set out in the existing SNAP and the new and continuing recommended actions proposed in the following chapters.

The proposed updated SNAP 2021-2030 should reflect a strong results focus, revised road safety management arrangements and set out targeted initiatives under the headings of the Safe System pillars, in order to improve road safety outcomes in Samoa. Importantly, the updated Action Plan should establish, or reinforce, partnerships between members of the NRSC and the wider community to ensure action and change. A new pillar focusing on Safer Speeds should also be included in the new SNAP given that speed is the road crash risk factor with the greatest influence in determining death and SI outcomes of road crashes. Further information regarding speed management can be found in chapter three of this assessment.

To be effective, the proposed updated SNAP 2021-2030 needs to detail the GoS commitment to improving safety on Samoa's roads, and outline clear evidence-based and measurable activities with associated performance indicators. These are outlined in the proposed updated SNAP 2021-2030 in chapter four of this assessment.

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[5] Data for 2017, 2018, 2019 provided by Ministry of Health on 20th February 2020.

2. ROAD SAFETY CAPACITY REVIEW – INSTITUTIONAL MANAGEMENT FUNCTIONS

As defined in the World Bank Global Road Safety Facility (GRSF) Capacity Review Guidelines and outlined in the review description section of this assessment, there are seven road safety institutional management functions:

- Results focus;
- Coordination;
- Legislation;
- Funding and resource allocation;
- Promotion;
- Monitoring and evaluation; and,
- Research and development, and knowledge transfer.

These are the foundation on which the road safety management system is built and are essential for the production and implementation of interventions which, in turn, will achieve road safety results and over time deliver a Safe System. These are explained in detail in the following chapters, as to how they are currently practiced in Samoa and recommendations for how they could each be strengthened.

2.1. RESULTS FOCUS AT SYSTEM LEVEL (CHECKLIST 1)

2.1.1. REVIEW OF EXISTING PRACTICES

Discussions were held with all key agencies and ministries and other key stakeholders during the review team visit to Samoa. The key agencies are:

- The Ministry of Works, Transport and Infrastructure (MWTI), who are expected to carry out the lead government agency function for road safety; convene the National Road Safety Council (NRSC); monitor imported vehicles; and oversee the provision of public transport services;
- The Land Transport Authority (LTA), who are responsible for constructing and maintaining the road network in a safe condition, including setting appropriate speed limits (until June 31, 2020 they were also responsible for driver licensing and vehicle registration activities—this was transferred to MoPP as of July 1, 2020 and as yet the benefits of this change are unclear);
- Traffic Police are responsible for enforcing the road rules and law and providing vehicle registration and driver licensing services;
- The Samoa Fire and Emergency Services Authority (SFESA), who together with MoH are responsible for care and retrieval of crash victims from the roadside to post crash emergency treatment at the major hospital and related facilities; and

- The Accident Compensation Corporation (ACC), who provide injury insurance services for all those injured in road crashes including treatment and rehabilitation and recovery costs. They also operate monitoring of road crashes in Samoa, based on police-collected data, for their injury insurance scheme purposes. This provides an invaluable data input for all road safety agencies.

Governance of road safety across these agencies requires urgent review and change in approach. There was limited awareness of the road safety situation in Samoa and very little resources are applied to it apart from MoPP, ACC and MoH. The necessary policy impetus, which is required from MWTI and LTA to deliver the basis for improved road safety performance was not evident and MWTI's role in convening the road safety partners on a regular basis has fallen away. The NRSC is not functioning—it last met in May 2019—and the roles and responsibilities of the Committee and component agencies require thorough review and adoption, preferably in regulatory form. Its role is currently limited to campaigns and some other matters, and its role is not inclusive of overall accountability for the whole of the Samoan road safety situation. Accountability for specific road safety responsibilities by agencies within that overall framework are specified in legislation and need to be followed, but the overall accountability for road safety performance must rest with the NRSC as a whole.

The Review Team was advised that there are four full time staff between MWTI and LTA working on road safety matters (it is assumed that they are covering policy, data and engineering issues). A further 10 staff operate the public registration and licensing system and services in LTA, which transferred to MoPP on July 1, 2020.

The LTA does not appear to operate any infrastructure safety blackspot program for high crash risk locations on the existing network (one reason would be the non-availability of location based crash data, but a new road crash data system could assist resolution of this shortcoming) nor conduct any analysis of crashes by type or road user group, nor apply road safety audit processes to new Government of Samoa (GoS) road projects, although this process was applied on World Bank funded road projects such as the Samoa Climate Resilient Transport Project (SCRTP).

There is limited readily available and analyzed crash data, although MoPP do have a computerized database for crashes with text location information. ACC have an agreement with MoPP to receive road crash data on a regular basis in an agreed template and this does occur. It appears location data are very limited, if recorded at all. LTA do not receive the crash data that has been provided to ACC by MoPP in a timely manner. No mapping of fatal and serious injury (SI) crash locations is available to enable location specific measures (particularly infrastructure safety interventions) to be identified and implemented by LTA. This needs to be a major early focus for improvement.

Estimates of the social costs of crashes are not readily available. Note that on the accepted basis that road crashes in any society result in economic costs of some 2.5 percent of gross domestic product (GDP) (McMahon and Dahdah 2016)[6] (and in many countries, higher levels), the annual cost in Samoa would be US$20.5 million.

Data on drink driving testing and the proportion of illegal drink driving results, the number of speed infringements and the results of blood testing of fatal and SI crash victims were not provided.

The Ministry of Education, Sport and Culture (MESC) advised that road safety programs in schools have been reduced in recent years with a move away from incorporating road safety in the school curriculum. Discussions centered on optimizing the benefits of road safety education programs through a focus on key road safety learning

issues (such as, crossing the road safely; using buses safely; riding bicycles safely; wearing seatbelts and helmets; awareness of the risks of driving for the pre-learner age group and awareness of the benefits of supervised learner practice hours in the learner period; and, more), and measures to be pursued on roads outside the school gate.

MESC were supportive of engagement through their curriculum division with ACC, LTA and MoPP to identify and agree appropriate programs of this type for school implementation.

Annual performance agreements for targeted achievement are not in place. The current review is a timely opportunity to analyze progress and performance, assess capacity for improving institutional management functions and for intervention development, approval and delivery with performance outcomes expressed in an updated Samoa National Action Plan (SNAP). The literature and experience clearly demonstrate that if road safety improvement is to be achieved many opportunities to improve performance and a range of measures across government should be put in place starting with a shared and genuine high-level government and NRSC commitment to introduce a holistic focused approach.

Regular performance reviews to assess progress and make improvements to achieve the desired focus on results do not appear to have been conducted in 2019 and there is no evidence that industry, community and business responsibilities for improved road safety performance have been clearly defined.

An updated SNAP is planned to be prepared for the next 10 years by the end of 2020; however, preparation has not yet commenced (it is hoped that the proposed updated SNAP 2021-2030 in this assessment will assist this process). A national vision for improved road safety performance in the longer-term, such as a zero fatalities vision by 2050 or earlier, has not yet been officially set. However, as noted earlier a target of five fatalities per 10,000 vehicles was set in the 2015 to 2020 Samoa road safety action plan. The actual rate of fatalities per 10,000 vehicles in 2018/9 (based on 16 fatalities and 25,793 registered vehicles) was 6.2. A revised set of targets will be needed for the 2020 to 2030 strategy/action plan to be developed and agreed by the end of 2020.

The 12 United Nations (UN) Global Road Safety Performance Targets provide a set of internationally recognized performance targets to 2030 for performance areas which could usefully be drawn upon by the GoS to set component targets in the updated SNAP (see appendix I).

LEAD AGENCY ROLE AND INSTITUTIONAL MANAGEMENT FUNCTIONS (CHECKLIST 12)

The first group of questions in Checklist 12 examine the effectiveness of the contribution of the lead agency to the *Results focus* function. MWTI is assumed to be the lead agency for road safety in Samoa. The review found:

- No evidence of appraisal of road safety performance through any high-level strategic review and no adoption of a road safety vision for the future other than the existence of the current SNAP. No review of that plan was evident;
- There was no available analysis as to what could be achieved in terms of road safety performance in the medium-term in Samoa;
- No quantitative targets as a potential goal for an updated SNAP appear to have been discussed across the road safety partnership nor are they mentioned; and

- There was no evidence available of establishment of any mechanisms to ensure a partnership accountability across government agencies for road safety results. The NRSC had not been convened since May 2019.

To achieve changes in awareness of the importance of improved road safety performance and the associated policy and actions required to achieve it, strong focused lead agency activity will be necessary.

2.1.2. RECOMMENDED NEW PRACTICES

ESTABLISH HIGH LEVEL COMMITMENT

Samoa would benefit from a strong recommitment to improving its road safety outcomes. This should be built on an understanding and acceptance that selected measures that will reduce fatalities and SI do exist and can be achieved at a cost which would be much less than the associated economic benefits. There is a significant opportunity for the government to act in the community interest by focusing attention on reducing fatalities and SI on the roads.

Firm committed leadership will be required from the most senior government leadership to support the necessary priority government and community lead actions and to develop and promote the narrative necessary to support communicating the potential benefits of this change.

STRENGTHEN RESULTS FOCUS ELEMENTS

Significant impact can be achieved through a strong results focus within government on interventions that will reduce road deaths and SI while supporting sustainable transport outcomes. It is the first of seven institutional management functions examined (the other six functions are reviewed below) and the most important in terms of an overarching impact for all road safety agencies and for the consolidated whole of government road safety effort in the country. Key elements of the results focus function and required strengthening are listed below:

Leadership and accountability, Lead agency

It is recommended that the Lead Agency for road safety in Samoa remains MWTI, but with an agreed brief to carry out this role. Successful road safety performance requires leadership and accountability within a number of organizations. They are essential to promoting the new approaches adopted for road safety internationally and the practical opportunities for Samoa.

Governance

The Lead Agency (MWTI) is to be responsible for regularly convening the NRSC and establishing a Working Committee of key agencies to propose policy recommendations and actions to the NRSC.

The NRSC should recommend to government that a Ministerial Road Safety Council of the relevant Ministers with road safety responsibilities be established to meet three times each year, with support from MWTI and advice from the NRSC. This will strengthen parliamentary relations through Ministerial exposure to road safety practitioner recommendations and the underpinning evidence base.

The proposed reporting and vertical and horizontal coordination arrangements are shown in some detail in the coordination and decision-making section below.

Road crash data system that is accessible, up to date and comprehensive

Availability of a strengthened, comprehensive, reliable and accessible road crash data system and use of data which is made available in a timely manner for competent continuous analysis, will enable decision makers and the public to be informed and to monitor intervention effects and detect changed crash risk circumstances.

This will enable a comprehensive new governance framework to deliver evidence-based recommendations to high-level government, supported by multiple departments, and achieve outcomes which improve road safety performance and that can be readily measured and evaluated. This is essential to building government and community confidence for any proposed and applicable strategy. The proposed introduction of the Data for Road Incident Visualization Evaluation and Reporting (DRIVER) road crash database system by the World Bank in association with MoPP, MWTI, ACC and LTA, with an initial pilot project proposed as a part of this project, is an opportunity to establish a comprehensive available system and deliver training in data collection and data analysis to secure beneficial use. MWTI should have carriage of this pilot and data system operation (including negotiating data requirements to be collected by MoPP and conducting analysis of the data to identify performance and underlying crash risks).

An outline of the current crash data system as well as the proposed DRIVER road crash data system are contained in appendix F as well as a brief description of the Pilot Scheme proposed to be established later in 2020, which is also outlined in the proposed updated SNAP 2021-2030 in chapter four.

Strategy targets and action plans developed and implemented

A clear strategy with associated time-based targets for reductions in fatalities and SI in the medium- to long-term, with specific actions to achieve these, is required based on the sustainable transport agenda and the UN safe system framework.

Recommended targets and actions, including a proposed target of 50 percent reduction of fatalities by 2030, from 2020 levels, are set out in section 4.2 of this assessment, for discussion in the Capacity Review Workshop to be held with GoS and other stakeholder representatives by video conference later in 2020.

The 12 UN Global Road Safety Performance Targets should be considered during the development of the updated SNAP 2021-2030, and their application should be aligned with the adopted SNAP priority actions.

Suggested draft agency roles and responsibilities

The suggested starting point for the definition of roles and responsibilities of agencies and departments in Samoa are as follows:

- *MWTI:*
  - Lead agency support for national road safety decision-making governance and coordination;
  - Operation of reconstituted NRSC;
  - Crash data system operation and data sharing and analysis;
  - Strategy, target and action plan preparation;
  - Support for legislative agenda and for business case template for road safety investment, including value of each fatality and each SI avoided; and
  - Lead campaign development to support police enforcement activity at the relevant time.
- *LTA*:
  - Responsibility for recommending appropriate speed limits; infrastructure safety treatments; safer new road works; road safety audits and safe system assessments; safer network maintenance and building safety into the network through low cost treatments as part of regular maintenance;
  - Imported vehicle safety standards;
  - Bus license conditions of operation; and
  - Vehicle warrant of fitness scheme.
- *MoPP:*
  - Deterrence activity—drawing upon enforcement of legislation and regulation with support from NRSC auspiced publicity campaigns;
  - Vehicle registration; and
  - Driver licensing.
- *ACC:*
  - Expand reinvestment in targeted road safety additional enforcement and minor infrastructure safety programs to lessen claims, based on robust business cases with a positive benefit-cost to ACC in cash terms.
- *Attorney General*:
  - Support with legislative drafting.
- *Ministry of Health*:

- Health system trauma management and testing of blood alcohol concentration (BAC) levels in blood samples from crash involved drivers.

- *SFESA*:
  - Ambulance and emergency services system operation.
- *MESC*:
  - Supporting development and provision of new specific targeted school road safety programs and improved road safety measures outside school gates (further opportunities are outlined in section 2.5 of this assessment).

NRSC could agree documented roles and responsibilities for the identified agencies.

Adequate resourcing is required for road safety positions within an MWTI road safety cell to their lead agency role and within an LTA road safety unit to carry out their recognized road infrastructure safety and safe speed limit responsibilities within a safe system framework. A review of resourcing of road safety roles in MoH and ACC is also suggested, as is a review of resourcing within MoPP for enhanced enforcement. Extended data collection and for the new driver and rider licensing and vehicle registration responsibilities will be necessary to adequately meet these extended activities.

The provision of funded adequate training and development for road safety staff across relevant departments to skill these officers in pursuing enabling activities and subsequent implementation development and delivery will be an essential underpinning platform for progress to be achieved.

Confirming agreed value of a life and serious injury for Samoa

Individual estimates of the benefits of fatalities and SI avoided through specific targeted road safety investment (in infrastructure safety treatments, additional legislative and enforcement activity, and so on) are shown in table 4 below. This is derived from work carried out by the International Road Assessment Programme (iRAP) and the World Bank GRSF (Bliss and Breen 2013).

Table 4: Estimated cost of road crashes in Samoa in 2018 using International Road Assessment Programme economic appraisal model values (McMahon and Dahdah 2016)

	Lower iRAP value	Samoa estimate	Central iRAP value	Samoa estimate	Upper iRAP value	Samoa estimate
Value of Fatality	60*GDP/Capita	US$251,000	70*GDP/Capita	US$292,800	80*GDP/Capita	US$334,700
Value of Serious Injury	12*GDP/Capita (20%VSL)	US$50,200	17*GDP/Capita (25%VSL)	US$71,100	24*GDP/Capita (30%VSL)	US$100,400

This analysis would suggest that the level of annual economic cost of road crash fatalities and SI to Samoa, based on the 2016 Global Burden of Disease (GBD) estimates of 18 fatalities and 330 SI (World Bank 2020), and expressed in 2018-2019 monetary terms based on iRAP data in table 5 above, was some US$28.7 million. The GRSF Road Safety Country Profiles (World Bank 2020) provides an estimated economic cost for 2016 of 3.7 percent of GDP.

Awareness of recent international good practice developments

Senior road safety staff should be encouraged to broaden their awareness of good international practice including high-level outcomes from the recent International Ministerial Road Safety Conference held in Stockholm in February 2020 and the objectives of the UN Sustainable Development Goals[7] notably Sustainable Development Goal (SDG) 3.6: "By 2020 – (now 2030), halve the number of global deaths and injuries from road traffic accidents" and SDG 11.2: "By 2030, provide access to safe affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons."

MWTI should seek funding for annual ongoing road safety related training programs, including for police enforcement training (speed and drink driving) and for MWTI, MoH, LTA, ACC, SFESA and MoF. Shared understanding, development of specific insights and improved awareness will be essential to improving performance.

Further, awareness of emerging global initiatives such as Sustainable Mobility for All (Sum4All)[8] and Movement and Place needs to be established. Sum4All is the acronym for the global sustainability framework for transport which allocates priority to equitable transport access, safety, efficiency and green approaches. This thinking should be a responsibility of the relevant agencies under the guidance of the NRSC and lead agency MWTI, within the road safety management pillar.

The need for applying Movement and Place thinking to respond to the actual safety and flow conditions on any street or length of road transport is an important and readily applied subset of this Sum4All thinking. More detail on Movement and Place is provided in the recommendations for speed limits in section 3.1.2 of this assessment.

The important role of safe public transport for all receives particular focus under SDG Goal No. 11 and this requires a greater focus on the issues facing safer public transport in Samoa. These factors are summarized under the 'Access for All' sub-heading in the proposed updated SNAP 2021-2030, which is detailed in chapter four.

2.2. COORDINATION (CHECKLIST 6)

This function also relates to the hierarchy of road safety policy decision-making which needs to be operating in a country.

2.2.1. REVIEW OF EXISTING PRACTICES

Coordination arrangements in Samoa are not delivering satisfactory outcomes and would benefit from concerted attention if improved road safety outcomes are to be achieved.

All the road safety related departments and agencies would benefit from meeting and discussing current road safety challenges and strategy and action plan directions. In order to reflect the dynamic and multi-sectoral nature of these challenges, regular discussions at a working group level are required to agree upon lower level actions which fall within their delegated authority and to develop high-level recommendations. This vertical integration is currently insufficient in Samoa in order to meet road safety outcomes.

2.2.2. RECOMMENDED NEW PRACTICES

There is the need to foster effective coordination and shared decision-making between agencies that is maintained into the future. Parliamentary relations between the political level and senior management will also need to be a focus of effort in order to lead necessary and beneficial road safety change.

The establishment of a working group (meeting monthly) would result in a body that could recommend new policies to meetings of the NRSC, say, every three months, and include similar membership to the present Committee, but with Chief Executives and Secretaries accepting their responsibility to lead and drive the road safety agenda and performance, and accept accountability for outcomes. The Working Group members would also attend the NRSC meetings to talk to the recommendations under consideration, if required, and provide any other immediate advice sought.

The NRSC would then consider the recommendations, accept the recommendations and in some cases direct the actions to proceed or refer the recommendations to the meeting of road safety ministers (Ministerial Council) to be held a few weeks after the NRSC meeting. The Committee may also ask for further work or information to be reported back to the NRSC. This Ministerial Council could approve certain matters within Ministers' delegations or may need to refer important proposed policy changes to Cabinet.

SFESA could be invited to be a part of the Working Group and to attend the Executive Group when SFESA consider there are relevant matters they wish to discuss or to be a part of a broader discussion.

In the Working group and NRSC, there needs to be a government officer support group to handle agenda formulation, preparation and circulation of minutes for action and carry out preparation of consolidated reports from departments on major issues as and when that is relevant.

A third group to be established could be a consultation and liaison group of private sector organizations (such as Petroleum Product Supplies (PPS), Chamber of Commerce) plus Village council, university researchers and nongovernmental organization (NGO) representatives. They would meet approximately three times a year and be briefed on proposals under consideration by government and their input sought on those or any other matters for which they wished to make suggestions or make comment upon.

The Ministry of Women's Affairs should be included in the Advisory Group and in the Liaison and Consultation Group —alongside Village Councils for consultation—and as they consider necessary, in the decision-making process. Groups such as Nuanua O Le Alofa (NOLA), the disability advocacy NGO should be invited to be a part of the Advisory Group along with other private sector groups (petroleum carriers, chamber of commerce, and so on).

In summary, the proposed governance arrangements for road safety in Samoa would be a NRSC reporting to a Ministerial Road Safety Council with support from a road safety Working Group of government agencies, all supported by MWTI and with consultation by the Working Group with (a) Village councils and (b) with a Group of NGO's, church leaders, researchers and relevant private sector umbrella bodies.

The proposed updated arrangements are shown in figure 8 (note the recommended separate but complementary roles of support, decision-making and advisory activities).

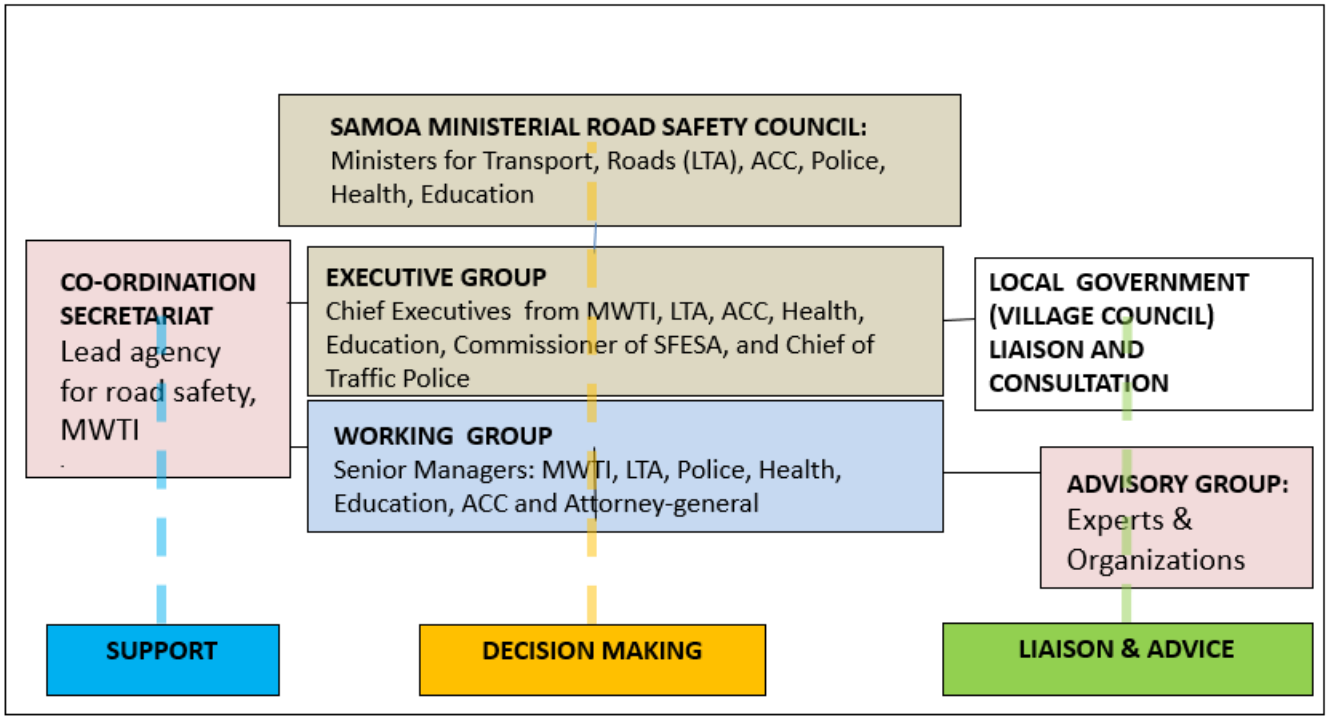

Figure 8: Possible structure of road safety coordination and decision making in Samoa

2.3. LEGISLATION (CHECKLIST 7)

2.3.1. REVIEW OF EXISTING PRACTICES

The arrangements adopted following recommendations and discussion at the workshop for the Ministerial Road Safety Council, National Committee and Working Group should be addressed in legislation or regulation with annual reporting to the parliament on road safety performance against the adopted strategy and targets.

2.3.2. RECOMMENDED NEW PRACTICES

The adoption of a well-coordinated legislative process through the Attorney General originating with advice through the NRSC and Ministerial Council being presented to the Cabinet, and (if adopted) proceeding to the Parliament, is necessary. A number of priority interventions identified in this assessment will require legislative action and many existing measures will require ongoing legislative, regulatory and systems adjustment and strengthening to improve their effectiveness.

At the same time, it appears current arrangements for preparation of draft legislation through the Attorney General are of good quality. However, demand for priority legislative, regulatory changes and associated data system changes do need to be actively fostered and then formulated through the governance arrangements outlined above. This will ensure priorities indicated to the Attorney General reflect current important needs. Legislative adjustments on an ongoing basis are a vital tool for strengthening road safety deterrence. The coordination arrangements recommended above will assist obtaining shared support across the key road safety agencies for any new regulation, legislation or whole of government systems.

A Graduated Licensing System (GLS) with required hours of supervised experience to be achieved before final license testing for novice drivers, plus legislation for requiring alcohol interlocks to be fitted to vehicles of repeat drink drivers, and for drug driving testing and associated penalties should be considered and prioritized.

See appendix G for recent legislative review in Samoa by Stantec (2020), which also recommends that the Road Traffic Regulations 1961 should be revised given the age of the regulations and moreover, the very limited amendments that have occurred over time. Likewise, the relevant penalties in the Road Traffic (Payment of Fines) Act 2009 should be considered as to their adequacy and ability to improve road safety through a real deterrent.

2.4. FUNDING AND RESOURCE ALLOCATION (CHECKLIST 8)

2.4.1. REVIEW OF EXISTING PRACTICES

Funding is not currently available in Samoa for investment in a number of specific areas that are highly important in improving road safety outcomes. This includes retrofitting of infrastructure safety features and enhanced enforcement. Targeted investment in specific projects and programs would deliver positive economic benefits for Samoa. There is no sustainable specific funding source established to enable road safety investments to be implemented.

To not adequately resource the augmented enforcement tasks would be to accept the practice of breaking road laws and rules ahead of the safety and well-being of the Samoan community.

2.4.2. RECOMMENDED NEW PRACTICES

The preparation of a business case and its negotiation with Ministry of Finance (MoF) through the NRSC for investment in road safety interventions is the critical approach for achieving resourcing support.

A well-prepared business case based on research and hard evidence will make the case for particular investments where the economic return on investment to the Samoan community based on the value of lives saved and injuries avoided cannot be ignored.

There is an urgent requirement for the value of life saved and of a SI avoided to be calculated for Samoa (if it does not currently exist) to enable business cases for potential benefits of specific interventions to be prepared and compared to the associated costs of the intervention. Well designed and carefully crafted interventions typically deliver multiples of costs as benefits over the life of the intervention. The iRAP and GRSF estimated figures for the economic value of a fatality and a SI are set out in section 3.1.1 of this assessment.

This approach would be useful as an interim measure until specific agreed values can be determined, potentially through a brief project by MWTI in association with MoF, drawing upon expertise from New Zealand or Australia if necessary.

An agreed business case approach across the key departments addressing benefits and costs of proposed projects and programs and reflected in a template supported by MoF should be the basis for submissions to the NRSC seeking road safety investment funding.

An adequate budget for infrastructure safety high-risk (blackspot) treatments and pedestrian safety measures as a mass action treatment (footpaths and pedestrian crossing safety platforms) is required for LTA. Adequate resourcing of additional enforcement by MoPP to substantially improve drink driving compliance (that is to conduct 100,000 random breath tests per year) and speed compliance (more speed guns and three mobile covert speed cameras) will dramatically reduce deaths and SI.

2.5. PROMOTION (CHECKLIST 9)

2.5.1. REVIEW OF EXISTING PRACTICES

There is limited available evidence of the effective and strategic provision of road safety information to senior government officers and the Ministerial level on the availability of potential measures which, if adopted, would lower fatalities and SI and deliver associated economic and social benefits for Samoa. These activities should be led by the MWTI, especially since they are able to convene NRSC and multiple stakeholders of road safety.

There were no examples provided of government department in-house road safety policies, or evidence of use of safety ratings programs (for example, iRAP star ratings for the arterial road network), or of links from the national road safety level to local level road safety promotion.

2.5.2. RECOMMENDED NEW PRACTICES

These institutional management functions relate to advocacy upwards and laterally by mid-level and senior officers, to members of the community and parliamentarians, for critical potential measures when the concepts are being developed and, in many cases, when incidental negative impacts require amelioration measures to achieve acceptance by the community. Examples of a small set of issues where this situation is likely to apply would include a new GLS, a lowered legal blood alcohol limit to 0.05 percent BAC, and measures to improve public bus speed limit compliance and off-road setting down and picking up of passenger's compliance.

The major challenge is the promotion of an understanding of the scale of the road safety problem upwards to the senior bureaucratic level in all government departments and to senior executives in the private sector. In particular, raising their awareness that reducing the levels of road trauma is not only desirable but that the means to do so are readily available (with will and resourcing) and that a strong target for reduction of fatalities and SI can be considered achievable and can be delivered if appropriate action is taken by government.

Public road safety campaigns should be initiated by MWTI with MoPP when the police enforcement program for the coming year is determined. The campaigns need to carefully be targeted at supporting police enforcement efforts. The most effective form of road safety education is usually deterrence achieved through enforcement. Campaigns operating on their own (that is, not supporting enforcement) are not usually effective in achieving behavior change.

2.6. MONITORING AND EVALUATION (CHECKLIST 10)

2.6.1. REVIEW OF EXISTING PRACTICES

There is limited evidence of any road safety monitoring activity taking place or any activity being reported to the NRSC. Intermediate outcome data for drink driving random breath tests and rates of offences per test and seatbelt wearing offences rates (front and rear seats) should be measured and monitored by Traffic Police and surveys of travel speeds, front seatbelt and motorcycle helmet wearing should be carried out by MWTI.

2.6.2. RECOMMENDED NEW PRACTICES

The measurement of outcomes such as SI, and intermediate outcome measures are critical tools to readily assess current conditions and track any change over time (say over six months). These intermediate outcome measures include: mean speeds, drink driving detection rates for a constant testing output regime, seatbelt wearing rates, unlicensed driving rates, star rating of new infrastructure, ambulance response times to a crash scene, speed limit compliance of public buses, frequency of public buses using bus bays or pulling off the through carriageway when setting down or picking up passengers, and more.

Appropriate intermediate outcomes provide powerful immediate insight about crash risk. For instance, lower mean speeds will reduce fatal crash outcomes on the roads where the speeds are reducing at a rate of a four to five percent reduction in fatalities for each one percent of mean speed reduction. If mean speeds reduce by five km/h in a 60 km/h zone from say, 65 km/h to 60 km/h, fatalities on those roads can be assuredly expected to reduce by more than 20 percent. This indicates the informative power of intermediate outcome measures. They support active and focused management of long-term policy matters and their short-term implementation.

International expertise could be obtained through remote access methods to obtain guidance and regular updates on that advice. Resourcing the regular collection of data to support monitoring of a subset of intermediate outcomes will be necessary within MWTI, LTA, MoPP and ACC.

Annual road crash reports should be published by the NRSC with the support of MWTI, ACC, MoPP, MoH and LTA.

Regular measurement of BAC levels in the blood of drivers involved in injury and fatal crashes should be carried out through cooperative arrangement between MoPP and MoH. Both of these agencies need to be adequately resourced to allow for the facilitation of this task. This will provide a valuable set of data about alcohol involvement in crashes. Any legislative impediments should be addressed by the NRSC.

2.7. RESEARCH AND DEVELOPMENT AND KNOWLEDGE TRANSFER (CHECKLIST 11)

2.7.1. REVIEW OF EXISTING PRACTICES

Programs for knowledge transfer and encouragement of development of research capacity are critically important to Samoa's future road safety progress and should become a high priority. There is a need in all countries to inform communities and political leaders of the thinking behind safe system and the need to move away from past concentration on road users being the major focus of attention and blame for crash risk.

This major shift—to a shared responsibility focus between providers and users—requires time and skill for its explanation and the briefing of leaders to challenge and shift traditional mindsets. There was no evidence of these activities receiving attention or in contemplation in Samoa.

2.7.2. RECOMMENDED NEW PRACTICES

There are practical knowledge transfer demands on the Samoan road authorities such as paramedic training of local staff for ambulance roles, capacity to calibrate alcohol testing devices and speed guns in Samoa, and a need for independent evaluation of proposed policy changes and the effects of policy implementation. The community needs this independent evidence-based evaluation capacity and information in order to be confident that government measures are delivering projected fatality and SI reduction benefits.

Nurturing this expertise is a challenge but the tertiary sector should be engaged to provide some initial proposals for establishing capacity starting with evaluation and drawing upon Australian or New Zealand university-based road safety research organizations.

REFERENCES

McMahon, Kate and Said Dahdah. 2016. *The True Cost of Road Crashes, Valuing Life and the Cost of a Serious Injury*. iRAP.

Stantec. 2020. *Comparative Review and Gap Analysis of Samoa's Laws and Regulations to Land Transport and Traffic*. Stantec.

World Bank. 2020. *Country Profiles, Samoa*. World Bank.

[6] For more information see: https://data.worldbank.org/country/samoa.
[7] For more information see: https://sdgs.un.org/goals/goal3 and https://sdgs.un.org/goals/goal11.
[8] For more information see: https://sum4all.org/.

3. ROAD SAFETY CAPACITY REVIEW– INTERVENTIONS LEVEL

As noted previously, the Global Road Safety Facility (GRSF) Guidelines for Road Safety Management Reviews and Safe System Projects (Bliss and Breen 2013) are based on important key concepts which underpin effective road safety management in any country. Checklists two to five set (found in appendix D) provide the basis for assessing implementation challenges, emphasizing the critical linkage between implementation and outcomes, which is the basis for target setting based on implementation delivery. The three categories of interventions noted in the Guidelines and discussed in detail in this chapter are planning, design, operation and use; entry and exit of vehicles and drivers; and recovery and rehabilitation of crash victims. These can be reallocated for the proposed national strategy as the six Safe System pillars of road safety as set out in the next steps section of this assessment. The following chapter also outlines the relevant questions from the checklists pertaining to each area of focus.

3.1. PLANNING, DESIGN, OPERATION AND USE OF THE ROAD NETWORK (CHECKLIST 2)

3.1.1. REVIEW OF EXISTING PRACTICES

Q: Have comprehensive safety standards and rules and associated performance targets been set for the planning, design, operation and use of roads for National roads, Regional roads and City roads?
A: No, they have not been comprehensively set yet.

Comprehensive safety standards and rules for design of internationally funded new highways are being progressively introduced. Associated performance targets are yet to be established. Standards for use in Samoa are yet to be developed and implemented in a planned comprehensive manner, although some individual treatments, such as raised profiles to improve pedestrian crossing safety, have been put in place. It is also noted that a draft Construction Code is currently being compiled by the Ministry of Works, Transport and Infrastructure (MWTI) that will include elements of access for disabled and mobility-impaired persons. The safety standards and rules do not currently address the risks faced by vulnerable road users such as pedestrians and cyclists, particularly on rural roads. The Road Traffic Orders 1994 includes the requirement for a child under the age of 12 years to be properly restrained by a child safety seat or seatbelt. Given there are no requirements for rear seats in vehicles to have seatbelts, this legislation leads to children being restrained in the front seat if no child restraint is installed in a vehicle. There are risks associated with this, including injury from airbags, given their height. This should be addressed given that >30 percent of serious injuries (SI) (ACC 2018/19 FY) are children up to age 10 years. While it is not known what proportion of these SI relate to children as passengers, as opposed to children as pedestrians or cyclists, the regulation of child restraints would certainly improve road safety for children.

The International Road Assessment Programme (iRAP) have produced a business case for investment in a targeted infrastructure safety program in Samoa (World Bank 2020) and the costs and benefits are shown in figure 9.

Business Case for Safer Roads	
Infrastructure and Speed Management Investment required:	$ 45.57 million
Annual Investment as a % of GDP (2019-2030):	0.44%
Reduction in fatalities per year:	12
Approximate reduction in fatalities and serious injuries (FSI) over 20 years:	2,650
Economic Benefit: $ 175.3 million	Benefit Cost Ratio: 4

Benefit Cost Ratio (BCR) of four for a targeted investment of US$45.57 million, with major reductions in fatalities and serious injuries.

An economic benefit of US$175 million over 20 years can be achieved for an investment of US$45.57 million.

Figure 9: International Road Assessment Programme business case for safer roads and speed management in Samoa

Q: Are the official speed limits aligned with Safe System design principles?
A: Partial alignment is in place but much more could be done.

The maximum speed limits on both urban and rural roads in Samoa is 56 km/h. This is reasonably well aligned with Safe System design principles for rural roads, except where there are major pedestrian flows present. This is an issue, particularly in the absence of footpaths and adequate safe pedestrian crossing opportunities in the linear village sections of major roads, such as the section of West Coast Road between Apia and Faleolo Airport.

The speed limit within the center of Apia is 40 km/h. This speed is considered above Safe System levels and should be lower since this is a highly pedestrianized area. Currently, official speed limits may not be as responsive to crash risk and safe system principles as they could be. Further, anecdotally, there is some confusion with speed limit signs indicating speed limits in both miles/h and km/h. This is a legacy issue that needs to be rectified. The Movement and Place Framework shown in figure 10 is particularly important for assessing and improving the livability and safety of places and vibrant streets, where greater numbers of pedestrians and cyclists gather. Information on application is provided in section 3.1.2 of this assessment.

Figure 10: Matrix showing road and street types in a Movement and Place framework (Department of Transport Victoria 2019)

Q: Are compliance regimes in place to ensure adherence to specified safety standards and rules?

- *Speed management?*
- *Alcohol management?*
- *Safety belts management?*
- *Helmets management?*
- *Black spot management?*
- *Road safety audit?*
- *Road safety inspection?*
- *Fatigue management?*
- *Network safety?*

A: Partial compliance was assessed to be in place for the range of safety standards and rules outlined above.

Many of the required safety standards are not in place so attempting comparison with international good practice is not meaningful.

Speed management

Speed management is a critical issue, particularly in areas of linear urban development, such as Cross Island Road, West Coast Road and in the greater Apia area. In these locations, pedestrian facilities are generally very poor (for safe crossing and for walking alongside the road) and there are a substantial number of pedestrians present. We are unsure at this stage of the road user status of children under 10 years involved in SI (that is, pedestrians or vehicle occupants or shared between both).

Except in downtown Apia, footpaths are rarely constructed or improved when roads are upgraded. This was suggested to be due to the cost of construction but also the difficulty in reserving land through acquisition or agreement, necessary due to the narrowness of road reservations. This a major policy issue with current conditions increasing crash risk for pedestrians, who already account for more than 45 percent of all fatalities, albeit, with most of these fatalities appearing to occur when pedestrians are crossing the road.

Travel speeds

Some stakeholders expressed the need for an increased focus on speed enforcement. Increased resourcing for Traffic Police would be necessary for this to occur. An increase in extensive speed enforcement is called for with Traffic Police having only one radar gun at present to enforce speed limits right across Samoa. Electronic signs that show speeds when they are above limits would be a useful tool to convey to drivers their lack of compliance and the need for behavior change. In due course, movement to fixed speed cameras would be desirable, but only when capacity for issuing a large number of fines following through on collection can be implemented. This may be some years away.

MWTI advised that a trial monitoring of private buses operating with an approved government route license, with the SkyEye geo-tracking devices, had shown substantial levels of speeding by these buses across Samoa, including within Apia.

It is noted that buses were associated with 29.7 percent of all injured road users in Samoa in 2018-2019 and in 18.8 percent of all fatalities. Urgent focused action on speed compliance and an enforced requirement to pull off the road to pick up and drop off passengers are two critical necessary issues.

Road safety audits and inspections

The financial constraints on many Samoan infrastructure projects result in road safety audits (RSA) seldom being undertaken, except for donor-funded projects. A project threshold value should be recommended to the Government of Samoa (GoS) above which all projects would receive RSA attention regardless of project funding source. The cost of RSA is usually less than five percent of project cost and it customarily produces value in improved safety outcomes which are much in excess of the cost.

Blackspot management

Blackspot management is not possible at present for MWTI and LTA as crash data is not recorded on a map. Without this, identification of problem areas (that is, locations where multiple crashes have occurred in the past three to five years) is not possible, and consequently the development and implementation of treatments to address these problems is not occurring. It is also noted that there is currently no funding allocated within the LTA maintenance budget, or other budgets, for carrying out these and related road safety improvement works.

Alcohol management

The legal limit of 0.08 percent Blood Alcohol Concentration (BAC) is high by international standards (New Zealand and Australia have a legal limit for fully licensed drivers of 0.05 percent BAC, with a zero BAC limit for novice drivers, and drivers of public transport or heavy vehicles greater than 4.5 ton mass). There was some uncertainty about the legal limit at the NRSC meeting (“two large bottles of beer” was the popularly understood limit). It is also not certain that BAC levels are sampled and recorded for all drivers involved in all SI and fatal crashes.

Some stakeholders expressed the need for increased focus on drink driving. Increased resourcing for police and the health system to carry out the legislative requirement to take blood samples to detect alcohol levels above legal limits for drivers in all fatal and SI crashes would be necessary for this improved focus to be given effect.

Drug driving incidence in Samoa is not known but some deterrent effect though legislative provision for roadside saliva testing for drugs and subsequent enforcement as necessary would be advisable.

Seatbelt management

Passengers in the rear seat of vehicles in Samoa are not legally required to wear a seatbelt. Preliminary data from the Accident Compensation Corporation (ACC) suggests >30 percent of annual SI are children under 10 years of age. If this has a substantial component of vehicle occupant SI (that is, not all SI under 10 are pedestrian crashes) then rear seatbelt requirements will have been identified as a major road safety issue requiring a policy response.

While the number of people injured or killed in pick up crashes do not identify those who were travelling in the pick-up load (rear) area, the widespread practice of carriage of unrestrained passengers in the load area in Samoa is likely to be a contributor to the levels of injury and death.

Fatigue management

Fatigue was not identified as a key cause of fatal or SI crashes in Samoa. However, the causal effect of fatigue on road crashes is difficult to gauge, given it is not able to be directly tested. Fatigue is most likely to be a problem for commercial road users, such as taxi and truck drivers. There are currently no awareness campaigns targeting this issue.

Mobile phone usage management

There is no available data that indicates mobile phone usage or other driver distractions as a cause of road crash incidents in Samoa. As for fatigue management, this is difficult to test following a crash and to ascertain whether it is a major issue, although anecdotally many drivers use their mobile phones to both take phone calls and text while driving. There are currently no awareness campaigns targeting this issue.

Helmet wearing management

Motorcycle helmets are required to be worn, according to the Road Traffic Orders 1994. While helmet wearing enforcement levels are not known, the relatively low-level presence of motorcycles in the traffic fleet is consistent with little involvement of motorcyclists in the fatal and SI crash data observed to date.

Network safety

Many people indicated the tendency of bus drivers to not fully pull over to the roadside when picking up and dropping off passengers. This practice, if unchecked, does increase crash risk and forces other vehicles to cross the centerline to pass the stationary bus.

The installation of designated bus stops was beginning to occur in early 2020; however, in many cases these were being installed at locations with unsealed shoulders. This alone presents potential hazards (for example, cloud

dusts during dry season and mud and pools of water during wet season), and it was anecdotally identified that due to this, bus drivers were not using the designated stops.

Given the significant involvement of buses in the fatality and injury crash data, the level of compliance with appropriate driving hours regulations should be reviewed.

Q: Do the specified safety standards and rules and related compliance regimes and safety rating surveys clearly address the safety priorities of high-risk road user groups?
A: No, they do not appear to do so.

The specified safety standards and rules and related compliance regimes and safety rating surveys do not compare favorably with international good practice.

3.1.2. RECOMMENDED NEW PRACTICES

This task is considerable, and work is necessary to strengthen the safety features expressed by these standards to reflect Safe System conditions and contribute to Safe System outcomes for new road projects and for lesser scale safety upgrades of the infrastructure within the existing network.

There is also a need to review road design safety standards currently used in Samoa in rural, peri urban and urban settings.

ALIGNMENT OF OFFICIAL SPEED LIMITS WITH SAFE SYSTEM DESIGN PRINCIPLES

The speed limit within the center of Apia is 40 km/h. This speed is considered above Safe System levels and should be reduced to 30 km/h since this is a highly pedestrianized area (note that Auckland City, New Zealand, has moved to a 30 km/h limit for their central business district this year).

There would be benefit in applying Movement and Place thinking over time to respond to the actual safety and flow conditions for transport, pedestrian and cycling activity, in various environments plus some provision for disabled access on any street or length of road. The approach is an important and readily applied subset of Sum4All thinking, as set out in the World Bank *Global Roadmap of Action, Toward Sustainable Mobility* Report (Sustainable Mobility for All 2019). The Movement and Place Framework is particularly important for the livability of places and vibrant streets, where greater numbers of pedestrians and cyclists gather. Road designers and system operators are being encouraged to apply the guidance when designing new or redesigning existing roads and streets, and when making decisions about how these roads and streets will operate. The integration of Safe System aligned road elements for walking and cycling into the Movement and Place Framework aims to eventually eliminate deaths and SI to pedestrians and cyclists.

Speed limits in areas with higher volumes of pedestrians such as the areas previously mentioned, as well as in front of schools, should be reduced to 30 km/h. A 40 km/h speed limit should be introduced for somewhat lesser pedestrian volume sections such as on lengths of roads outside churches and community centers outside Apia.

Speed limits on open roads, given the safety standard of the road and its environment, should not exceed 50 km/h.

COMPLIANCE REGIMES

Speed management

It is recommended to introduce more robust and widespread speed enforcement across the network.

An enhanced focus on improved compliance is required in higher pedestrian activity areas by police, and on public bus services compliance using new geo-tracking global positioning system (GPS) technologies through MWTI. This compliance should be mandated, with continued operation of future route licenses to be subject to no more than say, three speed infringements per year.

Alcohol management

It is recommended that alcohol management is strengthened through:

- Implementation of an increased focus on drink driving through increased resourcing for police and necessary equipment. Expand drink driving enforcement to 20,000 random breath tests per year;
- Ensuring the legislative requirement for blood samples is being carried out;
- Resourcing the health system to implement blood sampling to detect alcohol levels above legal limits for drivers in all fatal and SI crashes; and
- Reducing the legal BAC limit from 0.08 percent BAC for all drivers and riders to 0.05 percent for drivers and riders and to 0.02 percent for heavy vehicle drivers (>4.5-ton vehicles), public transport drivers (taxis, cars, vans and buses), young drivers who have been licensed for three years or less and repeat drink driving offenders.

Seatbelt management

Seatbelt management can be improved through:

- Legislation requiring passengers in the rear seat of vehicles to wear a seatbelt; and,
- Review legislation associated with child restraints to ensure it reflects current available equipment in vehicles (i.e. no seatbelts in the rear seats of vehicles) and international best practice, and expand enforcement of seatbelt wearing. Move to requiring rear seatbelt fitting in all imported vehicles and mandate rear seatbelt wearing where fitted.

Blackspot management

Blackspot management can be improved through:

- Establishment of a new crash data system, identify and prepare treatment options for higher crash locations;
- Develop and implement infrastructure safety programs including blackspot treatments, extended maintenance and mass action treatments; and
- Prioritization of treatments and locations on the basis of cost effectiveness (greatest reduction in fatalities and SI per unit of expenditure) to seek and secure funding for an initial program, evaluate and report to government; and, to seek continuous improvement in program effectiveness.

Road safety audit

Road safety audits can be improved through:

- Extending the requirement for RSA to all road projects over an agreed project cost threshold (for example, a threshold for local road projects can be above US$200,000).

Network safety management

Network safety management can be improved through:

- Identification of a new targeted infrastructure safety investment program of some 0.44 percent of GDP per year over 20 years to achieve major reductions in fatalities and SI, with a program benefit cost ratio (BCR) of 3.5 or more. Specific minor blackspot projects and mass action programs for pedestrian crossings, footpaths, bridge end post protection and opportunities to address some weather related hazards (for example, road markers at stream crossings—fords—to improve safety) need to be identified and considered as part of these mass action treatment programs;
- Installation of sealed bus stop bays along rural roads and require bus drivers to pull over to use them for loading and unloading of passengers;
- Driving hours regulation and enforcement for public bus operations should be strengthened and an overall program to reduce bus speeding; reduce BAC limits for all public transport drivers; construct bus bays; and improve bus construction standards commenced to improve road safety outcomes and give effect to the Sustainable Development Goal (SDG) 11.2; and
- A demerit point system for all licensed drivers should be examined.

SAFETY PRIORITIES OF HIGH-RISK GROUPS

Pedestrian safety

Pedestrian safety can be improved through:

- Examination of options in conjunction with local communities to facilitate footpath installation. This should be a priority in the vicinity of schools and churches on busier roads with adjacent ribbon urban development;
- Construction of pedestrian protection platforms at current or desired pedestrian crossing locations with extensive visible, advanced signage and signage at the crossing, and with solar powered lighting to improve visibility of pedestrians on the crossing at dusk, dawn and overnight; and
- Development of a highly focused road safety program for schools.

COMPARISON OF SPECIFIED SAFETY STANDARDS AND RULES AND RELATED COMPLIANCE REGIMES WITH INTERNATIONAL GOOD PRACTICE

Infrastructure safety design standards for roads carrying out various functions (urban, peri urban and rural) need to be reviewed to determine standards to be applied for new roads but particularly for retrofitting of safety features to the existing network over time. Standards need to be adjusted to incorporate the Safe System approach and to include consideration of Movement and Place thinking. This action should be considered a road safety management activity given the advocacy and change management that approval by government of the new standards will require.

3.2. ENTRY AND EXIT OF VEHICLES TO AND FROM THE ROAD NETWORK (CHECKLIST 3)

3.2.1. REVIEW OF EXISTING PRACTICES

Q: Have comprehensive safety standards and rules and associated performance targets been set to govern the entry and exit of vehicles and related safety equipment to and from the road network to achieve the desired focus on results?

- *Private vehicles? – A: Partial*
- *Motorcycle helmets? – A: Yes*
- *Cycle helmets? – A: No*
- *Commercial vehicles? – A: Partial*
- *Public transport vehicles? – A: No*

A: There is partial compliance with this issue. Some standards and rules have been set in relation to vehicles, but more action is required.

Private vehicle safety standards and rules

Private vehicle imports must not be older than eight years at the time of import, but there are no regulations in place to require all imported vehicles to meet UN Regulations 94, 95 (for frontal and side impacts), 78 (for motorcycle antilock braking systems), 127 (for pedestrian protection standards), 140 (for electronic stability control), or 14 and 16 (for seatbelts and anchorages).

The review team were advised that there are periodic vehicle registration renewal requirements (12 monthly) for private light passenger vehicles in Samoa and a roadworthiness check and certification is required as a condition of registration renewal.

Q: For each category of vehicles and safety equipment (private, commercial, public, helmets) are Compliance regimes in place for:

- *Vehicle certification?* – A: No.
- *Vehicle inspection (Warrant of Fitness)?* – A: Yes, 12 monthly for private non-commercial vehicles and 6 monthly for heavy commercial and public transport vehicles.

Public Buses

Public transport bus bodies are generally of wooden frame construction, which is likely to offer less protection in any crash than a metal framed body. Further, many the buses currently operating in Samoa have been converted from flat-bed trucks. This results in them having high chassis and a high center of gravity, meaning they can more easily flip over.

There is no known safety regulation for safety features for buses when constructed locally from existing truck components or when imported and this warrants review given the number of Samoans travelling daily in these vehicles and the likely relatively high number of passengers injured annually.

Periodic (six monthly registration renewal) roadworthy inspection is required for these vehicles. The experience with, and impact of, the periodic testing is not certain.

See crash involvement noted in *speed management* section above for more information.

Commercial vehicles

Commercial vehicle imports are required to be less than eight years old when imported. Periodic (6 monthly) roadworthy inspection is required for these vehicles.

The GoS sought assistance from the World Bank, through grant financing, to continue reforms and investments in the road transport sector under the Enhanced Road Access Project (ERAP). ERAP is supporting the GoS preparedness and response to exceptional natural disasters. In 2019, Stantec and Enviro & Legal Consultancies, as part of ERAP, conducted workshops in Samoa based on a report provided earlier that year, which reviewed existing GoS heavy vehicle related transport regulations and proposed a series of options for vehicle loading and for vehicle dimensions regulation. The objective of this assignment was to assist GoS in updating axle load legislation and regulations as well as updating road design and construction standards to account for changes in

the Samoan land transport sector as well as enhancing resilience of road infrastructure to the effects of climate and natural hazards.

The vehicle loading and dimensions issues have a relevance to road safety performance, and while not an identified problem in Samoa (from crash data to this point), more specific crash data collected in future will assist monitoring of crash involvement which can be expected to increase as heavy vehicle volumes increase. This is also the case with loading and dimensional regulatory reform and upgraded enforcement of compliance.

The Gap analysis, Road safety comments and Recommendations from Stantec and Enviro & Legal Consultancies May 2019 Vehicle Loading Options Report, which is included as appendix H, presents the relevant findings and proposed recommended actions for this assessment.

Motorcycle helmets

Q: Are Compliance regimes in place for:
- *Helmet certification?* – A: No.

Motorcycle helmets are not required to meet any standard of impact testing as a pre-condition of being approved for sale in Samoa.

Summary: vehicle and equipment safety standards and rules

Q: How do specified vehicle and equipment safety standards and rules and related compliance regimes compare to international good practice?
A: They compare unfavorably. See below.

The vehicle and equipment safety standards and rules compare unfavorably with good international practice. United Nations Economic Commission for Europe (UNECE) WP29 vehicle regulations (outlined above) are not applied in Samoa. Used vehicle imports are allowed but there is an age limit of eight years imposed, and inspection of imports is required.

Altered and updated heavy vehicle regulation should reflect the recommendations of the Stantec 2020 Report as adopted in principle following workshops in Samoa in late 2019.

3.2.2. RECOMMENDED NEW PRACTICES

Private vehicles

Private vehicle safety can be improved through:

- Introduction of regulations to require all imported vehicles to meet UNECE vehicle safety

(Regulations 94, 95, 78, 127, 140, 14, 16); and,

- Introduction of updated heavy vehicle regulation to reflect the recommendations of the Stantec 2020 Report as adopted in principle following workshops in Samoa in late 2019.

Motorcycle helmets

Private vehicle safety can be improved through:

- Requirement of a recognized international standard of impact testing (for example, in accordance with AS/NZS 1698:2006) to be met for all motorcycle helmets offered for sale in Samoa.

3.3. ENTRY AND EXIT OF ROAD USERS TO AND FROM THE ROAD NETWORK (CHECKLIST 4)

3.3.1. REVIEW OF EXISTING PRACTICES

Q: Have comprehensive safety standards and rules and associated performance targets been set to govern the entry and exit of road users to and from the road network to achieve the desired focus on results?

A: There has been Partial compliance with good practice licensing requirements, but more should be done.

Learner Driver's License

A person must be at least 16 years of age to be eligible for a Learner Driver's License in Samoa. This license is valid for three months and can only be used to drive a Light Private Vehicle less than three tons tare weight, and the vehicle must display the letter "L" on the front and back.

A theory test must be passed in order to obtain the Learner Driver's License. In addition, it is mandatory that a supervising driver (that is, someone with a valid Private Driver's License) be with the learner driver at all times when they are learning to drive. There is no GLS, which could require a mandatory minimum number of hours of supervised practice before the learner is eligible to sit the full license test from 17 years of age.

Private Driver's License (including Motorcycle License)

A person must be at least 17 years of age to be eligible for a Private Driver's License. This license is valid for five years and can only be used to drive a motorcycle or a Light Private Vehicle less than three tons tare weight.

To obtain a Private Driver's License in Samoa written theory and practical tests must be passed. A valid, full overseas driver's licenses may also be converted to a Samoan Private Driver's License after paying a fee.

Persons between 17 and 20 years of age can be issued with a Class B Private Driver's License (that is, Light Private Vehicle less than three tons tare weight). Only when an applicant is 21 years of age or older can they be issued with a Class E Private Driver's License (that is, Light Goods Vehicle—light truck, 4WD pick-up, Land Cruiser, and so on—less than three tons tare weight).

Heavy vehicles and public transport drivers' licenses

To obtain a Commercial Driver's License, applicants must have a valid, full Private Driver's License, complete a defensive driving course and provide a police report. Similar to obtaining a Private Driver's License, for Commercial Driver's Licenses, a written theory and practical test must be passed. There are no requirements to have a certain period of experience with a Private Driver's License before an individual can obtain a Commercial Driver's License. Commercial Driver's Licenses are valid for one year and allow drivers to legally drive taxis, as well as all heavy vehicles greater than three tons tare weight, including public buses and heavy machinery.

Temporary Driver's License

Visitors to Samoa with a valid, full driver's license from their home country can apply for a Temporary Driver's License (TDL). The TDL, valid for one-two months, is a paper permit that must be carried with a valid overseas driver's license when driving in Samoa. It is not readily evident how stringently these licensing schemes and requirements are currently enforced.

Unlicensed driving

Q: Compliance regimes to ensure adherence to the specified safety standards and rules for roadside checks and for driver testing in place?
A: It is unclear to what extent police are resourced to conduct these roadside license checks.

Some stakeholders expressed the need for increased focus on deterring unlicensed driving through increased enforcement, potentially in association with drink driving and speeding enforcement. Unlicensed driving is considered to be a major issue in Samoa with a component of young Samoan drivers in particular not obtaining a driver's license.

Q: Do the specified safety standards and rules and related compliance regimes compare favorably with international good practice.
Young drivers?
Commercial drivers?
Public transport drivers?
A: It is considered that Samoan licensing requirements do not meet international good practice.

Research has shown that unlicensed drivers and riders can experience much higher rates of crash involvement than licensed drivers and therefore all efforts possible should be taken to reduce unlicensed driving (Blows and others 2005). This requires stronger levels of enforcement (license checks) plus public campaigns to point out the increased crash risk of this behavior, which, if unchecked, can lead to more crashes.

The detail and effectiveness of the license testing provided is not known.

3.3.2. RECOMMENDED NEW PRACTICES

COMPREHENSIVE SAFETY STANDARDS AND RULES AND ASSOCIATED PERFORMANCE TARGETS

Novice drivers

Samoa should plan in the next five or so years to introduce a GLS for three years from first solo licensing. Limitations for this period could include a passenger restriction of one peer age passenger with all other passengers either immediate family or fully licensed drivers.

Learner drivers

In about five to ten years' time, Samoa should plan to improve learner driver preparation for novice driver licensing. In the learner period learner drivers from 16 years of age should complete 60 hours of supervised driving practice under the supervision of a fully licensed driver (not a novice driver). The learner driver should fill out a logbook that is countersigned by the supervisor after each practice session and has to be presented to the driver examiner before sitting for the drive test from 17 years of age. The current drive test should be varied to enable the test to determine if the learner has had at least 60 hours of practice. Such testing arrangements are available for reference (see State of Victoria, Australia).

Unlicensed driving

There is a need to plan to increase the numbers of random roadside checks in order to deter unlicensed driving. This checking could be carried out in association with a much-expanded random breath testing regime. A tactical plan and additional resourcing from government is likely to be required, plus a publicity campaign should be conducted from time to time to improve the deterrence effect of the police checking effort.

3.4. RECOVERY AND REHABILITATION OF CRASH VICTIMS FROM THE ROAD NETWORK (CHECKLIST 5)

3.4.1. REVIEW OF EXISTING PRACTICES

Q: *Have comprehensive safety standards and rules and associated performance targets been set to govern the recovery and rehabilitation of crash victims from the road network to achieve the desired focus on results?*

A: Partially.

Q: For each category of post-crash service (pre-hospital, hospital, and long- term care) are compliance regimes in place to ensure adherence to the specified safety standards and rules to achieve the desired focus on results?
A: Partial achievement with only one paramedic in the country and limited equipment for all ambulances.

Pre-hospital

The activity is reliant upon a restricted ambulance service provided through Samoa Fire and Emergency Services Authority (SFESA). There are six ambulances available, with one of those based in Savai'i, and only one paramedic is employed for all of Samoa–through an Australian aid arrangement. More trained paramedics is an urgent need for Samoa, given that most responders are not formally trained paramedics.

The fire service, also under SFESA, too currently play an important role in the Samoan post-crash care system – providing skills and equipment to safely remove road crash casualties from vehicles.

There is one emergency phone number—911—that is housed under SFESA. It was noted by the stakeholders that in general, vehicle drivers are not aware of how to respond or react to emergency vehicles – often reducing response times.

Hospital

The major hospital in the northern area of Apia is substantial and provides a range of trauma services. Primary health network centers on Upolu and Savai'i function as interim response centers where crash victims are treated or stabilized before transfer to Apia.

Samoa does not operate a trauma registry system (World Bank 2020).

Long-term care

The ACC is a major asset for the Samoan Community and Government.

Its legislation clearly states the importance of rehabilitation as the second purpose of their injury insurance scheme and specifies the coordinating role for ACC in promoting, improving and monitoring well-coordinated and vigorous programs for medical and vocational rehabilitation for claimants who become incapacitated as a result of road crash injuries.

In dealing with claimants whose level of permanent disability is either long- or short-term and for whom continuing support is essential, ACC relies on medical practitioners and other relevant stakeholders (for example, physiotherapists and orthopedists) in determining rehabilitation assessments and appropriate rehabilitation programs. The range of tasks includes, but is not limited to: the promotion of rehabilitation objectives wherever it is able; provision of artificial limb or aid if necessary or desirable; arrangement for the transportation of rehabilitated claimants to visit doctors or physiotherapists for medical attention in relation to their permanent

injuries; provision of funding for well-coordinated rehabilitation programs; gathering of statistical information in ways which would show where and how the most effective efforts are to be made; dissemination of rehabilitation information and reports; provision of compensation payment for care living or mobilization; and, payment for hospitalization and physiotherapy costs of rehabilitated claimants. All of these tasks are facilitated to provide an early return of rehabilitated claimants to maximum earning capacity or living a near normal life.

3.4.2. RECOMMENDED NEW PRACTICES

COMPREHENSIVE SAFETY STANDARDS AND RULES AND ASSOCIATED PERFORMANCE TARGETS

Pre-hospital

There is a need to provide more paramedics and ambulance equipment for the five ambulances in Upolu and one ambulance in Savai'i. An additional ambulance should also be deployed to Savai'i, totaling seven ambulances for Samoa.

It would also be beneficial to include members of the fire service in any capacity building or training exercises, since they are often first responders. Driver training would be beneficial for all SFESA drivers to assist in the development of techniques to more safely and quickly arrive at a crash scene, anticipate dangerous situations instinctively and to avoid potential risks. Further, the community would benefit from information on what to do when an emergency vehicle is approaching on the road. This can be as simple as information pamphlets at local gathering areas.

Hospital

A trauma registry system is required.

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4. NEXT STEPS

This section outlines the key recommendations for road safety in Samoa. These include the vital road safety management measures as well as groups of interventions and critically, the associated enabling actions necessary to permit those interventions to be introduced.

4.1. KEY HIGHER-LEVEL PRIORITY ACTIONS IDENTIFIED TO STRENGTHEN INSTITUTIONAL CAPACITY

This summary of actions is drawn from the analysis undertaken in this assessment and the proposed updated Samoa National Action Plan (SNAP) 2021-2030 outlined below. It was considered useful to summarize these in aggregate initially for the National Road Safety Committee's (NRSC) attention, before further detail is provided in the proposed new plan in section 4.2.

They can be summarized as follows:

- **NRSC to have strengthened support, decision making (and recommending) and consultation functions**, to meet at least four times each year and to have its effectiveness strengthened by the **establishment of a new Ministerial Road Safety Council for Road Safety** with whom it meets quarterly;
- **Ministry of Works, Transport and Infrastructure (MWTI) to fulfil its required obligations as the Lead Agency,** providing road safety leadership, monitoring Governance and Decision making and Consultative arrangements and convening and chairing the NRSC and Working Group (with Minister for WTI recommended as Chair of a proposed Samoa Ministerial Council for Road Safety);
- **NRSC to agree roles and responsibilities of each of the key road safety agencies and define these in regulations and have responsibility for overseeing implementation and monitoring of the new Strategy, supported by MWTI and all agencies**;
- **MWTI to develop and implement an updated SNAP 2021-2030, Action Plan and Target of a 50 percent reduction in fatalities and serious injuries (SI)** with a long-term target of zero fatalities by 2050 (see proposed updated SNAP 2021-2030 below);
- **Upgrade the road crash data system** to include crash location referencing and facilitate ready access, use and analysis by key agencies, especially Land Transport Authority (LTA) and Accident Compensation Corporation (ACC). Commence with the Data for Road Incident Visualization Evaluation and Reporting (DRIVER) Data system upgrade pilot later in 2020;
- **NRSC and Ministry of Finance (MoF) to develop an agreed value of life and a serious injury (SI) avoided** to enable business cases for investment in benefit/ cost positive road safety interventions to be prepared;
- **Establish further road safety positions within MWTI and within an LTA road safety unit**. Confirm road safety roles in MoH and ACC and strengthen road safety resources within MoPP for

enhanced enforcement and for their new driver and rider licensing and vehicle registration responsibilities;

- **Implement planned crash investigation training** (a separate project to be provided by the Global Road Safety Facility (GRSF)) with Ministry of Police and Prisons (MoPP) later in 2020;
- Identify and resource training and enabling procedures required to effectively implement programs, particularly behavioral changes relying on effective enforcement strategy and tactics, upon adequately calibrated equipment and upon post-crash impairment data (where relevant);
- Arrange for other performance data (for example, the number of random breath test (RBT) drink driving tests; the percentage of positive tests; number of speed infringements; results of blood testing for alcohol of killed and seriously injured drivers and riders in crashes; and, average speeds at points on the network, to be collected by nominated agencies and the trends reported by the nominated agency, with the data shared between NRSC members;
- **MWTI to lead campaign strategy development and campaign delivery** for behavioral change programs linked to enforcement, working with all NRSC member organizations and especially with MoPP, Ministry of Health (MoH), Ministry of Education, Sport and Culture (MESC) and ACC;
- **Develop an agreed business case approach across agencies**, with the full involvement of MoF, and developing an agreed template for submission of project proposals to NRSC to seek road safety programs investment funding;
- **Review Samoa's vehicle safety requirements for the importation of vehicles**; and
- Encourage access by road safety officers in government departments to international evidence-based research and its results that would be relevant to Samoa, including awareness of Sustainable Development Goals (SDG) 3.6 and 11.2 and to the Statement from the Stockholm Meeting of Ministers of Road Safety 2020 and further developments, and report on these matters regularly to the NRSC.

4.2. FUTURE ROAD SAFETY STRATEGY, ACTION PLAN AND TARGET PRIORITIES

4.2.1. THE PROPOSED UPDATED SAMOA NATIONAL ACTION PLAN 2021- 2030

A draft recommended set of actions for inclusion or consideration in the preparation of an updated SNAP for 2021-2030 are set out below.

In addition to the focus on actions and building on this assessment's findings under each of the Safe System pillars, a number of activities listed below reflect the previous SNAP 2011-2020, as they have either not yet been actioned or they remain ongoing.

The road safety management pillar recommended actions are the most important for ensuring that Samoa achieves further substantial progress with its road safety performance by 2030.

ROAD SAFETY MANAGEMENT (PILLAR 1)

Definition: Adhere to and/or fully implement United Nations (UN) legal instruments and encourage the creation of regional road safety instruments. Encourage the creation of multi-sectoral partnerships and designation of lead agencies with the capacity to develop and lead the delivery of national road safety strategies, plans and targets, underpinned by the data collection and evidential research to assess countermeasure design and monitor implementation and effectiveness.

Activities	Indicators	Timeline
Implement new road safety governance and decision-making arrangements with the MWTI confirmed as the lead agency for road safety in Samoa, and a Ministerial Road Safety Council, a refreshed National Road Safety Committee and a Road Safety Working Group supported by a road safety cell within MWTI. MWTI Cell to lead performance data monitoring and reporting to NRSC. (See figure 8 above) **NRSC to have responsibility for implementing this Strategy and monitoring delivery and performance.**	New governance arrangements adopted and included in legislation and regulation with a broad remit agreed for policy recommendations to government and for implementation of responsibilities within departmental delegations and of government policy decisions. New road safety cell established in MWTI to support governance and decision-making arrangements, convene meetings of all three levels, provide combined departmental reports on interventions involving more than one department, to NRSC and Ministerial Council and produce minutes with actions and responsibilities for all three decision-making level groups.	Mid 2021 Mid 2021
Define and include in regulation the road safety roles and responsibilities for the key agencies (MWTI, LTA, Traffic Police, ACC, MoH, AG, Samoa Fire and Emergency Services Authority (SFESA), MESC).	Regulatory framework(s) updated	From mid-2021
Establish road safety resources in LTA for crash risk location identification and mapping, blackspot treatment, and to change road design and maintenance standards and guidelines to reflect safe system principles, and further resources; and in MoPP for enhanced data collection and analysis, crash investigation activity and expanded enforcement.	Ensure training in safe infrastructure (roads) and safe speeds is provided to LTA road safety unit	From mid-2021
Designate road safety resource in MoH. **Establish Liaison activity with Village councils and an Advisory group of Petroleum Product Supplies (PPS), Chamber of Commerce (CoC) and Nuanua O Le Alofa (NOLA) which meets three times each year with the NRSC.**	MOH Road Safety Focal Point onboard Advise the Village Councils, and Advisory group and broader community of major proposed interventions and report regularly on progress and outcomes.	From 2021

The adopted road safety target is a 50 percent reduction in fatalities and SI from 2020 by 2030, to be delivered by the NRSC. The long-term target by 2050 is zero fatalities and serious injuries.	Reductions in fatalities and SI	
Develop and maintain a georeferenced crash database that can be used to inform all other activities associated with road safety. All relevant stakeholders should have access to this database (in differing levels of detail depending on their individual requirements). Mapping and analysis of the crash data is to be carried out by LTA to support infrastructure safety and speed limit decisions about the network to be taken. ACC will also analyze crash data.	Geo-referenced crash database established and communicated between relevant stakeholders. Commence DRIVER Pilot project later in 2020	Ongoing from January 2021 Later in 2020
Identify and collect other road safety performance data and report to the RS Working group on a regular basis (including drink driving test numbers and percentage that are illegal (to be conducted by police); mean speeds at selected locations over time (to be conducted by LTA); speed monitoring conducted, and infringements detected; seatbelt wearing infringements detected; and driving license status checks and unlicensed numbers not detected.	Output and intermediate outcome data provided monthly to meetings of Working Group	Mid 2021
Encourage access by road safety focused officers in government departments to international evidence-based research and its results that would be relevant to Samoa including awareness of the SDG 3.6 and 11.2 and of developments from the Statement from the Stockholm Meeting of Ministers of Road Safety 2020 and report on this to the NRSC regularly.	MWTI road safety Cell to lead	Ongoing
Develop expertise within police in crash investigation and reporting for legal purposes and for informing the NRSC of crash information to improve awareness of crash involvement factors and overall crash literacy. Training to be provided in Samoa by international police in 2020.	Traffic Police trained in crash investigation	Mid 2020-2021
LTA to review road design standards currently used in Samoa and adjust these to incorporate the Safe System approach including Movement and Place thinking for new projects and especially for retrofitting activity.	Road design standards incorporate Safe system principles.	2021-2023
LTA to develop a black spot program that is informed by a georeferenced crash database and based on identification of the most cost-effective treatments in reducing fatalities and SI at the selected locations. A business case for the proposed program using	Templates for black spot project development and business case for cost/ benefit calculation of a program of projects to be developed and successfully utilized to achieve program funding by Government of Samoa (GoS).	Ongoing

estimated values of benefit for each life saved and SI avoided over the estimated life of the treatment should be prepared and submitted to MoF seeking funding as part of the annual GoS budget. Training to be provided in Samoa and also through limited term secondment of staff to road authorities in Australia, New Zealand or other Pacific Island countries.	Scale of the infrastructure safety program budget compared to the annual road maintenance budget	Ongoing
MWTI to establish (with independent advice) and agree with MoF the values of a life saved and a SI avoided.	Values agreed and included in business case preparation.	2021
Develop an agreed business case approach across agencies, with the full involvement of MoF, and develop an agreed template for submission of project proposals to NRSC to seek road safety programs investment funding.	Available template and training of agency staff (MWTI, LTA. ACC, MoF) in development of business cases through MWTI	2021
Review Samoa's vehicle safety requirements for the importation of vehicles (for example, introduce requirement for vehicles to be five years old or newer, vehicles to be equipped with electronic stability control, and adopt other United Nations Economic Commission for Europe (UNECE) vehicle safety regulations.	Review undertaken of Samoa's vehicle safety requirements and necessary amendments made.	2021-2022
Organize the training and development of local independent technical expertise to calibrate police enforcement equipment such as speed radar guns and breathalyzers This technical expertise needs to be independent from all GoS ministries.	Local, independent technicians trained in the calibration of MoPP enforcement equipment. Approach the Scientific Research Organization of Samoa to conduct calibration.	2020-2022
Organize capacity for testing of blood samples for levels of alcohol and presence of illegal impairing drugs taken from all drivers involved in crashes including fatally injured drivers, to establish illegal alcohol prevalence in fatal, SI and other injury crashes. Health system to pursue.	Health system holds blood alcohol concentration (BAC) records and provide to Justice system as required for prosecution purposes with aggregate non identifying data being provided to NRSC to inform and trigger additional programs regarding drink driving prevalence.	2021-2023
Review, scope and link the driver license records database to the traffic infringement and court judgement data.	Demerit point system to be established, (see *safer road users pillar* below)	2026-2030
Publish and distribute Annual Road Accident Reports to enhance road safety awareness.	Number of Annual Road Safety Accident Reports published and distributed.	Ongoing
Adequately resource the (to be) adopted SNAP from 2021 to 2030 starting with the first three years of actions.	Annual budget programmed	Ongoing
Lead the campaign strategy development and campaign delivery activity, working with all NRSC member organizations and especially with MoPP, MoH, MESC and ACC.	Innovative campaigns developed and delivered with successful evaluation	Ongoing
Review and rewrite Road Traffic Regulations 1961 and review penalties for	Legislation and penalties Acts reviewed and updated	2022

traffic offences in the Road Traffic (Payment of Fines) Act 2009.		
MWTI to seek funding allocation for ongoing training programs for Traffic Police in drink driving and speed enforcement and to MoH, ACC, MWTI and LTA, SFESA and MoF.	Funding allocations for training	Ongoing

SAFE ROADS AND MOBILITY (PILLAR 2)

Definition: Raise the inherent safety and protective quality of road networks for the benefit of all road users, especially the most vulnerable (for example, pedestrians, bicyclists and motorcyclists). This will be achieved through the implementation of various road infrastructure agreements under the UN framework, road infrastructure assessment and improved safety-conscious planning, design, construction, and operation of roads.

Activities	Indicators	Timeline
As part of maintenance activities deliver improved road signage, upgraded line marking, footpaths, and so on.	Number of additional road signs installed and number of kilometers of line-marking undertaken.	Ongoing
Implement a black spot program that targets problem locations with evidence based, cost effective treatments (informed by a geo-referenced crash database). This will include activities such as minor infrastructure upgrade projects including roundabouts and suitable safety treatments at higher risk uncontrolled intersections, mass action treatments including treatment of poor-quality curves, installation of pedestrian protection devices, and more.	Number of activities implemented under the black spot program.	Ongoing
Extend the requirement for road safety audit application to local road projects above US$200,000 project value.	Percentage of road projects above US$200,000 with road safety audits	2021 - ongoing
Identify from crash data which roads in Samoa are higher risk and seek to fund and implement upgrades of infrastructure safety conditions on those lengths as priority projects.	Expenditure annually on upgrading higher crash risk roads to reduce fatalities and serious in injuries	2022 - ongoing
Install pedestrian protection platforms at current or desired pedestrian crossing locations, with extensive visible advance signage and signage at the crossing, and with solar powered lighting to improve visibility of pedestrians on the crossing at dusk, dawn and overnight.	Annual program for installation	2021 - ongoing
Install footpaths in busier pedestrian movement locations particularly along roads with adjacent ribbon urban development.	Annual program	2021 - ongoing

Implement an annual program of bus bay construction with priority for busier rural roads.	

SAFE VEHICLES (PILLAR 3)

Definition: importation standards—encourage universal deployment of improved vehicle safety technologies for both passive and active safety through a combination of harmonization of relevant global standards, consumer information schemes and incentives to accelerate the uptake of new technologies.

Activities	Indicators	Timeline
Restrict the importation of non-compliant vehicles that do not satisfy Samoa's vehicle safety requirements.	Number of vehicles restricted from importation due to non-compliance with Samoa's vehicle safety requirements.	Ongoing
Enforce the importation of vehicles with five years of usage or newer.	Number of vehicles imported that meet the five years of usage or newer requirement.	Ongoing
Phase out left-hand-drive vehicles.	Percentage reduction in number of left-hand-drive vehicles registered throughout Samoa.	Ongoing
Undertake mandatory testing of the roadworthiness of all vehicles prior to granting registration certificates.	Number of vehicle registration checks undertaken.	Ongoing
Keep records of the number of vehicles imported into Samoa, the number of registered vehicles and the number of non-compliant (un-registered) vehicles throughout Samoa.	Record database with the number of vehicles imported into Samoa, the number of registered vehicles and the number of non-compliant (un-registered) vehicles throughout Samoa.	Ongoing
Include compliance with UNECE regulations for electronic stability control (ESC), seatbelt anchorages, and front and side impact standards as requirements in Samoa's vehicle safety requirements for imported vehicles.	Number of newly imported vehicles that have ESC and other required safety features	Ongoing
Legislate to require rear seatbelts to be fitted to all vehicles entering Samoa.		2021
Improve and put in place effective inspection measures to establish an Automatic Inspection System.	Automatic Inspection System established.	Ongoing
Formulate a Safe Spare Parts Policy for the private sector and all vehicle owners to comply with.	Safe Spare Parts Policy formulated and enforced.	Ongoing
Introduce updated heavy vehicle regulations, including regulations for public bus construction safety standards.	Alterations to reflect recommendations of the Stantec 2020 Report as adopted in principle following workshops in Samoa in late 2019.	2022-2030

SAFE ROAD USERS (PILLAR 4)

Definition: Develop comprehensive programs to improve road user behavior. Sustained or increased enforcement of laws and standards combined with public awareness/education to increase seatbelt and helmet wearing rates, and to reduce drink-driving, speeding and other risk factors.

Activities	Indicators	Timeline
Establish a Graduated Driver Licensing System, inclusive of a learner permit for supervised practice hours, a provisional license for three years to at least 21 years and then full license, each requiring some form of testing on road to graduate to the next level of license.	Graduated Driver Licensing System established.	2023 - Ongoing
MESC with ACC. LTA and MoPP support to develop a new targeted road safety program for delivery of road safety programs throughout schools. These programs should respond to problem areas as informed by a crash database (for example, children crossing roads, cycling safely, using buses safely, importance of seatbelts and helmets, pre learner crash risk awareness, and so on). These can be in the form of content aligned with content of the educational curriculum. See *safe speeds pillar* below for speed and infrastructure safety measures to be provided outside schools.	Number of school education programs (and estimated number of beneficiaries of these programs) delivered throughout Samoa.	Ongoing
Introduce legislation to require rear seatbelt wearing where belts exist.	Legislation in place	2021
Reduce the legal BAC limit to 0.05 percent for all drivers; and to zero BAC for all younger drivers under 22 and for all drivers of heavy vehicles over 4.5-ton GVM, of taxis and of rideshare services.	Revised legal limits in place	2022
Introduce drug driving legislation to enable enforcement through random roadside saliva sampling by police officers and laboratory testing with appropriate penalties to deter drug driving. Establish enforcement protocols.	Legislation in place and enforcement operational	2024
Undertake public education programs to achieve a significant change in public acceptance of required road safety behaviors and to support the enforcement of laws and regulations, by promoting key enforcement activities and penalties for offences.	Number of public education programs undertaken on road safety measures, including variable speed limits.	Ongoing
Conduct multimedia education on road safety for all Samoans to support the timing of police enforcement programs.	Number of multimedia educational programs developed which align with police enforcement activities.	Ongoing
Extend enforcement of all existing legislation to ensure road safety compliance at all levels, especially targeting drink driving (with 20,000 RBT's annually) and speeding, unlicensed driving and lack of seatbelt wearing compliance. Obtain further alcohol breathalyzers.	Evidence of intensive enforcement numbers and programs	Ongoing
Review existing legislation to strengthen road safety enforcement and issue Traffic Offence Notice (TON's).	Number of existing legislative provisions reviewed, and number of TON's issued.	Ongoing

Enforce parking policy for all disabled persons throughout Samoa.	Existing parking policies for persons with disability needs are enforced and complied with.	Ongoing
Undertake awareness programs for all persons with disability needs to ensure safe travelling and transportation.	Number of awareness programs for all stakeholders in road safety undertaken.	Ongoing
Install disability signage on all public transportation means for ease of access and travelling by all persons with disability needs.	Disability signage installed on all public transportation means.	Ongoing
Develop two priority access routes for mobility-impaired persons to navigate across Apia as pedestrians or wheelchair users.	Two priority access routes developed.	2020-2025
Review child restraint wearing legislation to ensure it reflects current available equipment and international best practice.	Legislation reviewed and if required, amended	2021
Introduce a demerit point system for traffic infringements incurred by drivers when data linkage (in RSM Pillar above) is in place	System in Place	2024-2025
Enforce helmet wearing legislation.	100 percent wearing rate to be achieved	2021-2030

POST-CRASH RESPONSE (PILLAR 5)

Definition: Increase responsiveness to post-crash emergencies and improve the ability of health and other systems to provide appropriate emergency treatment and longer-term rehabilitation for crash victims.

Activities	Indicators	Timeline
Provide on-the-spot first aid and paramedic care to road crash victims.	Number of road crashes attended.	Ongoing
Increase the number of ambulances throughout Samoa and establish a focus on reducing crash scene attendance response times with targets.	Number of ambulances throughout Samoa. Maximum time to respond and reach crash scene.	Ongoing Ongoing
Increase the number of people trained in first-aid and paramedics.	Number of people trained in first-aid and paramedics throughout Samoa.	Ongoing
Provide driver training to all SFESA drivers (ambulance and fire) to assist in the development of techniques to more safely and quickly arrive at a crash scene, anticipate dangerous situations instinctively and to avoid potential risks.	Number of people trained in driving techniques within SFESA.	Ongoing

SAFE SPEEDS (PILLAR 6)

It is recommended that a safe speeds pillar be added to the SNAP Definition: Relates to the speed at which vehicles are likely to travel on the road. Factors that influence operating speeds include posted speed limits, the level of compliance with the speed limit and physical constraints. Unsafe speeds can increase both likelihood and consequence of a crash.

Activities	Indicators	Timeline

Enforce speed limit violations.	Number of police hours spent monitoring speed limit violations.	Ongoing
Obtain four additional speed radar guns for the police to monitor and enforce speed limit violations.	Four additional speed radar guns obtained for police use.	2020-2025
Install speed signs in urban and rural areas and speed limit signage adjustments.	Number of active speed signs installed in urban and rural areas.	Ongoing
Enforce public bus speed limit compliance through global positioning system (GPS) technology to be mandated with continued operation of future route licenses to be subject to no more than three speed infringements per bus per year.	Percentage of public buses being monitored	2020 - Ongoing
Lower speeds and speed limits in higher pedestrian activity areas including near schools, churches and community centers to 30 km/h or 40 km/h in lower crash risk locations.	Number of areas where speed limits have been reduced to meet safe system levels.	2021 - Ongoing
Lower speed limits on open roads to 50 km/h.	50 km/h speed limit signs installed on all non-urban roads	2021 - Ongoing
Utilize appropriate infrastructure safety treatments to reduce travel speeds at higher risk locations. See also proposed pedestrian protection measures and footpath provision under safe roads and mobility actions.	Number of treatments annually	2021 - Ongoing

ACCESS FOR ALL

Definition: Relates to the consideration of how the road and footpath network delivers safe access services for all Samoans, including the young, the elderly and the disabled, reflecting recent work carried out by the World Bank in their Global Roadmap of Action, Toward Sustainable Mobility Report (2019), which sums up the key components of sustainability for transport mobility. The four key characteristics for sustainable mobility are:

- Universal Access;
- Efficiency;
- Safety (the major focus of this review); and
- Green Mobility.

The Universal Access characteristic of sustainable mobility requires us to provide for the needs of the disabled and the actions set out in the Access for All Key Strategic Focus Area of the current SNAP are supported for continued inclusion for the proposed updated SNAP 2021-2030. Discussions with NOLA should be utilized to more fully inform this set of actions in detail.

Activities	Indicators	Timeline
Review cross-Apia access by persons with mobility impairments.	Ease of two diagonal crossings of Apia based on suitable footpath provision and associated pedestrian and pram crossing ramps	Ongoing
Develop an access improvement plan with NOLA input to identify a program of works, speed limit, bus bay access and government policy change required to enable safe access for the less well abled across Samoa.	Plan with options provided to MWTI.	2020-2025
Implement a safer public transport approach by lowering BAC limits for public transport drivers to zero; enforcing speed compliance with GPS technologies fitted to buses and monitored by MWTI; reviewing regulations for bus construction safety standards; and constructing bus bays.	Progress with all four elements	2012-2030

4.3. THE ROAD AHEAD

Samoa is in need of a major recommitment to improving its road safety outcomes. Firm committed leadership will be required from the most senior government leadership to support the priority government and community lead actions and to develop and promote the potential benefits of this change to assist its delivery and acceptance.

This review has considered the road safety results experienced in Samoa in recent years and examined the factors contributing to that performance. The rate of fatalities is considered high based on good international and regional practice. However, it is the view of the reviewing team that there are a number of serious crash outcome risks that could be readily addressed with focused and sustained effort to at least halve the fatality numbers and rate by 2030.

Road safety appears to have lost focus in Samoa since the Samoa National Action Plan (SNAP) 2011-2020 was prepared in 2011. While the Ministry of Police and Prisons (MoPP) and the Accident Compensation Corporation (ACC) appear to have worked to keep a focus on improvement, examples of strong leadership and coordination with a focus on improving results through policy innovation or enhanced intervention effort by other key stakeholders would help catalyze the effort. To access the potential benefits of lower fatalities and serious injuries (SI) in the decade ahead, thoughtful application of change through a coordinated partnership effort between agencies with strong leadership from government is required. Senior officers and parliamentarians have the opportunity to become informed about contemporary road safety science and practice, which has shifted substantially from traditional approaches in the last 15 years. This knowledge applied to a new road crash data awareness will guide the path to much improved performance.

Leadership at many levels and within a number of organizations is essential to deliver a way of thinking about road safety responsibilities that is driven by a strong focus on results. It is clear that meeting the existing institutional management challenges is the greatest barrier facing Samoa as it seeks to reduce its levels of road deaths and SI. It is hoped that the Government of Samoa (GoS) will (after discussion at the workshop later in 2020) adopt the recommendations outlined in this assessment, including the proposed updated SNAP 2021-2030 for improved intervention introduction and intensity of application, and actively move to give effect to them. This will deliver great benefits for the people of, and visitors to, Samoa.

APPENDIX A: METHODOLOGY

The key concepts that inform the Global Road Safety Facility (GRSF) Guidelines for Road Safety Management Reviews and Safe Systems Projects highlight the importance of addressing all elements of the road safety management system, taking a staged approach to country road safety investment, and targeting the highest concentrations of deaths and injuries across the road network. These concepts are highlighted in box 1 below.

Addressing all elements of the road safety management system (A comprehensive approach)

Road safety is produced, just like other goods and services. This production process can be viewed as a management system with three distinctive elements to be considered: (1) *institutional management functions*, which produce (2) *interventions*, which in turn produce (3) *results*. Discussions concerning road safety improvements often concern (2) alone. However, assessing all elements of the road safety management system and the linkages between them is critical for any country seeking to improve its current performance levels.

Taking a staged approach to road safety investment (Prioritization)

A long-term investment strategy is required to continuously improve national road safety performance. It must be designed to overcome revealed country capacity weaknesses by first building a core capacity to bring targeted safety outcomes under control, then scaling up investment to accelerate this capacity strengthening and improved performance across the national road network, and finally consolidating it on a sustainable basis.

This staged approach to investment acknowledges the barriers imposed by weak safety management capacity and addresses the challenge of accelerating the necessary process of institutional strengthening which is required to effectively govern the production of improved road safety results. It recognizes the longer-term implications of immediate actions and plans the necessary scaling up of investment required to achieve a sustainable path where safety outcomes are brought under control.

In effect the long-term investment strategy is implemented by a program of successive projects that build on the results achieved and the management capacity created in the process. Successful implementation of the investment strategy hinges on designing projects that accelerate the transfer of road safety knowledge to participants, strengthen the capacity of participating partners and stakeholders, and rapidly produce results through an appropriate roll-out program.

Targeting the highest concentrations of deaths and injuries across the road network (Materiality)

To produce rapid results projects must target the highest concentrations of death and injuries across the road network to maximize program and project benefit-cost ratios and the likelihood of achieving them. The bulk of deaths and injuries are usually incurred on a small proportion of a country's road network, which simply reflects the concentration of traffic on key network links where less safe travel speeds are experienced. In the absence of reliable fatality and injury data it is still possible to identify the most dangerous corridors by identifying high traffic volume, higher speed corridors, where higher densities of fatal and serious injury crashes can be anticipated.

Box 1: Key concepts underpinning the guidelines (Bliss and Breen 2013)

The guidelines promote the Safe System approach (which is outlined further in appendix B) and also address the challenge of how to benefit from what has been learned at great cost in high-income countries over the last 50 years, to avoid their high death and injury rates resulting from road crashes that for far too long were accepted as an inevitable price of economic growth and rapid motorization.

An updated version of the road safety management diagram set out in Figure 2 is set out below as figure 11**Error! Reference source not found.**. It includes adjusted descriptions of the items making up the intervention level, to match the Safe Systems Pillar descriptors. This should assist countries to more readily relate intervention assessments (based on the intervention categories set out in the GRSF checklists) to the relevant pillar in the

middle level of the triangle. It also adjusts the results descriptors in the top section of the triangle, with little immediate impact for Samoa. Significant results warrant reforms in both institutional management functions and interventions.

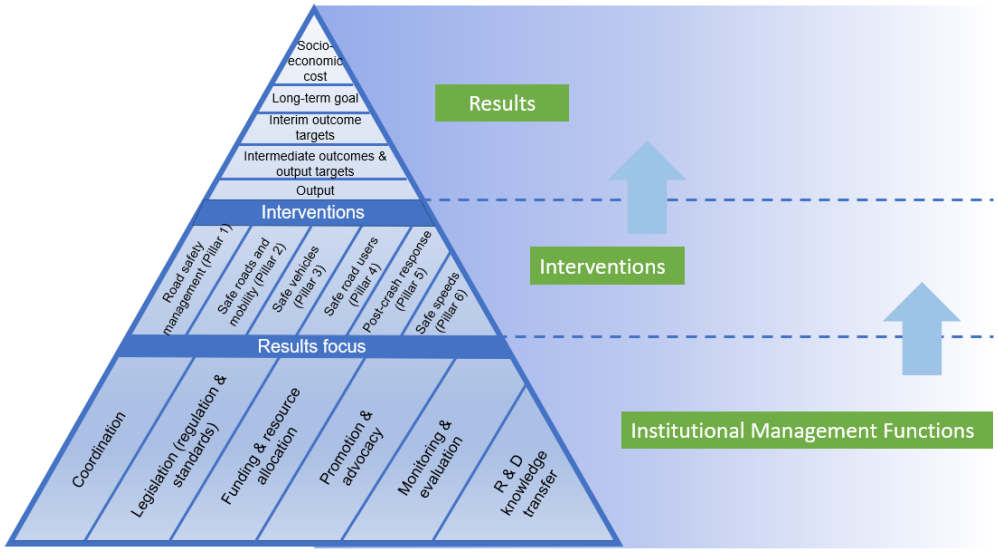

Figure 11: Road safety management system model[9]

Note: leadership, target setting, data systems and data analysis—essential institutional management functions—are an integral component of the overarching Results Focus institutional management function.

The below is a complete list of tasks associated with this assessment. The consultation undertaken in February 2020 and this report form Task 1 and Task 2.1:

Task 1. Road Safety Management Capacity Assessment to include the following:

1.1 Discussion with the National Road Safety Committee (NRSC) on coordination and combined strategy;
1.2 One on one interviews with road safety stakeholders over the course of one week;
1.3 Review of and provision of comments on the current Road Safety National Strategies and Action Plans;
1.4 Review of the existing national structure for road safety management;
1.5 Appraise the road safety management capacity at the intervention level by applying the Checklists of the GRSF Road Safety Guidelines; and
1.6 Provide recommendations to improve the required road safety management capacity to improve current situation and reach national goals (as agreed in this process).

Task 2. Consultations on the findings and dissemination, which will include the following:

2.1 Preparation of a draft report on the road safety institutional capacity review, summarizing findings and recommendations resulting from Task 1;
2.2 Workshop to discuss the draft report with appropriate GoS officials to seek feedback on the conclusions; and,
2.3 Finalization and dissemination of the report on the Road Safety Management Capacity Assessment.

REFERENCES

Bliss, Tony and Jeanne Breen. 2013. *Road Safety Management Capacity Reviews and Safe System Projects Guidelines UPDATED EDITION*. Washington D.C.: Global Road Safety Facility.

[9] Adaptation of model under development by GRSF for the Road Safety Training Course, 2020.

APPENDIX B: BACKGROUND NOTE ON THE SAFE SYSTEM APPROACH

EVOLUTION OF RESULTS FOCUS TO SAFE SYSTEM[10]

Successive shifts in road safety management thinking and practices in high-income countries have been evident over the last fifty years. Rapid motorization and escalating road deaths and injuries began in many Organization for Economic Cooperation and Development (OECD) countries in the 1950s and 1960s and concurrently the ambition to improve road safety outcomes began to grow. Since the 1950s there have been four significant phases of road safety management which have become progressively more ambitious in terms of the results desired.

Results Focus—Phase 1: Focus on driver interventions.

In the 1950s and 1960s safety management was generally characterized by dispersed, uncoordinated, and insufficiently resourced institutional units performing isolated single functions (Trinca and others 1988). Road safety policies placed considerable emphasis on the driver by establishing legislative rules and penalties, supported by information and publicity, and expecting subsequent changes in behavior. It was argued that since human error mostly contributed to crash causation it could be addressed most effectively by educating and training the road user to behave better. Placing the onus of blame on the road traffic victim acted as a major impediment to the appropriate authorities fully embracing their responsibilities for a safer road traffic system (Rumar 1999).

Results Focus—Phase 2: Focus on system-wide interventions.

In the 1970s and 1980s these earlier approaches gave way to strategies which recognized the need for a systems approach to intervention. Dr. William Haddon, an American epidemiologist, developed a systematic framework for road safety based on the disease model which encompassed infrastructure, vehicles and users in the pre-crash, in-crash and post-crash stages (Haddon 1968). Central to this framework was the emphasis on effectively managing the exchange of kinetic energy in a crash which leads to injury, to ensure that the thresholds of human tolerances to injury were not exceeded. The scope of policy broadened from an emphasis on the driver in the pre-crash phase to also include in-crash protection (both for roadsides and vehicles) and post-crash care. This focused road safety management on a system-wide approach to interventions and the complex interaction of factors which influence injury outcomes. It underpinned a major shift in road safety practice which took several decades to evolve. However, the focus remained at the level of systematic interventions and did not directly address the institutional management functions producing these interventions or the results that were desired from them. The strengths of this approach mask its inherent weakness as being viewed as embracing all the essential elements of the road safety management system, whereas the institutional context is not directly addressed. In many ways much of the contemporary debate on road safety is still bounded by the dimensions of the 'Haddon Matrix' which only addresses system-wide *interventions* and for this reason institutional management functions and the related focus on results still receive limited attention.

Results Focus—Phase 3: Focus on system-wide interventions, targeted results and institutional leadership

By the early 1990s good practice countries were using intervention focused plans setting numerical outcome targets to be achieved with packages of system-wide measures based on the evidence generated from ongoing monitoring and evaluation. It had become clear that growing motorization need not inevitably lead to increases in death rates but could be reversed by continuous and planned investment in improving the quality of the traffic system. The United Kingdom, for example, halved its death rate (per 100,000 head of population) between 1972 and 1999 despite a doubling in motorized vehicles. Stronger expressions of political will were evident and institutional management functions were becoming more effective. Institutional leadership roles were identified, inter-governmental coordination processes were established, and funding and resource allocation mechanisms and processes were becoming better aligned with the results required. Developments in Australasian jurisdictions (for example, Victoria and New Zealand) further enhanced institutional management functions concerning results focus, multi-sectoral coordination, delivery partnerships, and funding mechanisms (WHO 2004; Bliss 2004; Wegman and others 2006; Trinca and others 1988). Accountability arrangements were enhanced by the use of target hierarchies linking institutional outputs with intermediate and final outcomes to coordinate and integrate multi-sectoral activities. This phase laid the foundation for today's good practice and reflects the state of development in many higher performing countries today. The strengths of this approach can turn into weaknesses to the extent that the focus on safer people, safer vehicles, safer roads and safer systems diverts attention away from the road network where the actual deaths and injuries are incurred. Successful targeted plans have achieved large measurable gains in improved road user behavior and this success helped to reinforce the earlier approach which focused purely on driver interventions. The sharpened emphasis on setting ambitious but achievable targets could also inhibit innovation, to the extent that targets are bounded by what is deemed to be technically feasible and institutionally manageable, thus blunting the aspiration to go beyond what existing evidence suggests is achievable.

Results Focus—Phase 4: Focus on Safe System long-term elimination of deaths and serious injuries (SI) and shared responsibility

By the late 1990s two of the world's best performing countries had determined that improving upon the ambitious targets that had already been set would require rethinking of interventions and institutional arrangements. The Dutch Sustainable Safety and Swedish Vision Zero strategies set a goal to make the road system intrinsically safe (Wegman and others 1997; Tingvall 1995; Committee of Inquiry into Road Traffic Responsibility 1999).

The emphasis on effectively managing the exchange of kinetic energy in a crash to ensure that the thresholds of human tolerances to injury were not exceeded (as originally promoted in Phase 2) was revitalized and given an ethical underpinning in the sense that road deaths and injuries were seen as an unacceptable price for mobility. The implications of this level of ambition are still being worked through in the countries concerned and elsewhere. These strategies recognize that speed management is central and have refocused attention on road and vehicle design and related protective features. The blame the victim culture is superseded by blaming the traffic system which throws the spotlight on the shared responsibility and accountability for the delivery of a Safe System.

For example, Vision Zero aims for an approach in which safe vehicle design delivers a protected occupant into a road system where conflict is minimized by design and energy transfer in crashes is safely controlled. In this system users comply with risk-averse behavioral norms created by education, enforcement and incentives. The emphasis is on the road users' right to health in the transport system and their right to demand safer systems from decision-makers and road and vehicle providers. The strengths of this approach are becoming increasingly evident. What was previously seen as radical and unachievable by many road safety practitioners and

policymakers has quickly become the benchmark and central debating point for analyses of what constitutes acceptable road safety results.

The tools and accumulated practices used to support the results management framework for the Safe System approach are the same as those used in the past to prepare targeted national plans. Targets are still set as milestones to be achieved on the path to the ultimate goal, but the interventions are now shaped by the level of ambition, rather than vice versa. Innovation becomes a priority to achieve results that go well beyond what is currently known to be achievable. In moving forward, the Safe System approach reinterprets and revitalizes what is already known about road safety and raises critical issues about the wider adoption of interventions that have proven to be effective in eliminating deaths and SI (for example, median barriers). The question becomes one of how to introduce these proven safety interventions more comprehensively and rapidly, and indeed this question applies to all elements of the road safety management system with potential for improvement.

The shift to a Safe System approach as outlined in the OECD and International Transport Forum (ITF) Report, *Towards Zero, 2008* (OECD and ITF 2008), is also well attuned to the high priority global, regional and country development goals of sustainability, harmonization and inclusiveness. A Safe System is dedicated to the elimination of deaths and injuries that undermine the sustainability of road transport networks and the communities they serve. Its focus on safer and reduced speeds harmonizes with other efforts to reduce local air pollution, greenhouse gases and energy consumption. Its priority to afford protection to all road users is inclusive of the most vulnerable at-risk groups such as pedestrians, young and old, cyclists and motorcyclists. These co-benefits of shifting to a Safe System approach further strengthen the business case for its implementation.

THE RELEVANCE OF SAFE SYSTEM APPROACH TO LOW AND MIDDLE-INCOME COUNTRIES[11]

The Safe System approach:

- Addresses all elements of the road traffic system in an integrated way;
- Emphasizes the reduction of death and long-term injury rather than the prevention of crashes which as the World Report highlighted is an unrealistic goal;
- Challenges the fatalistic view aptly termed ‘the scandal of tolerance’(Allsop 2002) that road traffic injury is the price to be paid for achieving mobility and economic development by setting a societal goal with step-wise targets to eliminate road deaths and SI in the long-term which can motivate and encourage all involved;
- Accentuates the shared and accountable responsibility of designers and users of the road network for achieving road safety results;
- Addresses limitations in human capacities in the setting of safety standards and rules and related compliance regimes for the planning, design and use of the road network; the conditions of entry and exit of vehicles and road users to the road network; and the recovery and rehabilitation of crash victims from the road network;
- Demands equity in addressing the safety needs of both motorized and non-motorized users;
- Aligns well with the goals of sustainable development and presents opportunities for achieving co-benefits with other societal objectives such as improved local air quality, greenhouse gas reduction, energy security, poverty reduction, social inclusiveness and occupational health and safety; and

- Necessitates the strengthening of all elements of the road safety management system, especially institutional management functions, to achieve sustainable success.

The OECD and the ITF have described the principles of the Safe System approach as:

- Addressing all elements of the road traffic system in an integrated way;
- Focusing on preventing death and serious injury (SI) rather than the prevention of crashes, which is an unrealistic goal;
- Challenging the fatalistic view that road traffic injury is the price to be paid for achieving mobility and economic development by setting a societal goal (with interim targets) to eliminate road deaths and SI in the long-term which can motivate and encourage all involved;
- Accentuating the safety responsibility of designers of the road traffic system for achieving road safety results and promoting a shared vision amongst citizen, SI injury;
- Aiming to develop a road traffic system better able to accommodate human error, commonly achieved through better management of crash energy, so that no individual road user is exposed to crash forces likely to result in death or SI;
- Using social and economic analyses to understand the scale of the trauma problem, and direct investment into those programs and locations where the greatest potential benefit to society exists;
- Demanding equity in addressing the safety needs of both motorized and non-motorized users, and aligning safety with the goals of sustainable development and other societal objectives such as improved local air quality, greenhouse gas reduction, energy security, poverty reduction, social inclusiveness and occupational health and safety; and
- Necessitating the strengthening of all elements of the road safety management system, especially institutional management functions, to achieve sustainable success.

The Safe System can be considered at three levels[12]: it is a vision, a set of principles and a group of elements that interact to determine severity of crash outcomes.

- The vision is for zero fatalities and SI in due course. Some jurisdictions are actively planning to achieve zero fatalities by 2050.

- The key principles underpinning safe system are:
    - Human beings are fallible and make mistakes. We need to recognize this reality.
    - Humans are fragile and there is a limit to the forces the human body can withstand in any crash.
    - Designers of the road system have to accept responsibility for the safety of the system to a greater level of accountability than road users.

Traditionally road users have been considered fully responsible for crash outcomes. This has enabled designers or providers (of infrastructure, traffic management, speed limits, vehicle safety regulation and provision, land use decisions abutting roads, legislation and enforcement and justice systems, post-crash care providers and more) to avoid accountability for the contributions they make to the safety of the road system. Road users do have a responsibility for safe crash outcomes but designers or providers of elements of the system have a greater responsibility. This is the key message of change inherent to safe system thinking. Human error is inevitable, but traffic fatalities and SI are not.

If a crash occurs and road users are acting in accordance with road rules, then it is the combination of infrastructure safety features, travel speed and vehicle safety and protective features which determine whether those road users live or die.

There are six safe system elements or pillars shown in figure 12. These are the United Nations (UN) Decade of Action Safe System Pillars. It is useful to think of four major crash types and reflect on what infrastructure safety features, what travel speeds (well enforced speed limits) and vehicle safety features apply at specific locations. Safe system conditions are rarely achieved on existing networks and changing that situation is the great challenge facing the road safety community. The four major crash types are head on crashes, run off road crashes (usually hit fixed object or roll over crashes), pedestrian crashes and side impact (intersection) crashes. Reflecting on each one of these crash types separately and the safe system principle of limiting forces experienced in any crash to below fatal levels through the combination of the infrastructure safety features, the travel speeds and the vehicle safety and protective features, will assist everyone to develop insights about what settings in combination on the network would avoid fatal crash outcomes.

Figure 12*: Safe System pillars*[13]

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[10] This section is informed by Bliss and Breen 2009.
[11] This section is informed by OECD and ITF 2008.
[12] This is drawn from *Safe System Session*, Eric Howard, Monash University Accident Research Centre, *Road Safety Management Leadership Program*, Melbourne 2017-2019
[13] *This is drawn from Safe System Session, Eric Howard, Monash University Accident Research Centre, Road Safety Management Leadership Program, Melbourne,* 2017-2019.

APPENDIX C: PERSONS CONSULTED

Name	Ministry/Organization	Title
Leilani Galuvao	Ministry of Works, Transportation and Infrastructure – Land Transport & Infrastructure Division	Assistant CEO
Elizabeth Toomata	Ministry of Works, Transportation and Infrastructure – Land Transport & Infrastructure Division	Principal Strategic Planning Officer
Kalavini Maualaivao	Ministry of Works, Transportation and Infrastructure – TISCD	Sector Coordinator
Malcolm Esera	Land Transport Authority	Civil Engineer, Project Management Division
Afioga Galumalemana Taatialeolitiiti Tutuvanu-Schwalger	Land Transport Authority	CEO
Mike Trebitsch	Ministry of Finance - CTSSU	Social Safeguards Specialist
Keti Toleafoa	Ministry of Police and Prisons	Head of Traffic Police
Junior Va'Alotu	Ministry of Police and Prisons	2IC – Head of Traffic Police
Sosefina Faamausili	Attorney General – Commercial and International Law Division	Associate Public Solicitor
Tafailagi.Peniamina	Attorney General – Civil Litigation Division	Associate Public Solicitor
Magele Hoe Viali	Ministry of Works, Transport and Infrastructure	CEO
Ms. Ruby Folau	Ministry of Works, Transportation and Infrastructure – TISCD	Principal Procurement Officer
Leumalealofa Faumui	Ministry of Finance	Principal Loans Management Officer
Faith Moananu	Ministry of Finance	
Robert Thomsen	Ministry of Health	Deputy Director of Public Health
Ualesi Silva	Ministry of Health	A/CEO Health Protection & Enforcement Services
Rumanusina Maua	Ministry of Health	A/CEO Health Information Services
Fagalima Tuatagaloa	Accident Compensation Corporation	Head of Safety Promotion and Rehabilitation
Peni Anae	Accident Compensation Corporation	Principal of Safety Promotion
Maurinda Esai	Accident Compensation Corporation	Senior Rehabilitation Officer for Safety Promotion
Tilofu	Accident Compensation Corporation	Safety Promotion Officer
Nimera Taofia	Ministry of Education, Sport and Culture	
Levusi Levi	Ministry of Education, Sport and Culture	
Perenise Stowers	Ministry of Education, Sport and Culture	
Lelevaga Sala Taueva Faafouina Mupo	Samoa Fire and Emergency Services Authority	Commissioner
Tanuvasa Petone Mauga	Samoa Fire and Emergency Services Authority	Assistant Commissioner
Aufa'I Petaia Tausani	Samoa Fire and Emergency Services Authority	Assistant Commissioner
Annika Tierney Lemisio	Nuanua O Le Alofa	Organizational Management Mentor
Andrew	Nuanua O Le Alofa	Support Officer
Hobart Va'ai	Chamber of Commerce	CEO
Tom Hogarth	Chamber of Commerce	Member
Klaus Stunzner	Chamber of Commerce	Member
Alex Brunt	Chamber of Commerce	Member
Peter Ripley	Petroleum Product Supplies	Assistant Managing Director

APPENDIX D: GRSF CAPACITY ASSESSMENT GUIDELINES – CHECKLISTS

Checklist 1: Results focus at system level[14]

Questions	Yes	Partial	Pending	No
Are estimates of the social costs of crashes available?				X
Are data on road deaths and injuries readily available?		X		
Have the risks faced by road users been identified? ' Drivers? • Passengers? ' Motor cyclists? • Pedestrians? ' Cyclists? • Children? ' Others?				X
Has a national vision for improved road safety performance in the longer-term been officially set?	X			
Have national and regional targets been set for improved safety performance? ' Social cost targets? • Final outcomes targets? ' Intermediate outcomes targets? • Intervention output targets? ' At risk group targets? • Industry targets? ' Other targets?		X		
Have all agencies responsible for improved safety performance been identified and are they formally held to account for their performance required to achieve the desired focus on results? ' Highways? • Police? ' Transport? • Planning? ' Justice? • Health? ' Education? • Others?				X
Have industry, community and business responsibilities for improved roads safety performance been clearly defined to achieve the desired focus on results?				X
Are regular performance reviews conducted to assess progress and make improvements to achieve the desired focus on results?				X
Has a lead agency been formally established to direct the national road safety effort to achieve the desired focus on results?		X		
Is the lead agency role defined in legislation and/or policy documents and annual performance agreements to achieve the desired focus on results?		X		

Interventions level:

Checklist 2: Planning, design, operation and use of the road network[15]

Questions	Yes	Partial	Pending	No
Have comprehensive safety standards and rules and associated performance targets been set for the planning, design, operation and use of roads to achieve the desired focus on results? ' National roads? • Provincial roads? ' Regional roads? • City roads?				X
Are the official speed limits aligned with *Safe System* design principles to achieve the desired focus on results? ' National roads? • Provincial roads? ' Regional roads? • City roads?		X		
For each category of roads (national, regional, provincial, city) are compliance regimes in place to ensure adherence to specified safety standards and rules to achieve the desired focus on results? ' Road safety impact assessment? • Speed management? • Alcohol management? ' Road safety audit? • Safety belts management? ' Road safety inspection? • Helmets management? ' Black spot management? • Fatigue management? ' Network safety management?		X		
Do the specified safety standards and rules and related compliance regimes clearly address the safety priorities of high-risk road user groups to achieve the desired focus on results?				X
Do the specified safety standards and rules and related compliance regimes compare favorably with international good practice?				X

Checklist 3: Entry and exit of vehicles to and from the road network[16]

Questions	Yes	Partial	Pending	No
Have comprehensive safety standards and rules and associated performance targets been set to govern the entry and exit of vehicles and related safety equipment to and from the road network to achieve the desired focus on results? ' Private vehicles? ' Commercial vehicles? ' Public transport vehicles? • Motor cycle helmets? • Cycle helmets?		X		
For each category of vehicles and safety equipment (private, commercial, public, helmets) are compliance regimes in place to ensure adherence to the specified safety standards and rules to achieve the desired focus on results? ' Vehicle certification? ' Vehicle inspection? ' Helmet certification?	X (vehicle inspection)			X (vehicle certification & helmet certification)
Do the specified safety standards and rules and related compliance regimes and safety rating surveys clearly address the safety priorities of high-risk road user groups to achieve the desired focus on results?				X
Do the specified safety standards and rules and related compliance regimes and safety rating surveys compare favorably with international good practice?				X

Checklist 4: Entry and exit of road users to and from the road network[17]

Questions	Yes	Partial	Pending	No
Have comprehensive safety standards and rules and associated performance targets been set to govern the entry and exit of road users to and from the road network to achieve the desired focus on results? ' Private drivers and passengers? • Commercial drivers? ' Cars? • Public transport drivers? ' Heavy vehicles? • Taxis? ' Mopeds? • Buses? ' Motor cycles • Non-motorized vehicles?		X		
For each category of driver (private, commercial, public) are compliance regimes in place to ensure adherence to the specified safety standards and rules to achieve the desired focus on results? ' Driver testing? ' Roadside checks?			X	
Do the specified safety standards and rules and related compliance regimes clearly address the safety priorities of high-risk road user groups to achieve the desired focus on results? ' Young drivers? • Commercial drivers? ' Older drivers? • Public transport drivers?				X
Do the specified safety standards and rules and related compliance regimes compare favorably with international good practice?				X

Checklist 5: Recovery and rehabilitation of crash victims from the road network[18]

Questions	Yes	Partial	Pending	No
Have comprehensive safety standards and rules and associated performance targets been set to govern the recovery and rehabilitation of crash victims from the road network to achieve the desired focus on results? - Pre-hospital? - Hospital? - Long-term care?				X
For each category of post-crash service (pre-hospital, hospital, and long- term care) are compliance regimes in place to ensure adherence to the specified safety standards and rules to achieve the desired focus on results?		X		
Do the specified safety standards and rules and related compliance regimes clearly address the safety priorities of high-risk road user groups to achieve the desired focus on results?				X

Implementation level:

Checklist 6: Coordination[19]

Questions	Yes	Partial	Pending	No
Are interventions being coordinated horizontally across agencies to achieve the desired focus on results?				X
Are interventions being coordinated vertically between national, regional, provincial and city agencies to achieve the desired focus on results?				X
Have robust intervention delivery partnerships between agencies, industry, communities and the business sector been established to achieve the desired focus on results?				X
Have Parliamentary committees and procedures supporting the coordination process been established to achieve the desired focus on results?				X

Checklist 7: Legislation[20]

Questions	Yes	Partial	Pending	No
Are legislative instruments and procedures supporting interventions and institutional management functions sufficient to achieve the desired focus on results?		X		
Are legislative instruments and procedures supporting interventions and institutional management functions regularly reviewed and reformed to achieve the desired focus on results?				X

Checklist 8: Funding and resource allocation[21]

Questions	Yes	Partial	Pending	No
Are sustainable funding mechanisms supporting interventions and institutional management functions in place to achieve the desired focus on results? ' Central budget? • Fees? ' Road fund? • Other sources?				X
Are formal resource allocation procedures supporting interventions and institutional management functions in place to achieve the desired focus on results? ' Cost effectiveness? ' Cost benefit?				X
Is there an official Value of Statistical Life and related value for injuries to guide resource allocation decisions?				X
Are funding mechanisms and resource allocation procedures supporting interventions and institutional management functions sufficient to achieve the desired focus on results?				X

Checklist 9: Promotion

Questions	Yes	Partial	Pending	No
Is road safety regularly promoted to achieve the desired focus on results? ' Overall vision and goals? ' Specific interventions? ' Specific target groups?				X

Checklist 10: Monitoring and evaluation

Questions	Yes	Partial	Pending	No
For each category of roads (national, regional, provincial, city) are sustainable systems in place to collect and manage data on road crashes, fatality and injury outcomes, and all related road environment/vehicle/ road user factors to achieve the desired focus on results?		X		
For each category of roads (national, regional, provincial, city) are sustainable systems in place to collect and manage data on road network traffic, vehicle speeds, safety belt and helmet wearing rates to achieve the desired focus on results?				X
For each category of roads (national, regional, provincial, city) are regular safety rating surveys undertaken to quality assure adherence to specified safety standards and rules, to achieve the desired focus on results? ' Risk ratings? ' Road protection scores?				X
For each category of roads (national, regional, provincial, city) are systems in place to collect and manage data on the output quantities and qualities of safety interventions implemented to achieve the desired focus on results? ' Safety engineering activities? treatments? ' Police operations? ' Educational activities? • Promotional • Driver training? • Vehicle testing? • Emergency medical services?				X
For each category of vehicles and safety equipment (private, commercial, public, helmets) are systematic and regular safety rating surveys undertaken to quality assure adherence to the specified safety standards and rules to achieve the desired focus on results? ' Vehicle safety rating? ' Helmet testing?		X (vehicle safety rating)		X (helmet testing)
For each category of post-crash service (pre-hospital, hospital, long-term care) are systematic and regular surveys undertaken to quality assure adherence to the specified standards and rules to achieve the desired focus on result?		X		
Are systems in place to monitor and evaluate safety performance against targets regularly to achieve the desired focus on results?				X
Do all participating agencies and external partners and stakeholders have open access to all data collected?				X

Checklist 11: Research and development and knowledge transfer

Questions	Yes	Partial	Pending	No
Has a national road safety research and development strategy been established to achieve the desired focus on results? ' Vehicle factors? • Institutional factors? ' Highway factors? • Other factors? ' Human factors?				X
Has an independent national road safety research organization been established to achieve the desired focus on results? ' Vehicle factors? • Institutional factors? ' Highway factors? • Other factors? ' Human factors?				X
Have demonstration and pilot programs been conducted to achieve the desired focus on results? ' Vehicle factors? • Institutional factors? ' Highway factors? • Other factors? ' Human factors?				X
Are mechanisms and media in place to disseminate the findings of national road safety research and development to achieve the desired focus on results? ' Conferences? • Journals? ' Seminars? • Other? ' Training?				X

Checklist 12: Lead agency role and institutional management functions

Questions	Yes	Partial	Pending	No
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *results focus* management function? · Appraising current road safety performance through high-level strategic review? · Adopting a far-reaching road safety vision for the longer term? · Analyzing what could be achieved in the medium term? · Setting quantitative targets by mutual consent across the road safety partnership? · Establishing mechanisms to ensure partnership accountability for results?				X
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *coordination* management function? · Horizontal coordination across central government? · Vertical coordination from central to regional and local levels of government? · Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels? · Parliamentary relations at central, regional and local levels?				X
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *legislation* management function? · Reviewing the scope of the legislative framework? · Developing legislation needed for the road safety strategy? · Consolidating legislation? · Securing legislative resources for road safety?				X
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the f*unding and resource allocation* management function? · Ensuring sustainable funding sources? · Establishing procedures to guide the allocation of resources across safety programs?				X
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *promotion* management function? · Promotion of a far-reaching road safety vision or goal? · Championing and promotion at high level? · Multisectoral promotion of effective interventions and shared responsibility? · Leading by example with in-house road safety policies? · Developing and supporting safety rating programs and the publication of their results? · Carrying out national advertising? · Encouraging promotion at local level?				X
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *monitoring and evaluation* management function? · Establishing and supporting data systems to set and monitor final and intermediate outcome and output targets? · Transparent review of the national road safety strategy and its performance? · Making any necessary adjustments to achieve the desired results?				X

Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *research and development and knowledge transfer* management function? • Developing capacity for multi-disciplinary research and knowledge transfer? • Creating a national road safety research strategy and annual program? • Securing sources of sustainable funding for road safety research? • Training and professional exchange? • Establishing good practice guidelines? • Setting up demonstration projects?				X

[14] It is important to probe the risks faced by different road user groups, assisted by available data from highway agencies, police, hospitals and other sources. It is also important to locate and rank those sections of the road network with the highest concentrations of deaths and injuries, across the hierarchy of urban roads and the hierarchy of inter-urban roads. Where data are deficient or simply unavailable extensive consultations with relevant groups may be required to identify user groups most at risk and to locate hazardous sections of the network. The best starting point for these discussions is within the health sector, particularly with the emergency services staff that attend to crash victims in the pre-hospital phase. The issue of acceptable and achievable levels of safety and related responsibilities and accountabilities must be addressed at the highest agency and ministerial levels, especially across the transport and health sectors. In this dialogue it is important to identify and discuss the scale of the national health loss incurred by road crashes, compared to other causes of death and injury in the country concerned.

[15] Each country will have its own defined road hierarchy and the road categories assessed must be adjusted to this. The checklist is indicative of the network coverage required. Close attention should be paid to the safety standards that are set for road network design and the extent to which they are clearly defined within a hierarchy of roads and respond to identified road user risks. It is also important to review if safety audits are conducted to ensure compliance with these standards and if network surveys and inspections are regularly carried out for safety maintenance and hazard identification purposes. Police enforcement of safety standards and rules must be carefully examined. Particular attention should be paid to police operational practices targeting unsafe behaviors like speeding, drink-driving and the non-wearing of safety belts and helmets. Likewise, police enforcement of the safety of commercial transport operations – both freight and passenger—must be reviewed. It is most important to assess if the overall scale of police enforcement initiatives is enough to ensure effective compliance. Experience in good practice jurisdictions indicates that about 20 percent of total police budgets are dedicated to strategic road policing activities, with the emphasis being on general deterrence operations. The extent to which road user education and awareness campaigns are designed to support police enforcement initiatives should also be appraised.

[16] In the case of entry and exit controls, safety standards and related compliance regimes for vehicles and road users should be thoroughly appraised. Vehicle safety standards are important for vehicle users and vulnerable road users. Procedures for ensuring compliance with them, as a prerequisite for entry to the vehicle fleet, should be reviewed. These standards can relate to active safety features (for example, electronic stability control, lighting and conspicuity) and passive safety features (for example, side and frontal impact protection; pedestrian, cyclist and motorcyclist protection; and safety belts). Standards promulgated by the world's leading vehicle safety jurisdictions—US, Japan and Europe—provide a useful benchmark for assessing country policies. Safety ratings of new car performance in crash tests provide a useful reference point for assessing country fleet quality.

[17] The extent to which driver licensing standards take account of the higher crash risks of novice drivers and older drivers should also be reviewed.

[18] Post-crash services merit close attention, especially in low and middle-income countries where safety performance is poor and high benefit-cost returns can be anticipated from improved emergency and rehabilitation services.

[19] National coordinating bodies may exist; but unless their membership includes agencies that are fully accountable and funded for road safety results, experience suggests they will be ineffective. More specifically, in good practice countries these coordinating bodies are usually the extension of ac-countable lead agencies that own and use them as platforms for mobilizing resources and coordinating and focusing multi-sectoral partnerships, in pursuit of agreed results.

[20] Specialist skills will most likely be required to review road safety legislation. This will depend on the complexities of the legal codes and the extent to which they have been structured or restructured to consolidate previous legislation. Road safety legislation typically addresses road, vehicle and user safety standards and rules—and related compliance—but it has often evolved over time, without adequate cross-referencing.

[21] Identifying and quantifying total funding allocated to agencies for road safety can be difficult, particularly when it is embedded in broader sector budgets. However, it is important to seek high-level confirmation of budget sources, processes and levels.

APPENDIX E: ADDITIONAL INFORMATION ON ROAD SAFETY IN SAMOA

World Bank Road Safety Country Profile - Samoa (GRSF 2020)

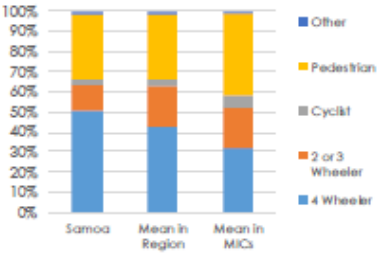
ROAD SAFETY COUNTRY PROFILE — Samoa — East Asia and Pacific (EAP)

THE SCALE OF THE ROAD SAFETY CHALLENGE

ROAD CRASH FATALITIES AND INJURIES SNAPSHOT

Country Population, 2016	195,125
Country Reported Fatalities, 2016	17
WHO Estimated Fatalities, 2016	22
GBD Estimated Fatalities, 2016	18
WHO Est. Fatalities per 100,000 Pop., 2016	11.30
GBD Est. Fatalities per 100,000 Pop., 2016	9.10
Estimated Serious Injuries, 2016	330
Cost of Fatalities and Serious Injuries, 2016	$ 29.49 million
Cost as % of country GDP, 2016	3.7%

FATALITIES BY USER COMPARISON CHART



71% Percentage of Road Crash Fatalities and Injuries in the economically productive age groups (15 - 64 years.)

2 : 1 Ratio of Male to Female Fatalities with the 15 - 49 year age group being most vulnerable to fatalities

551 life yrs. affected due to disability from road crash injuries per 100,000 people

POSITIONING OF COUNTRY IN THE REGION (COMPARED TO COUNTRIES WITH THE LOWEST TRAFFIC FATALITIES IN THE REGION AND GLOBALLY)

	2016 WHO Estimated Road Fatalities	2016 GBD Estimated Road Fatalities	2016 WHO Estimated Fatality Rate/ 100,000 pop.	2016 GBD Estimated Fatality Rate/ 100,000 pop.	% Trend in Fatality Rate/100,000 (2013 - 2016)	Motorization Registered Vehicles/100,000 population
Samoa	22	18	11.3	9.1	-1.8%	12,933
BEST PERFORMING COUNTRIES IN REGION						
Micronesia	2	16	1.9	15.7	-0.3%	5,406
Kiribati	5	12	4.4	10.4	-5.2%	3,240
BEST PERFORMING COUNTRIES GLOBALLY						
Switzerland	223	334	2.65	3.89	-5.4%	71,182
Norway	143	215	2.72	4.09	2.4%	75,544
Singapore	155	197	2.76	3.53	-4.9%	16,604
Sweden	278	390	2.83	3.88	-3.2%	62,037

ROAD SAFETY MANAGEMENT

PILLAR 1

To produce positive road safety outcomes, strong management in all aspects of road safety is key. Presence of a funded lead agency to guide the national road safety effort and implement a Safe Systems approach is recommended.

✓ Samoa has a lead agency present, Ministry of Works, Transport Infrastructure (MWTI), which is funded in the national budget, and has a road safety strategy which is partially funded. The functions of the agency include coordination, legislation and monitoring and evaluation of road safety strategies. The country only has a fatal road safety target, to No with a timeline of No.

SAFE ROADS AND ROADSIDES

PILLAR 2

Improved infrastructure provides solid and well understood crash and injury reduction outcomes and are critical for long term and sustainable trauma reduction in line with the Safe Systems Approach. The International Road Safety Assessment Programme (iRAP) provide a business case for safer roads and road star ratings which give a simple and objective measure on the level of safety which is 'built-in' to the road for the road users. 5 Star roads are the safest while 1 star roads are the least safe.

Road Infrastrucure Star Rating Results

NO ROAD ASSESSMENT SURVEY DATA FOR SAMOA IS PUBLICLY AVAILABLE ON THE iRAP WEBSITE.

Information on Infrastructure in Samoa:

Audit/Star Rating Required for New Road Infrastructure;

Inspection/Star Rating Required for Existing Roads;

Investment Allocated to Upgrade High Risk Locations

Business Case for Safer Roads

Infrastructure and Speed Management Investment required:	$ 45.57 million
Annual Investment as a % of GDP (2019-2030):	0.44%
Reduction in fatalities per year:	12
Approximate reduction in fatalities and serious injuries (FSI) over 20 years:	2,650
Economic Benefit: $ 175.3 million	B/C Ratio: 4

ROAD SAFETY COUNTRY PROFILE — Samoa — East Asia and Pacific (EAP)

PILLAR 3 — SAFE SPEEDS [Ref: 1,6,7,8]

Speeding is a major risk factor for road crash injuries, contributing to both crash risk and crash consequences. A 5 % cut in average speed can result in a 20 % reduction in the number of fatal road crashes. Effective speed management measures such as establishing and enforcing speed limit laws, traffic calming through roadway design and other measures, and vehicle technology need to be widely implemented.

MAXIMUM SPEED LIMITS AND ENFORCEMENT

NATIONAL SPEED LIMIT LAW	URBAN ROADS	RURAL ROADS	MOTORWAYS	SPEED ENFORCEMENT
✓	56 km/h	56 km/h	Not Known	Manual
Difference with Recommended Safe Systems Speeds	+ 26 km/h	Appropriate	-	Potential Decrease in Fatal Road Crashes from Enforcement of Safe System Speed Limits
	5 times lower	Low Risk	-	

MAJOR SPEED CALMING MEASURES BEING IMPLEMENTED IN SAMOA:

✗ NARROWING	✓ VERTICAL DEFLECTIONS	✗ HORIZONTAL DEFLECTION	✗ BLOCK OR RESTRICT ACCESS
Include lane narrowings by extending sidewalks, curb extensions, pedestrian refuges etc.	Include speed bumps, humps, cushions, tables, raised pedestrian crossing, variation in ride surface etc.	Used to make vehicles swerve slightly, include chicanes, pedestrian refuges, chokers etc.	Include median diverters, closing streets to create pedestrian zones, cul-de-sacs etc.

PILLAR 4 — SAFE VEHICLES [Ref: 1,8]

Universal deployment of improved vehicle safety technologies for both passive and active safety through a combination of harmonization of relevant global standards, consumer information schemes and incentives to accelerate the uptake of new technologies will reduce road crash fatalities significantly.

VEHICLE REGISTRATION, STANDARDS AND IMPORT REGULATIONS

TOTAL REGISTERED VEHICLES AS OF 2016	MOTORIZED 2/3 WHEELERS AS OF 2016
25,235	0.4%

COUNTRY COMPLIANCE TO THE UN VEHICLE SAFETY REGULATIONS

FRONTAL AND SIDE IMPACT (Reg. 94, 95)	MOTORCYCLE ANTI-LOCK BRAKING SYSTEM (Reg. 78)	PEDESTRIAN PROTECTION (Reg. 127)	ELECTRONIC STABILITY CONTROL (Reg. 140)	SEAT BELTS AND ANCHORAGES (Reg. 16, 14)
✗	✗	✗	✗	✗

REGULATION OF IMPORT OF USED VEHICLES	IMPORT AGE LIMIT	TAXATION BASED LIMITS	IMPORT INSPECTIONS	PERIODIC INSPECTION
✓ Regulated	✓ 8 Yrs.	✗ No	✓ Yes	✗ No

PILLAR 5 — SAFE ROAD USERS [Ref: 1,8]

The key behavioral risk factors for road crash injuries are drunk driving, non-use of helmets, seat-belts or child restraint, and speeding. Establishing and enforcing laws to address these risk factors is effective in reducing road crash fatalities and their associated injuries.

NATIONAL SEATBELT, DRINK DRIVING AND HELMET LAWS (WHO, 2018)

NATIONAL SEATBELT LAW	DRIVER	FRONT	BACK	MOTORCYCLE HELMET LAW	HELMET STANDARDS	MOTORCYCLE OCCUPANT AGE RESTRICTION	LEGAL MINIMUM DRIVING AGE
✓	✓	✓	✗	✓	✗	✗ Not restricted	✗ 16 yrs.

NATIONAL DRINK DRIVING LAW	IS LAW BAC BASED?	BLOOD ALCOHOL CONCENTRATION (BAC) LIMITS (g/dl) GENERAL POPULATION	YOUNG DRIVERS	PROFESSIONAL DRIVERS	RANDOM DRINK DRIVING TESTS	% OF ROAD CRASH FATALITIES INVOLVING ALCOHOL
✓	✓	≤0.08	≤0.08	≤0.08	✓	✗ Not Known

PILLAR 6 — POST CRASH CARE [Ref: 1,8,9]

Good post-crash care reduces deaths and reduces disability and suffering for road crash survivors. The emergency medical care system elements and processes need to be effective to attain this objective.

NATIONAL EMERGENCY CARE ACCESS NUMBER	TRAUMA REGISTRY SYSTEM	COUNTRY HEALTH COVERAGE INDEX - SDG Target 3.8; Target - 100	EXPENDITURE ON HEALTHCARE AS % OF GDP
National, Multiple Numbers	None	56	6%

Samoa has several emergency numbers. These are 999 (General); 995 (Police); 996 (Ambulance).

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1. Global Status Report on Road Safety 2018. World Health Organization; 2. Institute for Health Metrics and Evaluation (IHME). GBD Results Tool. Seattle, WA: IHME, University of Washington, 2015; 3. Serious injuries have been calculated assuming a ratio of 15:1 (15 serious injuries for every death). This estimation broadly falls in the range of 30:1 in high income countries to 10:1 in low- and middle-income countries as crashes tend to be more fatal in the later context. 4. Vaccines for Roads. International Road Assessment Programme (iRAP). Available from https://www.vaccinesforroads.org/; 5. World Bank Databank for Development Indicators; 6. M.H. Cameron, R. Elvik. 2010. Nilsson's Power Model connecting speed and road trauma; 7. Austroads. Balance between harm reduction and mobility in setting speed limits; 8. UNEP-ITC Background Paper on Used Vehicles Globally and Various Media Sources (Wikipedia and vehicle import websites); 9. 2018 World Health Statistics, WHO.

Extract for 'Samoa - Road Safety Performance 2016 (WHO 2018)

Samoa

Population: 195 125 | Income group: Middle | Gross national income per capita: US$ 4 100

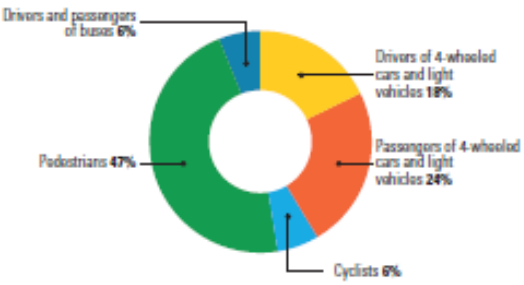
INSTITUTIONAL FRAMEWORK	
Lead agency	Ministry of Works, Transport & Infrastructure (MWTI)
Funded in national budget	Yes
National road safety strategy	Yes
Funding to implement strategy	Partially funded
Fatality reduction target	<5 deaths per 10 000 vehicles (2011–2020)
SAFER ROADS AND MOBILITY	
Audits or star rating required for new road infrastructure	Yes
Design standards for the safety of pedestrians/ cyclists	Partial
Inspections/ star rating of existing roads	Yes
Investments to upgrade high risk locations	Yes
Policies & investment in urban public transport	Yes
SAFER VEHICLES	
Total registered vehicles for 2016	25 235
Cars and 4-wheeled light vehicles	23 557
Motorized 2- and 3-wheelers	95
Heavy trucks	1 184
Buses	326
Other	73
Vehicle standards applied (UNECE WP.29)	
Frontal impact standard	No
Electronic stability control	No
Pedestrian protection	No
Motorcycle anti-lock braking system	No
POST-CRASH CARE	
National emergency care access number	National, multiple numbers
Trauma registry	None
Formal certification for prehospital providers	No
National assessment of emergency care systems	No
DATA	
Reported road traffic fatalities (2015/2016)[a]	17[b] (71% M, 29% F)
WHO estimated road traffic fatalities (2016)	22 (95% CI 20 – 25)
WHO estimated rate per 100 000 population (2016)	11.3

[a] Data collected across fiscal year calendar 2015-2016
[b] Accident Compensation Corporation (ACC), Unlimited time period following crash

SAFER ROAD USERS	
National speed limit law	Yes
Max urban speed limit	– 56 km/h
Max rural speed limit	– 56 km/h
Max motorway speed limit	—[c]
Local authorities can modify limits	No
Enforcement	0 1 2 3 4 5 6 7 8 (9) 10
Predominant type of enforcement	Manual
National drink-driving law	Yes
BAC limit – general population	≤ 0.08 g/dl
BAC limit – young or novice drivers	≤ 0.08 g/dl
Random breath testing carried out	Yes
Testing carried out in case of fatal crash	No
Enforcement	0 1 2 3 4 5 6 7 (8) 9 10
% road traffic deaths involving alcohol	—
National motorcycle helmet law	Yes
Applies to drivers and passengers	Yes
Helmet fastening required	Yes
Helmet standard referred to and/or specified	No
Children passengers on motorcycles	Not restricted
Enforcement	0 1 2 3 4 5 6 7 8 9 (10)
Helmet wearing rate	100% Drivers[d], 100% Passengers[e]
National seat-belt law	Yes
Applies to front and rear seat occupants	No
Enforcement	0 1 2 3 4 5 6 7 8 9 (10)
Seat-belt wearing rate	100% Front seats[f], 100% Rear seats[f]
National child restraint law	No[g]
Children seated in front seat	Not restricted[h]
Child restraint required	—
Child restraint standard referred to and/or specified	—
Enforcement	—
% children using child restraints	—
National law on mobile phone use while driving	Yes
Ban on hand-held mobile phone use	Yes
Ban on hands-free mobile phone use	No
National drug-driving law	Yes

[c] No motorways in the country
[d] 2016, Land Transport Authority Instant Fine Act 2009/Traffic Offence Notice
[e] 2016, Land Transport Authority, Authorized Traffic Officers Report, Traffic Offence Notice
[f] 2016, Traffic Offence Notice
[g] Legislation refers to either child restraints or seat belt to restrain children under 12 years
[h] Except if child restraints or seat belt are available in the front seat

Deaths by road user category



Source: 2015/2016, Accident Compensation Corporation (ACC)

Trends in reported road traffic deaths

Source: Accident Compensation Corporation (ACC)

REFERENCES

World Bank. 2020. *Country Profiles, Samoa*. World Bank.

WHO (World Health Organization). 2018. *Global Status Report on Road Safety 2018*. Geneva: World Health Organization.

APPENDIX F: REVIEW OF CURRENT ROAD CRASH DATA SYSTEM IN SAMOA

Availability of data

While underreported and scattered across government departments, there are numerous possible sources of crash data in the country.

One of the primary sources of crash data is the Traffic Police under the Ministry of Police and Prisons (MoPP), which responds to crashes and conduct investigations. Fatality data from MoPP is 23 percent lower than World Health Organization (WHO) estimates and possibly indicates underreporting. This data is input into the Station's Occurrence Book—a hard-copy summary of all incidents, including traffic crashes, attended to by Traffic Police—on a daily basis. The data is also input into a local database managed by Traffic Police, as well as the Police Pro system. Police Pro was introduced to Samoa by the Australian Federal Police (AFP) and is now MoPP's main crime management and data recording system. A statistical unit at Police Headquarters analyze Police Pro data inputs and produce a monthly summary report by policing division that is shared with Traffic Police.

For all crashes resulting in a serious injury (SI) or fatality, Traffic Police are legislatively obliged to provide a report to the Accident Compensation Corporation (ACC) within five days of the crash (this form is attached below). ACC undertake extensive data analysis and compile this data in a database. Every quarter, ACC prepare and share a crash data summary report with the National Road Safety Committee (NRSC).

The location of crashes is recorded by Traffic Police as a text descriptor only. No mapping of crash locations occurs, and it appears that location information is not carried through to the data analysis stage.

The Ministry of Health (MoH) also have thorough records of the number of people hospitalized as a result of a road crash, aggregated by injuries and fatalities. This however is not integrated with the data from MoPP. In a WHO Report on Health Information Systems, the MoH has stated that they have trained staff in data collection and analysis as well as system administration and maintenance. They produce annual reports on health data and have funding for system improvements and operations. However, during the course of this report, health data has not been readily available.

Both the data from MoPP and the data from the hospitals have their own strengths and weaknesses. A cursory glance at the two shows the following differences:

Item	**Data from MoH**	**Data from MoPP**
Object of Record	Each record is related to one patient	Each record is related to one crash
Main inputted information	Related to medical trauma and health damage of patient	Related to causes, situation, and consequences of accident; for prosecution purposes
Data on Injury	Detailed and clear	Incomplete
Database System	Still in establishment	Working

Accessibility	Difficult	Difficult

Aside from health and police data, crash data can also come from the civil registration system organized by the National Civil Registration and Vital Statistics (CRVS) Committee. This committee includes the MoH, Ministry of Women, Community and Social Development, Ministry of Justice and Courts Administration, Ministry of Education, Sport and Culture (MESC), MoPP, Samoa Bureau of Statistics. While there is a functioning civil registration system, main challenges still include accounting for home deaths, late registration by relatives, and most importantly, properly identifying the cause of death.

Beyond that, other entities such as the Samoa Fire Emergency Services Authority and Land Transport Authority (LTA) can be potential sources of crash data in particular and road safety data in general.

Sharing of data

With the exception of the quarterly report prepared by ACC, sharing of data amongst the member agencies of the NRSC is not evident. It was also recognized that the NRSC, in recent years at least, is not using the quarterly report as a monitoring or decision-making tool.

It is essential that the location of SI or fatal crashes is shared with LTA, and that these locations are summarized on a map. Displaying this data on a map enables location-specific measures, particularly infrastructure safety interventions, to be identified and implemented by LTA. As this data is not currently shared, and mapping is not undertaken, black spot management is not currently occurring, or possible, for MWTI and LTA.

Summary

The availability of a road crash data system that is accessible, up-to-date, comprehensible, and disseminated to all relevant stakeholders is key to effective road safety management. The system needs to enable crash locations to be mapped and black spots identified, crashes by type to be recorded and crash data to be more fully analyzed. The proposed pilot of the Data for Road Incident Visualization Evaluation and Reporting (DRIVER) road crash database system by the World Bank in association with MoPP, ACC and LTA is an opportunity to establish a comprehensive available system and deliver training in data collection and data analysis to secure beneficial use.

It is also essential that data is shared across agencies to enable the NRSC to advise decision-makers. This will allow for the delivery of evidence-based recommendations to government at high level, supported by multiple ministries, and achieve outcomes which improve road safety performance and can be readily measured and evaluated, essential to building government and community confidence around any proposed and applicable strategy.

It is in this context that DRIVER can potentially be a national repository for recording and sharing crash data. The system links multiple agencies involved in recording road crash data (such as MoPP and MoH), standardizes terms and definitions for reporting, and provides analytical tools to support evidence-based investments and policies and monitoring the impact of interventions.

Specifically, DRIVER features:

- A web and mobile-device interface for recording and viewing road incidents;
- Standardized data fields and entries to support analyses of historical crash data;

- Robust tabular and map-based filtering and search functions;
- Advanced API and data export and sharing features;
- Blackspot, economic cost, and crash prediction analytical tools;
- Intervention tracking functionality; and
- A public-facing website.

Most critically, DRIVER is open-source, which means the code that is the basic structure of DRIVER can be accessed in the internet at https://github.com/WorldBank-Transport/DRIVER. This means that software developers can use the code to create and customize an instance solely for Samoa. This is cost-effective since there will be no need to build a database system from scratch or buy expensive and off-the-shelf products. This is also advantageous since the government and local developers can maintain and improve the platform without being tied to a single company. DRIVER is currently being implemented in multiple countries for varying purposes.

In the Philippines, it is being scaled-up as the official national crash database system. Figure 13 is a screenshot of the DRIVER platform in the Philippines (roadsafety.gov.ph):

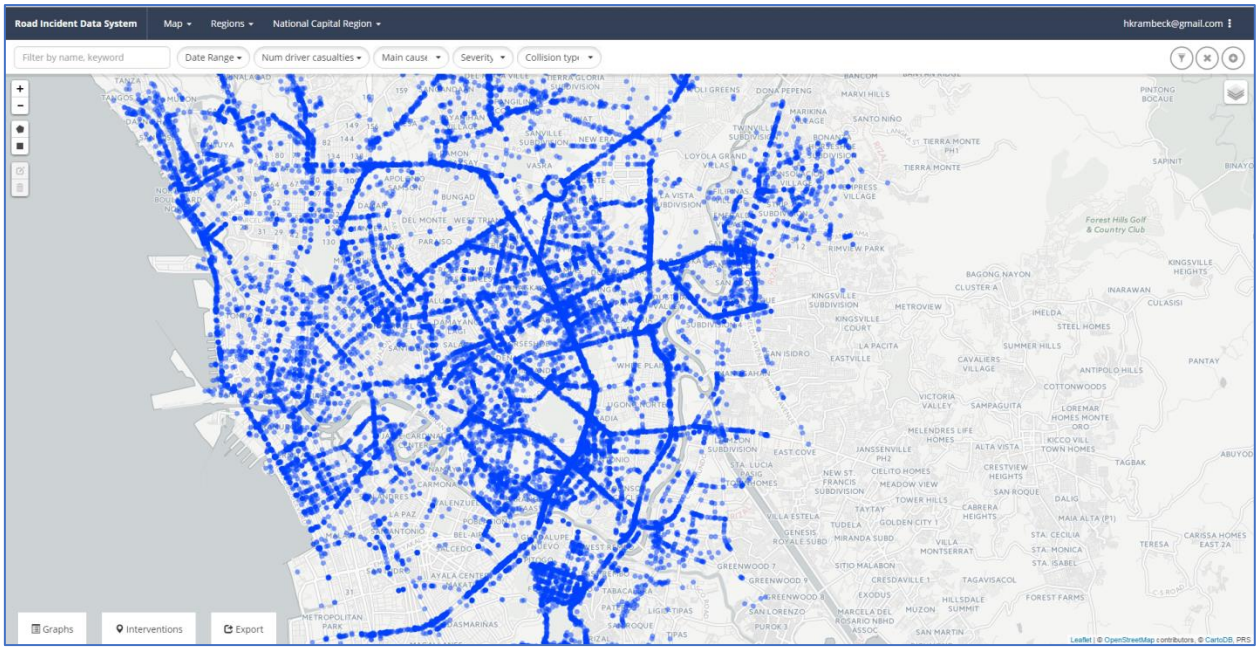


Figure 13: Print screen from Philippines DRIVER instance

DRIVER is also currently implemented in Lao People's Democratic Republic and being scaled-up as the national crash database system.

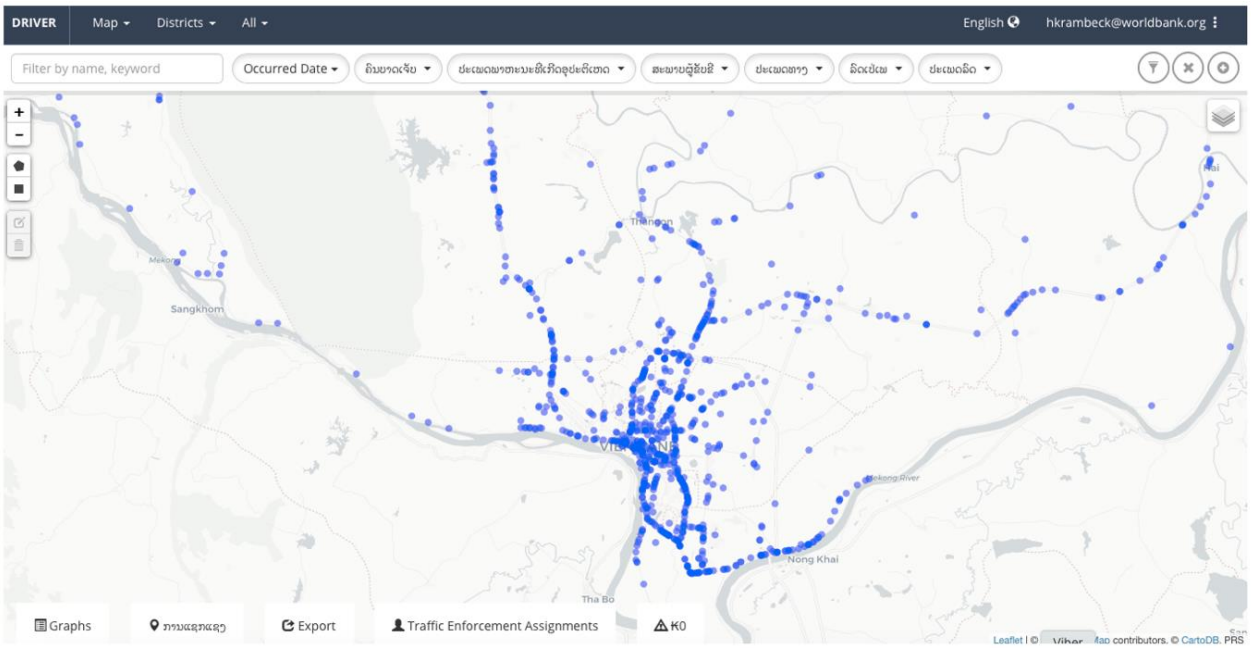


Figure 14: Print screen from Lao People's Democratic Republic DRIVER instance

For Samoa, it can potentially be a central crash database for evidence-based decision-making in road safety.

A proposed pilot implementation program is outlined below:

1. Data Reporting Standards

A preliminary workshop is to be held with all concerned agencies in road safety to determine and agree on minimum indicators along with their definitions and values and assign data collection tasks.

A sample list of minimum indicators is provided by the WHO:

Crash Related

- Crash identifier
- Date
- Time
- Location (geo-reference)
- Impact type
- Weather
- Light
- Crash Severity.

Road Related

- Type of road
- Speed limit
- Road hazards
- Surface type
- Junction type
- Road curve
- Road segment grade.

Vehicle Related

- Vehicle number
- Vehicle type
- Vehicle make
- Vehicle model
- Vehicle model year
- Engine size
- Vehicle special function
- Vehicle maneuver.

Person Related

- Person ID
- Occupant's vehicle number
- Pedestrian's linked vehicle number
- Date of birth
- Sex
- Type of road user
- Seating position
- Injury severity
- Safety equipment
- Pedestrian maneuver
- Alcohol use
- Drug use
- Driving license issue data
- Age.

A sample checklist of data management tasks is provided below:

Category	Responsibilities	Ministry/Relevant Office
Program Management	Over-all lead and focal point Managing technical, communications, policy, and data analysis, ensuring seamless coordination between different government agencies, both at national and local levels	

	Executing policy and legal instruments	
Program Management	Development and printing of handouts	
Program Management	Funding of equipment (such as, WIFI, computers)	
Program Management	Support hotline, responding to general queries	
Training	Organize and implement training workshops for encoders in the use of the platform and mobile app	
Training	Organize training for server administration and troubleshooting	
Training	Organize training for system administration	
Server Admin.	Solely responsible for all aspects of server management (back-up, app updating) Responsible for server set up, system monitoring, establishing and using back-up systems, providing summary analytics reports and responding to server and database-related inquiries	
System Admin	Troubleshooting, bug fixes, regular check if functions are working	
System Admin.	Data Quality Control, Resolve Duplicates, External database link reviews	
System Admin.	Ensure regular recording of all encoders	
System Admin.	Linking with other database systems (such as, Health Database)	
System Admin.	Field Customization, Editing the DRIVER Input Form	
System Admin.	Implement Other Enhancements such as updating of the maps	
User Management	Design, implement User Policies and Grant or Revoke User Access	
User Management	Updating of User Access list (excel sheet)	
Data Entry	Encoding of Crash Data	
Data Entry	Interventions	
Data Analysis	Use and Analyze Data for Road Safety Programs	
Data Analysis	Use and Analyze Data for Traffic Enforcer Assignments	
Data Analysis	Monitoring impact of Interventions	
Internal Communication	Informing everyone about changes to the platform, server downtimes, bugs	
External Communication	Promoting the use of DRIVER to the general public	

It is expected that resources will be allocated, and legal instruments will be executed to formalize the agreements. Other needs that should be taken into account are:

- Technology (hardware, software, networking, security, services, and so on) procurement needs (if any);
- Estimated government-counterpart staff time needs (for duration of the project);
- Staff and participant training needs;
- Temporary cross-institutional structuring and collaboration needs (if any);
- Staff hiring needs, if any (for duration of the project); and
- Proposed partnership arrangements.

2. Development of Samoa DRIVER Instance

After the minimum indicators and institutional arrangements have been finalized, the current demonstration instance for Samoa can be customized to reflect the agreements that have been made. DRIVER is adequately flexible so that data input fields can be modified, access privileges can be customized, appropriate filters can be identified and so on.

3. Training

The objective of the training is to initiate the collection of crash data. The identified encoders whether from MoPP or the ACC will be trained on how to use all the functionalities of the platform. The scope and duration of the training will depend on the users' computer skills. If computer skills have to be developed as well, then a one week intensive and hands-on training of how to use the computer, Microsoft tools, and DRIVER is recommended.

4. Pilot implementation

The objective of the pilot is to assess the functions and usability of DRIVER in the context of Samoa as well as the agreed institutional arrangement in road safety data collection that will be used during the pilot period both at ACC and at the field (police stations). It is recommended to start with a city first such as Apia where the police can directly use DRIVER. As for the rest of the country, the ACC will be the one to encode the records into DRIVER. The pilot period can be for three months which will allow the police to fully experience the process and the use of DRIVER.

5. Feedback and Evaluation

After the pilot period, an inter-ministerial workshop will be organized to collect feedback on DRIVER. Feedbacks can be in the following categories:

- Improvement from the existing institutional arrangement in terms of collection, uploading, analysis, and presentation;
- Technical difficulties and application troubles experienced during the pilot period;
- Suggested changes in the data fields; and
- Suggested new functions of DRIVER.

APPENDIX G: COMPARATIVE REVIEW AND GAP ANALYSIS OF SAMOA'S LAWS AND REGULATIONS RELATED TO LAND TRANSPORT AND TRAFFIC

Extract from Executive Summary (Stantec 2020)

While it is acknowledged that Samoa has a smaller land transport fleet and usage compared to Australia, Fiji, New Zealand and Papua Niugini, the legislation and regulations have significant gaps considering current society. These are highlighted throughout the comparative assessment. However, there are number of matters where there are no corresponding laws and/or regulations. For example, Samoa's legislation does not bind the Crown, there is limited discussion related to driver training, and very limited with respect to heavy vehicles in comparison for example, to Australia and New Zealand. This includes the movement of dangerous freight. Further, any future legislation should include the ability to install interlock technology in motor vehicles for drink driving and drug driving offenders once they serve their disqualification. Additionally, Australia, Fiji and New Zealand have demerit point systems for when vehicle drivers are given an infringement notice. The points are given at the same time as a pecuniary penalty. The following of this system would provide a greater incentive to increase road safety as recalcitrant would be removed from the road for repeat offences. Further, there is a need to fully re-evaluate seating arrangements for children include the need for dedicated child restraints and seating for children. To create employment, any new legislation should provide to the regulation of training entities for learners including but not limited to motor vehicles, motorcycles and heavy vehicles. Of critical importance is the low number of offences and moreover the pecuniary amount for penalties in comparison to the four countries for traffic offences. This also includes the potential imprisonment for many offences.

Based on the above, the Road Traffic Ordinance 1960 would benefit from amendments to bring it in line with good international industry practice with respect to road transport and traffic. This would include being more specific about offences and penalties including minimum and maximum penalties. The Road Traffic Regulations 1961 should be totally re-written given the age of the regulations and moreover, the very limited amendments that have occurred over time. Likewise, the relevant penalties in the Road Traffic (Payment of Fines) Act 2009 should be considered as to their adequacy and ability to improve road safety through a real deterrent.

REFERENCES

Stantec. 2020. *Comparative Review and Gap Analysis of Samoa's Laws and Regulations to Land Transport and Traffic*. Stantec.

APPENDIX H: HEAVY VEHICLE LOADING AND DIMENSIONS – RECOMMENDED REGULATORY UPDATING

In 2019, Stantec and Enviro & Legal consultancies, on behalf of the World Bank and as part of the Enhanced Road Access Project (ERAP), conducted workshops in Samoa based on a draft report, which reviewed existing heavy vehicle related transport legislation and regulation and which proposed substantially updated regulations to reflect a preferred approach to a series of options for vehicle loading and for vehicle dimensions provided. It also recommended changes to road and bridge specifications to respond to the loading recommendations.

The Gap analysis from the Consultant's Report presents the findings and proposed recommended actions:

5. Gap Analysis

In preparing the report, Stantec and Enviro and Legal have reviewed the existing laws and regulations of Samoa against those of Australia, Fiji, New Zealand and Papua Niugini given they are the larger developed and developing stations in the Pacific that have an extensive heavy vehicle industry. A gap analysis has been developed and is shown as Figure 5-1.

Based on the legislative review, it is clearly apparent that the existing GoS law and regulation with respect all aspects of heavy vehicles, and specifically with respect to the current work, length and weight are extremely outdated and moreover, not consistent with the current fleet operating both in Samoa and the laws and regulations of other developed and developing nations in the Pacific that have an active heavy vehicle fleet.

While, of the four other legislations reviewed, Fiji has the most outdated length and particularly weight dimension regulation, its current regime is significantly more advanced that Samoa. Firstly, it allows for existing freight to be moved legally, for example, as a forty-foot container. The current Samoan regulations with a limit of 30 feet for a heavy vehicle and twenty-two feet for a trailer essentially make the movement of forty-foot containers illegal. Moreover, the current regulations in Samoa only allow for penalties where a vehicle exceeds r 44 of the Road Traffic Regulations 1961, and the penalty for this is only two (2) penalty units. The fines etc. for these types of offences is significant particularly in Australia, New Zealand and Papua Niugini but less so in Fiji.

Based on the above, it is difficult to address all the gaps that are existing although there is a definite need to bring the existing laws and regulations more in line with that of Australia and New Zealand if Samoa wants to advance to having new laws and regulations that will be applicable for the next 20 to 50 years.

These gaps have been addressed in the proposed amendments contained in Section 12.

With respect to buses, Samoa is similar to that of Fiji, notwithstanding that Fiji has specific regulations related to public service vehicles. The minor amendment made to the interpretation for public service vehicles in the Road Traffic Amendment Regulations 2009 *went someway to bring the interpretation in line with good international industry practice; however, the gap in this interpretation is that there is no set limit on the number of passengers that is considered a public service vehicle. These gaps have been addressed in the proposed amendments contained in Section 12.*

Generally, the review undertaken by Stantec and Enviro and Legal highlights extensive gaps in heavy vehicle laws and regulations, but especially around length, weight, overhang, the powers of the GoS to manage the heavy vehicle industry, and the need to fill those gaps to ensure the longevity of Samoan roads.

The Stantec and Enviro & Legal Report also examined any available data on road crash involvement of heavy vehicles and discussed likely impacts upon road safety in future if no regulatory change was introduced:

Road safety p.117 - 8.6.1

Consultation with LTA and MoPP has provided anecdotal evidence that heavy vehicles are not overrepresented in accidents of any form, such as run off road, head on or pedestrian injury. This is a possibility due to driver diligence and lower operating speeds. However international evidence suggests that continuing with the unregulated approach is likely to eventually manifest in an increase in accidents.

It is also noted that no data is collected.

As noted in section 8.5, larger vehicles can often require more room to manoeuvre. This additional width is likely to come at the expense of encroachment into oncoming lanes or into shoulders that are regularly used by pedestrians.

It is recommended that road accident data is recorded onto a central database for use in monitoring road safety trends and identifying areas for improvements.

A series of recommendations were summarised in the Executive Summary of the report as follows:

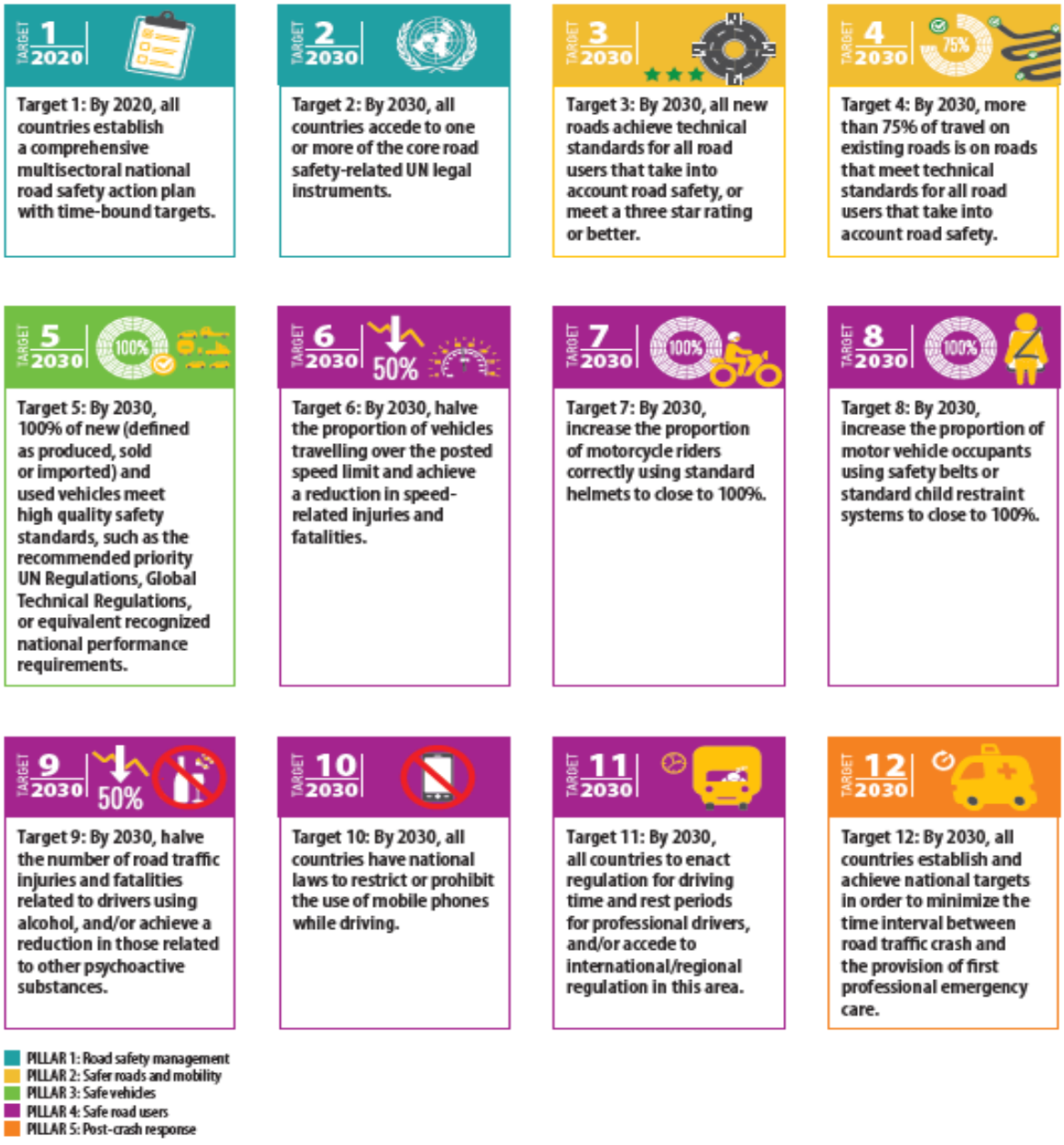
Recommendations

The review considered existing vehicle length and weight data from that provided by the Land Transport Authority for current heavy vehicles that are currently operational in Samoa; and weight data collected as part of this project. Based on the available data and the regional review, a number of amendments are proposed based on vehicle weight, length and axle number that are consistent with good international industry practice while at the same time being applicable for Samoa. It is recommended that the amendments include potential fines and other penalties for single and repeated breaches of the proposed amendments with respect to all forms of heavy vehicles including buses. Penalty units for these offences are proposed to be used based on previous suggestions from Stantec and Enviro and Legal that were accepted by GoS and World Bank, and consistent with what occurs in other jurisdictions.

This report also contains a strategy that allows for the implementation and enforcement of the proposed amendments.

APPENDIX I: UN GLOBAL ROAD SAFETY PERFORMANCE TARGETS

GLOBAL ROAD SAFETY PERFORMANCE TARGETS



Following the request of the United Nations General Assembly, on November 22, 2017 Member States reached consensus on 12 global road safety performance targets. For more information: http://www.who.int/violence_injury_prevention/road_traffic/road-safety-targets/en/