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Road Safety Management Capacity Assessment for the Solomon Islands

Final Report

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The review team wishes to express its appreciation to the following the Solomon Islands Government agencies and stakeholders for engaging in this process:

- Asian Development Bank (ADB);
- Attorney General's Department (AGD);
- Honiara City Council (HCC);
- Japan International Cooperation Agency (JICA);
- Ministry of Education and Human Resources Development (MEHRD);
- Ministry of Finance and Treasury (MoFT);
- Ministry of Health and Medical Services (MHMS);
- Ministry of Infrastructure Development (MID);
- Ministry of Justice and Legal Affairs (MJLA);
- Ministry of Police, National Security and Correctional Services (MPNSCS);
- Royal Solomon Islands Police Force (RSIPF);
- SMEC – Solomon Islands Roads and Aviation Project (SIRAP) design consultant;
- Solomon Islands Chamber of Commerce and Industry (SICCI);
- St John Ambulance Solomon Islands; and
- Transparency Solomon Islands.

This report is an activity within a broader World Bank executed 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. The ASA is being funded by a Global Road Safety Facility (GRSF) grant from United Kingdom Agency for International Development (UK AID).

ABBREVIATIONS

ADB	Asian Development Bank
AFP	Australian Federal Police
AGD	Attorney General's Department
AHC	Area Health Center
ASA	Advisory Services and Analytics
BAC	Blood Alcohol Concentration
BCR	Benefit Cost Ratio
DHIS	District Health Information System
DRIVER	Data for Road Incident Visualization Evaluation and Reporting
ESC	Electronic Stability Control
FSI	Fatalities and Serious Injuries
GBD	Global Burden of Disease
GDP	Gross Domestic Product
GLS	Graduated Licensing System
GPS	Global Positioning System
GRSF	Global Road Safety Facility
GSRRS	Global Status Report on Road Safety
GVM	Gross Vehicle Mass
HCC	Honiara City Council
ICTSU	Information and Communications Technology Support Unit
iRAP	International Road Assessment Program
IRD	Inland Revenue Division
IT	Information Technology
ITF	International Transport Forum
JICA	Japan International Cooperation Agency
JIMS	Justice Information Management System
LMICs	Low and Middle-Income Countries
MDPAC	Ministry of Development Planning and Aid Coordination
MEHRD	Ministry of Education and Human Resources Development
MHMS	Ministry of Health and Medical Services
MID	Ministry of Infrastructure Development
MJLA	Ministry of Justice and Legal Affairs
MPNSCS	Ministry of Police, National Security and Correctional Services
MoFT	Ministry of Finance and Treasury
MoHA	Ministry of Home Affairs
MoU	Memorandum of Understanding
MTTAP	Medium Term Transport Action Plan
MWSD	Mechanical Works Services Department
NDS	National Development Strategy
NGO	Nongovernmental Organization
NRH	National Referral Hospital
NRSC	National Road Safety Committee
NTF	National Transport Fund

OECD	Organization for Economic Cooperation and Development
OSH	Occupational Safety and Health
PIC	Pacific Island Countries
PS	Permanent Secretary
R & D	Research and Development
RBT	Random Breath Test
RSIPF	Royal Solomon Islands Police Force
RSMCA	Road Safety Management Capacity Assessment
RTB	Road Transport Board
RTB WG	Road Transport Board Working Group
SI	Serious Injuries
SICCI	Solomon Islands Chamber of Commerce and Industry
SIG	Solomon Islands Government
SINSO	Solomon Islands National Statistics Office
SINU	Solomon Islands National University
SIRAP	Solomon Islands Roads and Aviation Project
SITAMS	Solomon Islands Transport Asset Management System
TIMS	Transport Infrastructure Management Services
TDL	Temporary Driver's License
TIMSD	Transport Infrastructure Management Services Department
TMS	Transport Management System
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
USD	United States Dollar
USP	University of South Pacific
WHO	World Health Organization

EXECUTIVE SUMMARY

Background

The Road Safety Situation in the Solomon Islands

The Solomon Islands is undergoing economic and population growth, warranting long-term, sustainable and meaningful actions to improve people's mobility and road safety. The Solomon Islands Government (SIG) is beginning to take steps towards bettering road safety outcomes in the Solomon Islands. Whilst a challenge, with strong commitment significant benefits will be seen by the country. Official crash records imply that the Solomon Islands has not endured a high level of road crash fatalities and injuries, reporting only one road crash fatality in the country in 2019 (Royal Solomon Islands Police Force 2020). However, there are reasons to believe that this number significantly underreports the actual fatality numbers. In 2016, the World Health Organization (WHO) estimates the number of road traffic fatalities at 104 while the Global Burden of Disease (GBD) study estimates 116 road traffic fatalities (World Bank 2020)[1]. These numbers, which are estimated either based on the death certificates/registration data or using a regression analysis with macroeconomic variables point to the possibility that road safety is a greater issue than the official statistics suggest. Discussions with various government and non-government stakeholders corroborated this point. It is slowly moving up the SIG agenda, reflected in both strategic-level planning and ongoing road and transport projects being implemented. However, there are few dedicated mechanisms in place to satisfactorily support a meaningful road safety improvement effort in capacity and implementation terms.

Analysis of available data has indicated that the key risk factors for road crash involvement in the Solomon Islands are: presence of alcohol; young drivers; vulnerable road users such as pedestrians; travelling on the back of flatbed trucks (informal public transport users); loss of control (single-vehicle type crashes); and private roads associated with the logging and mining sectors. With the increased investment in improving road surfaces and infrastructure beginning to occur in the Solomon Islands, vehicle speeds are likely to increase. This presents a risk of road crashes intensifying in number and severity.

Scope of the Road Safety Management Capacity Assessment

This Road Safety Management Capacity Assessment (RSMCA) seeks to gain a broad understanding of SIG's road safety management capacity in order to support the country's development of a national strategy and plan of action to improve road safety outcomes, and subsequently implement those actions effectively. The RSMCA follows the seven critical road safety institutional management functions (Bliss and Breen 2013) to identify key challenges and provide recommendations for improvement in road safety management, and similarly addresses the Safe System[2] pillars for the interventions level. The seven institutional management functions include: results focus; coordination; legislation; finance and resource allocation; promotion and advocacy; monitoring and evaluation, and research and development of knowledge transfer. The Safe System pillars include road safety management; safe roads and mobility; safe vehicles; safe road users, post-crash care; and safe speeds.

As such, the RSMCA outlines key findings and recommendations relating to both the road safety institutional management functions within the Solomon Islands, and the Safe System Approach, whilst also identifying targeted priority next steps to address road crash death and serious injury in the country.

Key Findings on Road Safety Management Capacity

Institutional Management Functions

Throughout the RSMCA, it was apparent that a major reform of institutional management capacity is necessary and should be considered a national priority. Of critical importance is an apparent limited understanding of road safety impacts on the economy, and general ways to manage and improve road safety. More details are provided below for each institutional management function.

1. **A lead agency for road safety is yet to be identified in the Solomon Islands and, as a consequence, a lack of results-focused strategy and plans of action in road safety.** Achieving identified road safety outcomes requires many effective institutional management functions to be in place in a country, especially having a lead agency. A strong results focus is the most critical of these functions and concerted attention is required by SIG to improve its current results focus. Results focus includes leadership, lead agency, governance structure, roles and responsibilities and resourcing of ministries, target setting, data systems and data analysis, strategy, action plans and research framework activities. It is recommended that the Ministry of Infrastructure Development (MID) be the road safety lead agency in the Solomon Islands due to it being responsible for a number of the core components of road safety—developing and managing the road network, conducting of vehicle inspections and driver licensing testing—as well as its existing leadership role within the Road Transport Board (RTB), which is responsible for the licensing and regulation of road transport, and the enforcement of traffic regulations and its suitability for a policy development and support role.

2. **There is currently no governance or decision-making structure to facilitate coordinated and targeted action to improve road safety outcomes in the Solomon Islands.** Governance arrangements for road safety decision-making and consultation in the Solomon Islands do not exist to encourage a combined result focus across government and to link practitioners to high-level government officials. The RTB is an established group within the land transport sector (although it is understood they are not meeting on a regular basis) that provides a valuable opportunity for initiating cross government road safety efforts for the Solomon Islands. As such, it is strongly recommended that an Executive Group using the existing RTB framework—and operating as a National Road Safety Committee (NRSC)—should be established to facilitate these required governance arrangements. A working group to develop recommended actions and provide performance monitoring reporting would also be required to support the Executive Group. MID as the Lead Agency would provide secretariat support to these two committees meeting regularly (and expanded policy development support in due course). Road safety efforts in the Solomon Islands cannot be fully effective without these decision-making, consultation, peer agency and upwards communication support arrangements in place.

3. **There is a lack of appropriate legislation in place to support the road safety task.** Appropriate legislation for road safety roles and responsibilities for ministries and for intervention activity is most important. This typically relates to road and vehicle standards and user behavior and should be regarded as a continuous improvement opportunity with regular (often minor) amendments to legislation and implemented regulation. A number of priority interventions identified in Chapter 3 will require legislative action and many existing measures will require ongoing legislative, regulatory and systems adjustment and strengthening to improve their effectiveness. These include legislation to: set speed limits for different road classes (for example, highways, local roads, and so on), enable the use of speed guns, limit the maximum age of used vehicles imported to the Solomon Islands to no more than eight years and introduce stricter regulations, require the use of seatbelts and child restraints, and reduce the legal Blood Alcohol Concentration (BAC) limit for heavy vehicle drivers and public transport vehicle drivers from 0.05 percent to 0.02 percent.

4. **Limited funding is currently made available in the Solomon Islands for investment in improving road safety outcomes, however it is not representative of a sustained funding mechanism necessary for continued road safety improvement.** There are also major needs to expand enforcement resourcing in Royal Solomon Islands Police Force (RSIPF) and to fund dedicated necessary road safety positions within MID. The two key areas of investment required are for adequate recurrent budgets for establishing and strengthening the basic road safety capacity of ministries, and for the additional investment funding necessary to support those identified programs and projects which will deliver reduced fatalities and serious injuries. The preparation of a business case and its negotiation with the Ministry of Finance and Treasury (MoFT) through the NRSC for investment in road safety interventions is the critical approach required for achieving funding and resourcing support. However, an early priority should also be reviewing funding options additional to consolidated revenue allocations, such as small injury insurance levies and net traffic fines revenues. Little will change in road safety performance in the Solomon Islands without adequate funding support.

5. **There appears to be limited focused and strategic dialogue about road safety across government ministries and limited provision of information and associated advocacy and promotion up to Ministers.** International road safety thinking about crash risk and how to best reduce serious injury and fatal crash outcomes has changed substantially from traditional approaches. Where road safety was previously considered the responsibility of individual road users, under the new Safe System Approach road safety is a shared responsibility amongst everyone, including those that design, build, operate and use the road system. It also acknowledges that people make mistakes and are fragile and that road trauma should not be accepted as a by-product of transport. Senior officers and parliamentarians should be briefed about these major shifts in thinking and approach to understand these major changes and reflect upon the consequences for effectively advancing safety progress.

6. **There is currently no vision, strategic direction, or action plan for road safety in the Solomon Islands.** As a result of this, there is limited evidence of monitoring and measurement of road safety performance. The adoption of a road safety vision would set the goal for road safety aspiration in the Solomon Islands and is critical to ground and guide a road safety strategy and action plan to be developed and implemented in the Solomon Islands. These elements help to maintain road safety as a policy priority, show commitment for improving road safety, and provide direction for actions, and identified behavior change programs. They are essential elements to sustainably improve road safety outcomes.

7. **There is no robust crash data system or routine sharing of crash data and other road safety data (including serious injury data) between government ministries.** The comprehensiveness of the data collected within individual ministries is also not known**.** More broadly, and of critical importance, is the significant underreporting of road crashes that is evidenced by the considerable difference in country-reported fatalities and WHO/GBD estimates. There are a number of reasons for a disparity between the two numbers including the lack of standardized definition for crash fatality and the lack of supporting institutional arrangements and technologies to facilitate data collection and integration of datasets (for example, among police, health, and civil registration systems). However, differences of an order of magnitude of ten, as in this case, warrant attention, particularly as poor data translates into a lack of targeted and effective road safety interventions. Further attention is needed to better understand this lack of correlation.

8. **There is a need to address practical knowledge transfer demands on the Solomon Islands road authorities.** There is currently no road safety research and development occurring within the Solomon Islands, and no independent local evaluation of any potential road safety policy changes and their actual effects if implemented is possible. Knowledge sharing of road safety data, including crash data, is not occurring between practitioners of relevant agencies responsible for road safety and there is a need to nurture knowledge transfer in technical evidence-

based road safety practice from global good practice sources to support development of road safety policy expertise. The capacity of the two universities operating in the Solomon Islands to undertake research and development should be explored and if appropriate, improved.

In Summary, key recommendations relating to institutional management functions in the Solomon Islands are:

- The MID to be established as the road safety lead agency
- A NRSC to be established utilizing the executive group of the RTB
- Appropriate road safety legislation to be developed and implemented as part of a strengthened legislative process
- Adequate funding budgets to be established to strengthen the road safety capacity of relevant ministries
- A national road safety vision and strategy to be developed and implemented (Priority activities to be identified for the period to the end of 2023, then a new strategy and action plan to be implemented)
- Road crash data systems to be strengthened
- Research and development relating to road safety to be nurtured to inform technical evidence-based road safety practice.

Interventions within a Safe System Approach

A review of road safety management capacity at the intervention level (developing and implementing new measures) had identified issues in the Safe System intervention pillars. The findings of the RSMCA pertaining to each Safe System pillar is summarized below.

Road Safety Management (Pillar 1)

The road safety management mechanisms enabling interventions to be developed and implemented are yet to be established in the Solomon Islands. The stakeholders demonstrated an appreciation for the necessity of high-level commitment and acknowledged that this is currently missing. Management awareness and knowledge in order to lead the strengthening of institutional functions and to develop the process of analysis of crash and other road safety related data to identify and implement interventions in a prioritized cost-effective manner is critical. The preparation of a priority activities plan, followed by a national road safety strategy and action plans when developed knowledge permits, to address those issues is also needed, as is the adoption of an ambitious but achievable performance outcome target for fatalities and serious injuries for the medium and long term. Establishing appropriate levels of funding when informed evidence-based business cases can be prepared and developing monitoring and evaluation of interventions and overall performance over time are also critical steps. Reviewing options for establishing and supporting a road safety fund are an early recommended activity.

Safe Roads and Mobility (Pillar 2)

Safe roads and mobility fall under the mandate of MID particularly for rural roads, but also under Honiara City Council (HCC) for the roads in Honiara. MID are faced with the challenge of building new surfaced roads connecting communities in the rural areas to social and economic services, while at the same time maintaining the deteriorating road network in the urban areas. Essential steps need to be taken as a priority for MID, some of which are already in motion, including: the installation of speed, advisory and warning signage throughout the road network; improvement to pedestrian infrastructure; and the implementation and application of safe design standards. MID do not operate any infrastructure safety blackspot programs for high crash risk locations on the existing network (one reason for this would be the current non-availability of location-based crash data). Notwithstanding the lack of data, there are still proactive opportunities where improvements should be considered, including improvements around schools, gateway treatments at villages and bridge-end treatments. Development partners should strongly consider making safer infrastructure elements mandatory on new road projects and the conducting of road safety audits on all road projects to identify risks and supporting infrastructure safety capacity development of MID and HCC as part of these projects. The establishment of a road safety unit within MID is a vital step in realizing these outcomes, and design consultants should be firmly encouraged to design according to good practice road safety principles.

Safe Vehicles (Pillar 3)

There are currently few standards or regulations on vehicle importation safety requirements or roadworthiness standards for the operating condition of vehicles. There is currently no limitation on the maximum age of private vehicles that can be imported into the Solomon Islands, nor are there regulations on the vehicle specifications for public transport or heavy vehicles. Public transport typically consists of 15 seat vans in Honiara and open tray light trucks in the provinces. It is recommended that amendments to legislation for importation controls on vehicles and to the vehicle inspection process be made to improve the safety of vehicles in the Solomon Islands. This should include restricting the maximum age of used vehicles imported to no more than eight years and requiring all imported vehicles to have seat belts fitted for every seat. In the long term, SIG should introduce regulations to also require all imported vehicles to meet United Nations Economic Commission for Europe (UNECE) vehicle safety regulations[3], and other relevant regulations for buses and heavy vehicles.

Safe Road Users (Pillar 4)

In general, road user awareness of road rules and safe practices across key user types—pedestrians and drivers—is low in the Solomon Islands. This can be addressed in parallel to infrastructure upgrades through road safety education programs in the general community, as education initiatives that are not linked to other safe system interventions have limited impact. School programs should focus on four key school children related road safety issues, such as crossing the road safely, using buses safely, riding bicycles safely and wearing seatbelts. These limited scope road safety education programs should be delivered by school teachers, using adapted existing materials. The NRSC, led by MID, is well placed to drive these measures within the general community, with support from local nongovernmental organizations (NGO), and through the renewed focus of RSIPF on behavior change within the community.

While acknowledging the resource constraints on RSIPF, traffic law enforcement requires strengthening across the board, and an expanded tactical enforcement plan and additional resourcing from SIG is required. Speed compliance should be identified as a traffic police priority, particularly as it becomes a larger risk because of increased investment in road upgrades. This is particularly important in highly pedestrianized areas. An increased focus on drink driving is also needed in the Solomon Islands, which can be achieved through further resourcing for RSIPF, the purchase of necessary equipment and the training of traffic police in its use. It is recommended that drink driving enforcement be expanded to 30,000 Random Breath Tests (RBT) per year. Additionally, the legal BAC limit for novice drivers (first three years of driving) should be 0.00 percent and for heavy vehicle (>4.5-ton GVM) drivers and public transport vehicle drivers it should be reduced from 0.05 percent to 0.02 percent. Increased checking for unlicensed drivers could be carried out in association with a significantly expanded RBT regime. Wearing of seat belts where they are installed should be mandated and then enforced. Similarly, the enforcement of the motorcycle helmet laws and standards already in place should be enhanced, particularly to instill these behaviors in the community whilst the proportion of motorcycles within the Solomon Islands vehicle fleet is small. Beyond this, the current legislative system supporting traffic law enforcement requires review. An infringement system should be developed to allow RSIPF to issue roadside infringement notices, rather than relying on the delayed court summons system, which is more demanding on police and the courts.

The Solomon Islands should, in the next five years, plan to expand its current learner permit arrangements for novice drivers. The minimum learner permit period should be increased from three months to 12 months, during which time learner drivers from 16 years 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 testing officer at the Mechanical Works Services Department (MWSD) within MID, before sitting for the practical driving test from age 17. Other suggested components that could form part of a three-year graduated licensing system (GLS) include limiting passengers to one peer aged passenger at a time and importantly, introducing and enforcing a zero BAC limit for the three-year period.

Post-Crash Care (Pillar 5)

Post-crash care is currently limited by the number of ambulances with appropriate equipment, the lack of trained paramedics, and the level of care available at hospitals, health clinics and nurse aide posts. The ambulance services operating within the Solomon Islands, together with Ministry of Health and Medical Services (MHMS), are responsible for care and retrieval of crash victims from the roadside to post-crash emergency treatment. There are no current trained

paramedics in the Solomon Islands. Critical emergencies are typically referred to the National Referral Hospital (NRH) in Honiara for emergency care, which houses specialists and its own orthopedic department. Throughout the whole health system in the Solomon Islands there is a lack of resources for all types of patients, particularly outside of Honiara.

Safe Speeds (Pillar 6)

There is a lack of speed limit signage on both urban and rural roads in the Solomon Islands, meaning that speed limits are not known or readily enforced throughout the community. It is critical that speed limits on both urban and rural roads are reviewed, agreed and clearly defined in legislation. This should be considered as a priority task for the NRSC. Following this, it is essential that speed limit signage is installed, the public are educated in its meaning, and it is enforced. Efforts are currently being made to introduce appropriate speeds and signage throughout the Solomon Islands through existing Asian Development Bank (ADB), Japan International Cooperation Agency (JICA) and World Bank funded projects. This would require necessary legislative change to ensure that consistent signage standards are used across all projects.

Proposed Road Safety Priority Activities for the Solomon Islands

There is currently no road safety vision, strategy, or action plan in the Solomon Islands. Chapter 4 of this assessment includes suggested next steps in terms of setting a national road safety vision and strategic direction and recommended priority activities. The development of a national vision for road safety in the Solomon Islands is critical.

The recommended road safety vision for the Solomon Islands is for the elimination of road crash fatalities and serious injuries by 2050 with progressive reduction targets to be set and achieved in the intervening years, such as a 50 percent reduction from 2020 by 2030.

The strategic direction recommended for the Solomon Islands should be to:

- Improve road safety and Safe System awareness within government and the community by 2030 by:
    - Implementing road safety governance mechanisms and establishing a Secretariat at MID as lead agency;
    - Identifying performance through measuring and reporting on outcomes and intermediate outcome indicators;
    - Developing a strengthened road crash data system and associated analysis and distribution of findings from 2021; and
    - Progressively implementing priority actions across the Safe System pillars based on local and international evidence of effectiveness and on crash and other road safety indicator data.

The priority activities recommended for attention in the immediate period (2021 to 2023) are limited in recognition that improved resourcing, as well as substantial knowledge development, across all key ministries will be required as a necessary first step to the implementation of any activity. The priority activities may be incorporated into an action plan when resources and knowledge developed permits.

Key priority activities recommended for immediate to medium term action, in line with the Safe System pillars are described below:

Creating safer road infrastructure, through:

- The installation of speed limit and other necessary statutory road signage and line marking;
- The installation of pedestrian infrastructure (crossings and footpaths);
- Lower cost mass action safety treatments, such as small roundabouts, gateway treatments at villages, bridge end-post protection barrier treatments, treating poor visibility rural intersections and providing off through carriageway bus stops and signage; and
- Training of MID in skills to develop an evidence-based blackspot treatment program specifying benefits and costs.

Creating a safer vehicle fleet, through:

- The introduction of legislation that limits the maximum age of used vehicles imported to the Solomon Islands to no more than eight years; and
- The introduction of legislation that require all imported vehicles to meet UNECE vehicle safety regulations.

Creating safer road users, through:

- The introduction of legislation to enable use of speed guns for speed enforcement by RSIPF and procure adequate speed guns to alter non-compliant behaviors;
- The introduction of a GLS over time;
- Implementation of targeted road safety education programs in the schooling curriculum, as well as in the general community; and
- Increased RSIPF resourcing to enhance speed, drink driving, helmet wearing enforcement and seat belt and child restraint use (when legislation is in place).

Creating improved emergency post-crash care, through:

- The expansion of emergency ambulance care, including increasing the number of trained paramedics and number of equipped ambulance vehicles, to reduce retrieval times and improve post-crash care; and
- Improved trauma care facilities at hospitals and major health clinics.

Creating safer speeds on the road network, through:

- The review, agreement, and clearly defined speed limits in legislation, supported by the establishment of a road hierarchy system based on actual usage. These speeds then need to be clearly signposted on both urban and rural roads; and
- Resourced progressive installation of pavement platforms where lower speeds are required in high pedestrian areas.

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.

Royal Solomon Islands Police Force. 2020. *RSIPF Annual Report 2019*

World Bank. 2020. *Guide for Road Safety Opportunities and Challenges: Low- and Middle-Income Country Profiles*. Washington D.C.: World Bank. http://documents1.worldbank.org/curated/en/447031581489115544/pdf/Guide-for-Road-Safety-Opportunities-and-Challenges-Low-and-Middle-Income-Country-Profiles.pdf

World Health Organization. 2011. *Global Plan for the Decade of Action on Road Safety*. Geneva: World Health Organization

[1] 116 annual fatalities equate to 18.58 fatalities per 100,000 population. This is higher than the rates for the best performing countries in the region Micronesia (15.7 fatalities per 100,000 population) and Kiribati (10.4 fatalities per 100,000 population).

[2] The assessment has adopted the Safe System Approach for road safety management and interventions as adopted by the United Nations 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. More information on the Safe System approach and pillars is included in appendix A and appendix B.

[3] More information regarding the UNECE vehicle regulations can be found at http://www.unece.org/trans/welcome.html.

REVIEW DESCRIPTION

STUDY SCOPE

The Road Safety Management Capacity Assessment (RSMCA) is an activity within a broader World Bank executed 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.

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. The GRSF strategic objectives are described in figure 1. The GRSF grant will help the Solomon Islands government (SIG) to have a clear image of their road safety situation, risks and challenges. To ensure sustainability best practice road safety knowledge will be shared with local stakeholders, through capacity-building and awareness-raising activities.

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

The key objectives of this assessment 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 the Solomon Islands
- Assess road safety management capacity at the intervention level
- Suggested next steps in terms of setting a national road safety vision and strategic direction, and priority activities
- Provide capacity-building on evidence-based road safety measures to ensure success and sustainability, with a focus on vulnerable road users such as women, children, the poor, and persons with disabilities.

REVIEW METHODOLOGY

The meetings undertaken in this assessment were carried out in accordance with the World Bank GRSF Capacity Review Guidelines, and the Safe System Approach. 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, as shown in Figure 2. The intervention level is made up of the Safe System pillars. Significant results require reforms to institutional management functions and new interventions.

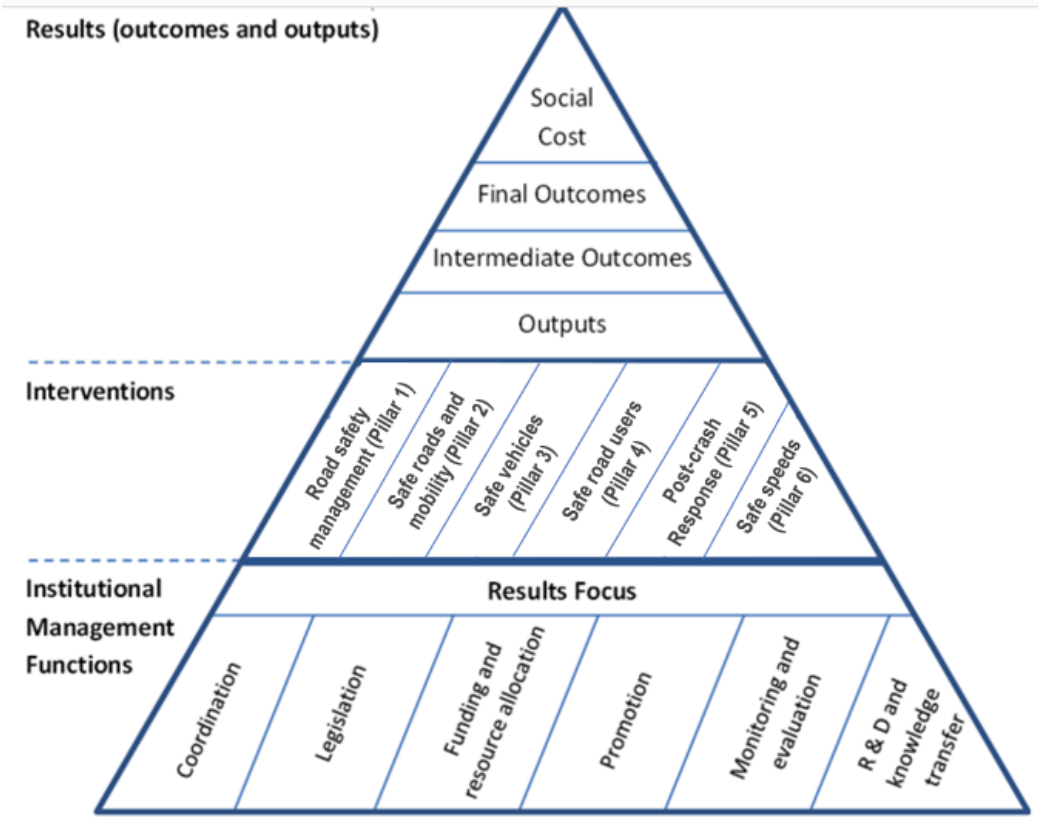

Figure 2 The Road Safety Management System

The World Bank GRSF Capacity Review Guidelines contain several detailed checklists (numbered one to 12), which are to be applied in any country review of road safety management capacity. These completed checklists for the Solomon Islands are included as appendix E.

The guidelines also promote the Safe System Approach (described in further detail in appendix A), which has been adopted by the United Nations 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. A Safe System is based on the premise that road crashes are both predictable and preventable, and that it is possible to move towards zero road deaths and serious injuries. However, this requires a fundamental rethink of the governance and implementation of road safety policy. A Safe System is a holistic and proactive approach to road safety, managed so the elements of the road system combine and interact to guide users to act safely and to prevent crashes, and when crashes occur, to ensure that impact forces do not exceed the limits that result in serious injury or death. If one part of the system fails, the other components act to prevent serious harm (ITF 2016). 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. Human error is inevitable, but traffic fatalities and serious injuries are not.

Applying the Safe Systems Approach in the Solomon Islands will help to ensure that the will to reduce (and work towards zero) road crash deaths and serious injuries evidenced by SIG and other community stakeholders can be achieved. In addition to the recommendations laid out in this assessment, the adoption of the Safe System Approach by SIG will ensure that the Solomon Islands has a framework to base their future courses of action for how they will work together to save lives, reduce serious injuries and deliver safety as the standard for all to live by on the Solomon Islands roads.

ACTIVITIES AND SCHEDULE

The RSMCA commenced on July 20, 2020 with a series of virtual briefings and meetings with senior representatives of key governmental agencies and other relevant stakeholders during the period July 20, 2020 to August 7, 2020 (a total of 22 meetings). Travel restrictions associated with the planned in-country meetings and a complete list of individuals met is available as appendix D. The information gained from these meetings formed the basis of discussion in this report.

The ministries and organizations consulted in the virtual mission were:

- Asian Development Bank (ADB)
- Attorney General's Department (AGD)
- Honiara City Council (HCC)
- Japan International Cooperation Agency (JICA)
- Ministry of Education and Human Resources Development (MEHRD)
- Ministry of Finance and Treasury (MoFT)
- Ministry of Infrastructure Development (MID)
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- Solomon Islands Chamber of Commerce and Industry (SICCI)
- St. John Ambulance Solomon Islands
- Transparency Solomon Islands.

A complete list of activities associated with the assessment is included below. The consultations were undertaken in July and August 2020, and this report forms Tasks 1 and 2.1 below.

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

1.1 One on one interviews with road safety stakeholders
1.2 Review of the existing national structure for road safety management
1.3 Appraise the road safety management capacity at the intervention level by applying the Checklists of the GRSF Road Safety Guidelines
1.4 Provide recommendations to improve the required road safety management capacity to improve the 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 relevant SIG officials to seek feedback on the conclusions
2.3 Finalization and dissemination of the report on the RSMCA.

REFERENCES

Global Road Safety Facility. 2019. *Global Road Safety Facility Annual Report 2019*. Washington D.C.: World Bank.

ITF (International Transport Forum). 2016. *Zero Road Deaths and Serious Injuries: Leading a Paradigm Shift to a Safe System*. Paris: OECD Publishing

1. CONTEXT AND OVERVIEW

This chapter provides an overview of the current scale of the road safety challenges in the Solomon Islands. Appendix F includes additional general information and data on road safety in the Solomon Islands, sourced through the World Bank and World Health Organization (WHO).

1.1 COUNTRY CONTEXT

The Solomon Islands is an archipelagic state in the South Pacific comprised of approximately one thousand islands with a total land area of 28,400 square kilometers (Figure 3). The country is divided into nine provinces and one capital territory. These provinces include: Central, Choiseul, Guadalcanal, Isabel, Makira-Ulawa, Malaita Rennell and Bellona, Temotu, and Western. The capital city is Honiara.

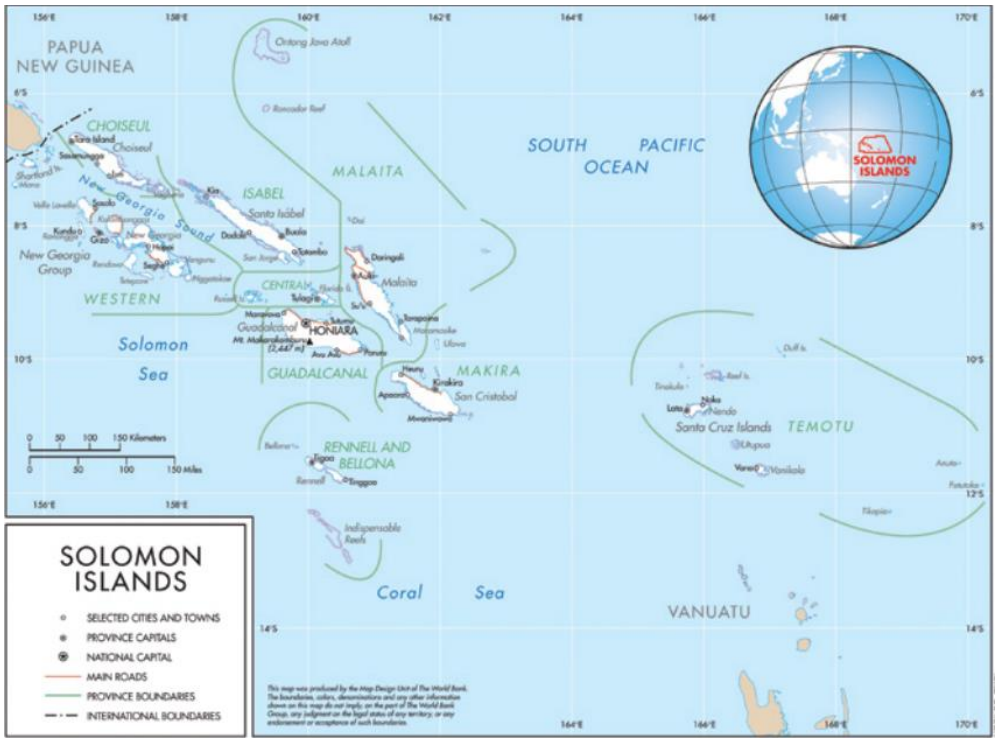


Figure 3 Map of Solomon Islands (World Bank 2017)

Following the end of civil tensions in 2003, the Solomon Islands economy has grown at an annual average rate of 5.5 percent (World Bank 2017) (Figure 4). Primary exports are "logs, alluvial gold, palm oil, cocoa, coconut oil and copra, and sawn timber," (ADB 2016) although logging activity is expected to decline for the next few years as government shifts to more sustainable forestry (World Bank 2020c). Furthermore, the Solomon Islands susceptibility to natural disasters make transportation a critical pillar in the country's economic and social development (World Bank 2019).

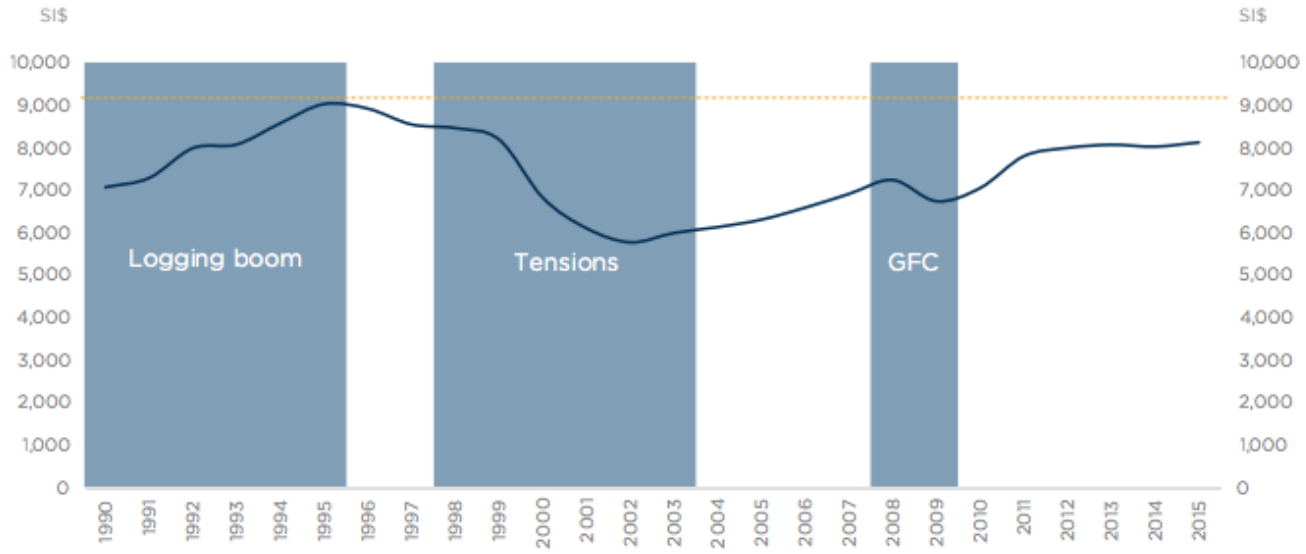


Figure 4 Gross domestic product (GDP) Growth Rate during the Logging Boom, Civil Tensions, and Global Financial Crisis (GFC) (World Bank 2017)

Economic growth is driven by an annual population growth of around 3 percent and the estimated population was 669,823 in 2019 (World Bank 2020a) (Figure 5). Consequently, each year more people are exposed to issues in the road and transport system and thus there is an increasing need for safer roads and safer transport.

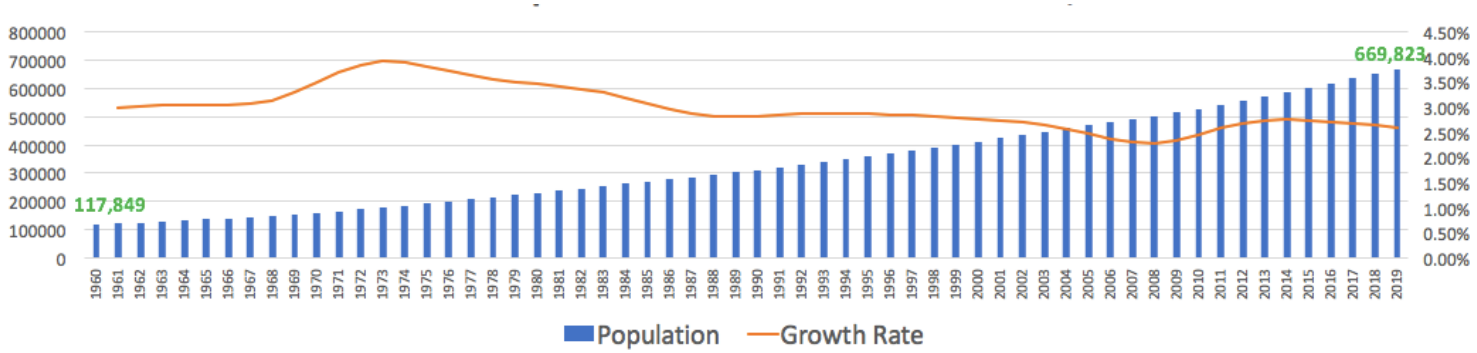


Figure 5 Solomon Islands Population Number and Growth Rate, 1960-2019 (World Bank 2020a)

It is also important to note that the majority of the population live in the rural parts of the Solomon Islands. While this is the case, urban populations have been growing steadily. In 2019, 24 percent of the population was living in city centers while the rest of the population were scattered in islands or mountainous terrain across the country (Figure 7) (World Bank 2020). Because of the lack of access to social services such as health, education, and government facilities, rural to urban migration has been increasing (ADB 2015). A map of urban centers is provided in Figure 8, which shows that the capital Honiara is a home to two-thirds of the urban population (Georgeou and Hawksley 2017).

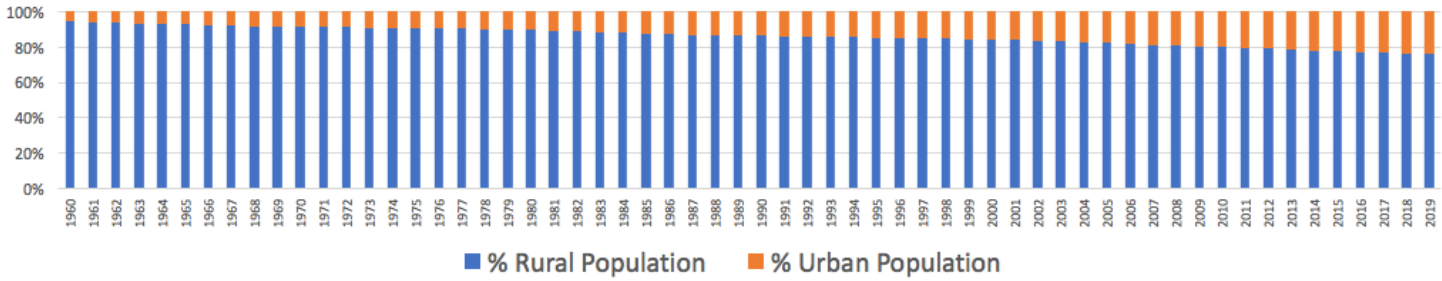


Figure 6 Solomon Islands Percentage of Rural and Urban Population, 1960-2019 (World Bank 2020a)

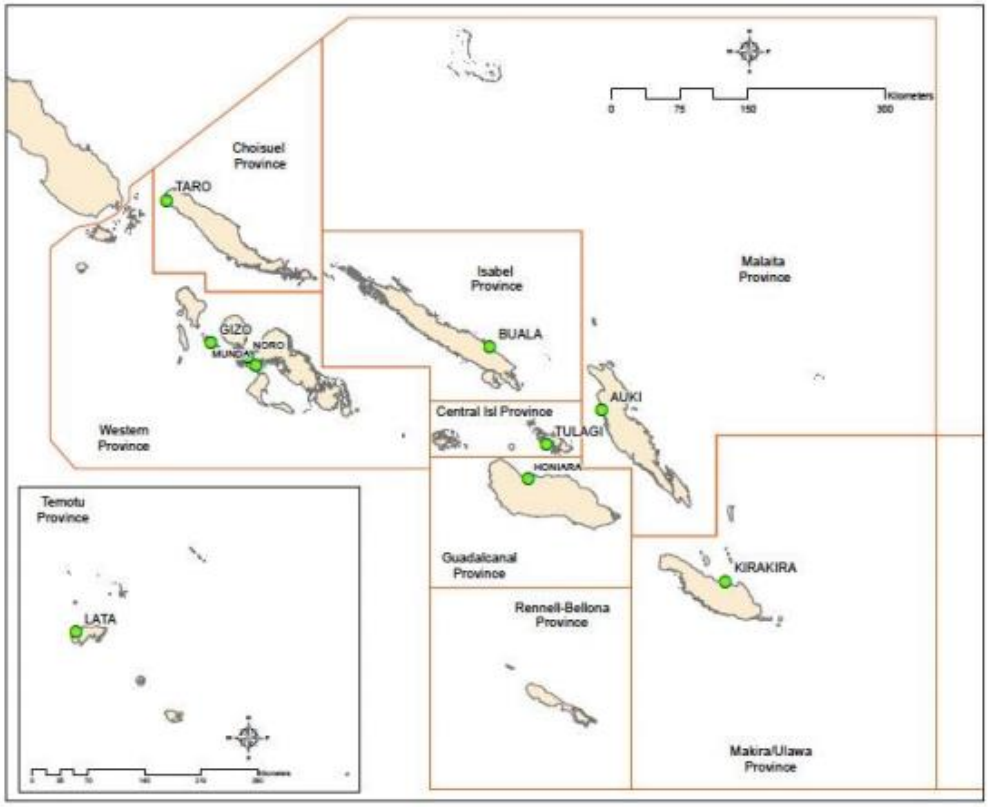


Figure 7 Map of Urban Centers (MID, 2016)

In terms of gender, male and female populations are almost historically equal in number. However, primary economic activities of men and women in rural and urban areas differ greatly (Figure 8) (World Bank 2017). This indicates stark differences in trip and mobility patterns between men and women in rural and urban settings and points to inequalities in vulnerabilities on the road.

In the Solomon Islands, activities predominantly undertaken by women include managing and caring for the household as well as participating in agriculture and community work, while men predominantly work in industries such as logging and mining. Household work for women include "collecting drinking water from communal standpipes or streams, walking to a water source to do laundry, and collecting fuel wood." (ADB 2015). On the other hand, young men are often the primary income earners of a large extended family due to the tradition of the wantok system, which binds families together for

support (Nanau 2011). It is therefore critical that road and transport infrastructure development consider these nuances as this affects gender equality. This also shows that road safety is integral to the well-being of a community as the fatality or injury of a breadwinner of the family can push a large, extended family into poverty.

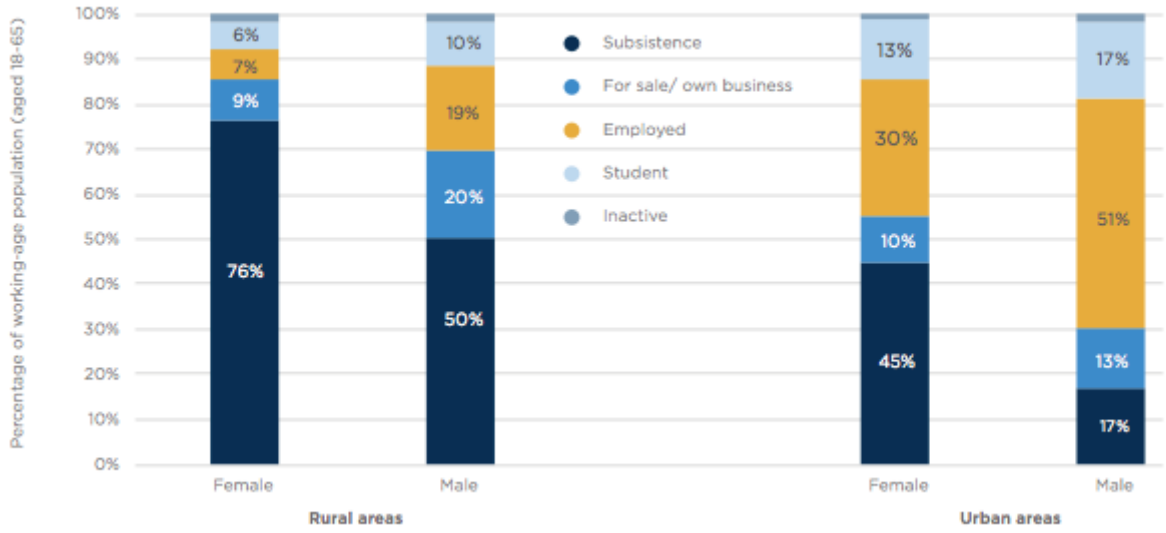


Figure 8 Primary Economic Activities of Males and Females in Rural and Urban Areas (World Bank 2017)

The population also has a high number of children, young, and working-age people (Figure 9), which warrants further investigation on their trip and mobility patterns. Primary education enrollment is consistently high in each of the provinces, however as education levels increase, education inequality becomes more apparent particularly impacting the rural areas (MEHRD 2016). There is a prevalence of alcohol consumption among young people that is a significant public health concern (Quinn and others 2017). This also poses a risk of higher incidences of alcohol-related road crashes for the youth.

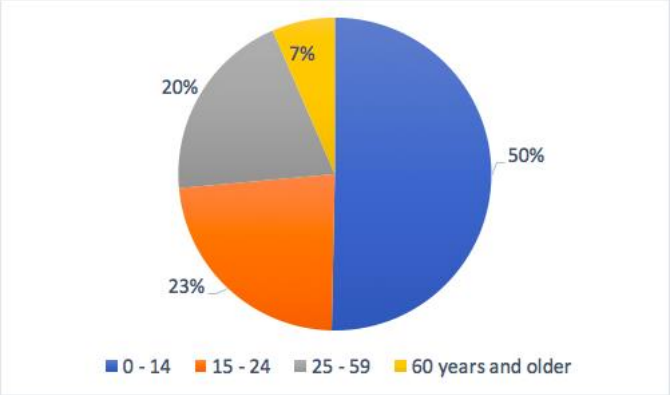


Figure 9 Solomon Islands Population Distribution, 2009 (Solomon Islands National Statistics Office 2009)

While poverty has been reduced post-conflict, it remains as one of the primary challenges for the Solomon Islands. In 2011, approximately 25.1 percent of the population lived below the international poverty line and a further 56.7 percent lived on less than US$3.10 per day (World Bank 2017). This metric is important because it indicates how most of the population depend on walking or public transportation for mobility instead of private vehicles. It is also important to note that 14

percent of the total population reported a disability of some type (ADB 2017). This includes disabilities relating to vision, hearing and walking (Table 1).

Table 1 Solomon Islands Persons-with-Disabilities (ADB 2015)

Type of Disability	Total	Males	Females
Any disability			
Vision	40,478	20,484	19,994
Hearing	24,558	12,319	12,239
Walking	35,157	16,769	18,388
Remembering/concentrating	42,225	20,460	21,765
Severe disability			
Blindness	907	411	496
Deafness	1,398	729	669
Lameness	2,975	1,491	1,484
Senile and/or amnesiac	3,293	1,635	1,658

1.2 ROADS, TRANSPORT, AND MOBILITY

The 2016-2035 Solomon Islands National Development Strategy recognizes that improved road and transport infrastructure is integral to sustained and inclusive economic growth (Ministry of Development Planning and Aid Coordination 2016). This is also emphasized by the National Transport Plan 2017-2036 (Ministry of Infrastructure Development 2017). Being an archipelago, people depend on multiple modes of transport for movement. There is strong demand for travel for social services, schools, health facilities, and business and accessibility and connectivity are limited because of the lack of safe and functional roads.

Most of the road network was built during the British colonial period (1893–1978) (Hobbis 2019). Currently, the Solomon Islands has a road network of 1,500 km of which 625 km (42 percent) are classified as main roads, 523 km (35 percent) are feeder roads, and 346 km (23 percent) are access roads. Nearly 60 percent of the network is considered to be in maintainable condition, although more than two-thirds of these maintainable roads are unsealed gravel roads in need of grading and re-gravelling. Only 184 km of the main road network (12 percent of the overall network) is sealed, with three-quarters of the sealed roads situated in Guadalcanal Province and Honiara City.

Overall, only 15 percent of the road network are deemed to be in fair to good condition, and much of the network has deteriorated due to natural disasters, climate change, and conflict-related damage (Marcelo and Raina 2020). In addition, inland roads built by foreign logging companies are abandoned immediately after resources are depleted (Hobbis 2019). The lack of regular road maintenance and rehabilitation not only limits access and opportunities but also causes insecurity to communities (Hobbis 2019). Photograph 1 shows photographs of two-lane roads in the Solomon Islands while photographs 2 and 3 show Kukum Highway. Photographs 4, 5, 6 and 7 show road conditions in East and North Road, Malaita as well as poor conditions of bridges. Photograph 8 shows the city center in Honiara.

Photograph 1: Two lane roads in Solomon Islands. (Mapillary 2020).

Photographs 2 & 3: Kukum Highway. (Mapillary 2020).

Photographs 4 & 5: East Road, Malaita. (World Bank 2018).

Photograph 6: People being transported on flatbed trucks across Fiu Bridge, North Road, Malaita (World Bank 2020).

Photograph 7: North Road, Malaita (World Bank 2020).

Photograph 8: City center, Malaita (Wilson 2018).

As of 2016, approximately 45,042 vehicles have been registered in the Solomon Islands (World Bank 2020b) and these are primarily concentrated in urban areas. In Honiara, the motorization rate is rapidly increasing. In 2014, there were 10,000 vehicles for a population of 78,000. The number of vehicles is estimated to have increased three-fold by 2020 when population has reached 100,000 (ADB 2016). Public transport is provided by minibuses, minivans, and trucks, which are usually operated by several small operators. In addition, there are private taxis operating in the city (ADB 2016). The number of taxis, mini-, and large buses is fluctuating each year (Table 2) but this is more likely due to inconsistencies in data collection.

Table 2 Registered Taxis and Buses from 2015 to 2018 (IRD 2018)

	2015	2016	2017	2018	Total
Light Public Service Vehicle (Taxis and buses up to 26 seats)	938	696	903	783	3320
Heavy Public Service Vehicle (Buses with more than 26 seats)	67	24	21	16	128

In 2014, the Japan International Cooperation Agency (JICA) conducted a traffic survey along the Kukum Highway, which is one of the main thoroughfares in Honiara. They counted each road user that passed through one section of Kukum Highway for 12-hours to derive a 24-hour estimate. According to their study, most road users that pass through one section of the highway are sedans, vans, jeeps, minibuses, flatbed trucks, and pedestrians (Figure 16) (JICA 2014). Furthermore, it is evident that motorcycles and bicycles only account for a very small proportion of traffic in Honiara (Table 3) (JICA 2014).

Although not conclusive, this data is indicative of the types and volume of road users in the Solomon Islands, especially since the majority of vehicular traffic is found in Guadalcanal and Malaita (JICA 2014).

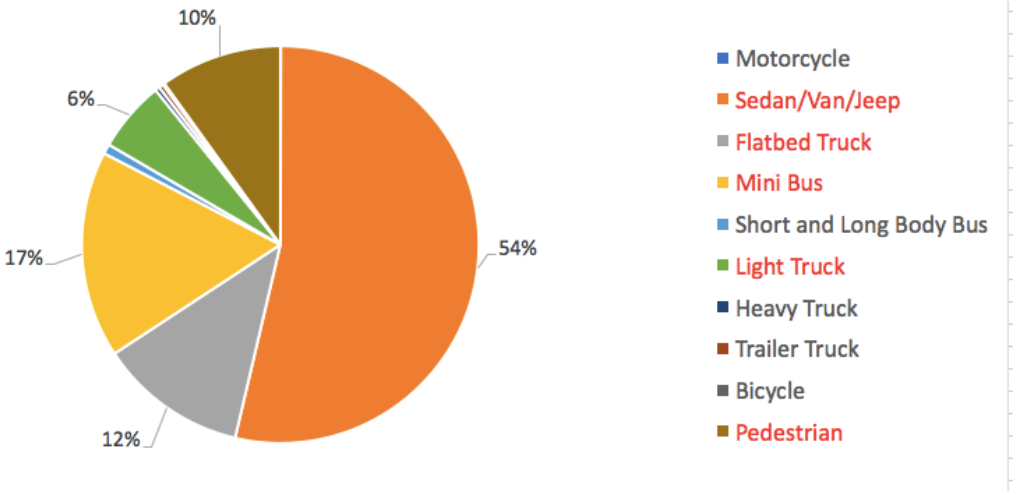


Figure 10 Traffic Volume by Road User in Kukum Highway, Solomon Islands, 2014 (JICA 2014)

Table 3 Results of Traffic Survey in Kukum Highway (JICA 2014)

Road User Type	**Traffic Volume**
Motorcycle	18
Sedan/Van/Jeep	17,846
Flatbed Truck	4,023
Mini Bus	5,608
Short and Long Body Bus	266
Light Truck	1,924
Heavy Truck	124
Trailer Truck	120
Bicycle	52
Pedestrian	3,306

Outside urban centers, traffic volumes are low and there are only a handful of vehicles on the more remote islands (ADB 2016). For example, very few vehicles traverse the 112 km North Road in Malaita. These vehicles are usually flatbed trucks which transport cargo and people (Hobbis 2019). Moreover, these trucks provide the most affordable transport for people who want to access social services, hospitals, schools, among other purposes (Hobbis 2019). This is supported by a traffic survey in the Malaita network, which shows that more than 50 percent of vehicles are classified as heavy class. Ongoing improvement and rehabilitation of the road network will lead to increases in motorization, especially of heavy trucks, and will warrant a closer consideration of road safety as these will consequently increase the risk of vehicular and pedestrian crashes (MID 2019).

There are ongoing donor-funded road and transport programs and projects that the government, through the Ministry of Infrastructure Development (MID), is implementing in the country.

The World Bank is currently providing assistance to the road sector in the Solomon Islands through the Solomon Islands Roads and Aviation Project (SIRAP), which commenced in 2019. The road component of SIRAP is supporting SIG to strengthen the sustainability and climate resilience of the road network in Malaita and provide key assistance required to contribute towards effectively managing climate resilient and safe road sector assets. One of the sub-components of SIRAP is dedicated to road safety improvements within the existing Malaita road network. Another key sub-component of SIRAP is to provide road sector support to MID, including support for planning and asset management; improvement of road safety

capacity; operational training for MID staff; and establishment and capacity-building of a MID office in Malaita to improve works supervisions.

Asian Development Bank (ADB) is supporting the Sustainable Transport Infrastructure Improvement Program and the Land and Maritime Connectivity Project. The Sustainable Transport Infrastructure Improvement Program focuses primarily on the maintenance of existing roads and wharves but also includes a road safety component (such as the installation of road signs and workshops). One of the activities in the program is the development of road safety measures for 10 critical areas in Honiara city. The Land and Maritime Connectivity Project covers the reconstruction and upgrade of urban and rural roads in Honiara city and the surrounding regions in Guadalcanal Province. It also includes the construction and upgrading of the Honiara port and two additional wharves outside Honiara. Road safety is integral to the project and includes the construction of footpaths and installation of guard rails on rural roads.

JICA is developing the Greater Honiara Transport Masterplan. The masterplan study is to be completed in March 2021. It is also preparing the Project for Upgrading of the Kukum Highway (Phase 2), which would rehabilitate the four-lane road between the Ministry of Fishery and Marine Resources and Lungga Bridge, and the two-lane road between Lungga Bridge and Honiara International Airport.

As of October 2019, the World Bank's Environmental and Social Framework calls for road safety to be considered on all World Bank-funded projects (World Bank 2019). A pilot of the World Bank's Data for Road Incident Visualization, Evaluation, and Reporting (DRIVER) is currently being carried out in Samoa. The aim of this pilot is to provide capacity-building in crash analysis and to establish the basis for an online crash database that could be expanded to other Pacific Island Countries (PICs). The results from this pilot in Samoa will be shared with counterparts in the Solomon Islands and other PICs. Only with a robust data system can road safety issues be sufficiently analyzed and effectively managed.

For 2019, official crash records show that only one road crash fatality had occurred in the country (RSIPF 2020). This represents a 91 percent drop in fatalities from the 11 officially reported fatalities in 2016 (World Bank 2020). However, there are reasons to believe that this number is substantially underreported—considering the increase in population, rural to urban migration, increased motorization, and that no major road safety program has been implemented in the recent years—all of which are conducive to higher numbers of road crash fatalities and serious injuries. Another sign of underreporting is that for the Malaita road network, the Auki Police Station reported two crash fatalities for 2019, which is in contrast to the one crash fatality reported by RSIPF for the whole country (SMEC 2020).

In 2016, the WHO estimated the number of road traffic fatalities at 104, while the Global Burden of Disease (GBD) study estimated 116 fatalities (World Bank 2020). These numbers, which are based on either death registry or regression analysis of macroeconomic variables, point to the possibility that the gravity of the road safety issue is greater than what is officially accounted for.

Another consideration is the number of injuries. Official records show that for 2019, there were a total of 34 injuries. Since there is no classification of injury severity, this number represents both minor and serious injuries. In contrast, World Bank estimates that in 2016, a total of 1,560 serious injuries occurred in the country (World Bank 2020b). While the year covered by the sources is different, the significant discrepancy between the two numbers warrant a closer inspection of official crash data. This is discussed further in the following chapter.

While it is difficult to count the true number of fatalities and injuries, and even high-income countries face under reporting of crashes, it is useful to note the distribution of the number of fatalities by road user type (Figure 11). In 2016, at least 40 percent of crash fatalities in the Solomon Islands were pedestrians. This number is higher than the average share of pedestrian fatalities in the region and in low- and middle-income countries (World Bank 2020b). Second to pedestrians are fatalities in four wheelers, which is higher than the average in low- and middle- income countries but lower in the region (World Bank 2020b).

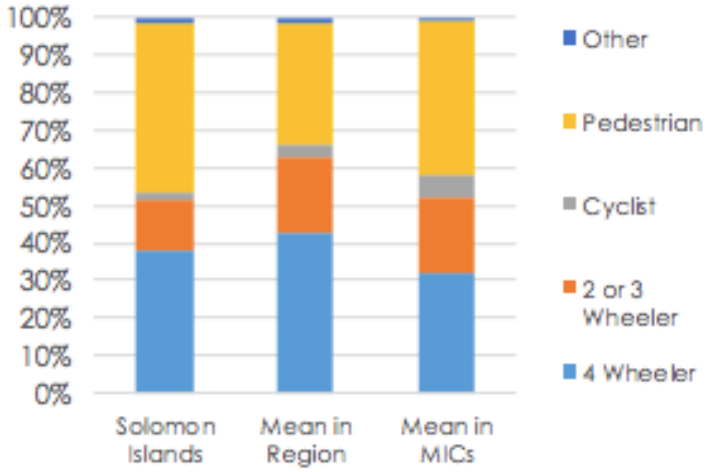


Figure 11 Fatalities by Road User Type in Solomon Islands, 2016 (World Bank 2020b)

In Auki Police Station, which oversees the Malaita road network, 84 percent of road crashes from 2015 to the present are single vehicle crashes where the vehicle had lost control on the road. The rest are head-on collisions or involving a pedestrian crash type (Figure 12) (Auki Police Station 2020). While not conclusive, this may be an indication that a high proportion of run-off crashes is due to poor visibility and road conditions in the Malaita road network, as well as impaired driving through fatigue and driving under the influence of alcohol.

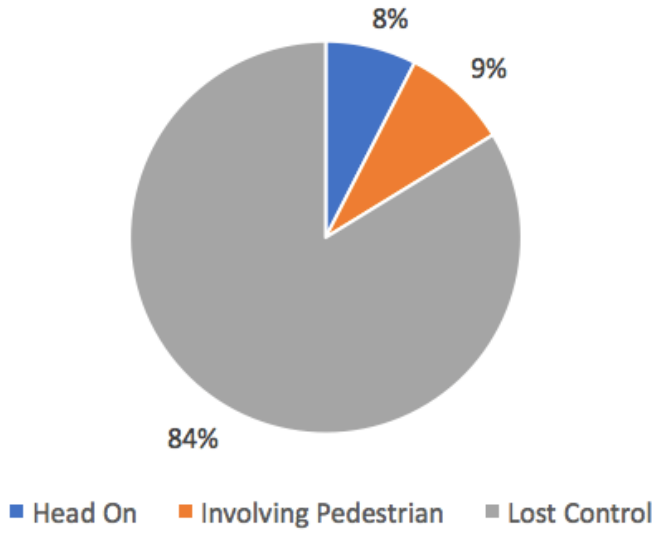


Figure 12 Crash Types Recorded by Auki Police Station, 2015-2020

Aside from police data, hospital data can also provide a picture of the road safety situation in the Solomon Islands. The National Referral Hospital (NRH) in Honiara is the largest hospital in the country and records crash data. In 2010, the Emergency Unit of the NRH reported 12 fatalities from road crashes, which accounts for deceased-on-arrival fatalities (Stewart and others 2015). This figure is important since it is already larger than the official fatality count even if it is only limited to deceased-on-arrival cases and to a single hospital, indicating that fatal crashes are larger than official numbers.

Furthermore, the Orthopedic Department of the NRH has been regularly collecting data on suspected injuries from road crashes, classifying them into age, type of road user, and alcohol test. According to their data (Figure 13), road users who are primarily involved in crashes are car drivers and passengers (39 percent), pedestrians (24 percent) and open truck passengers (21 percent) (Stewart and others 2015). This data, while an aggregate of multiple years and limited to one hospital, is aligned with the prevailing traffic and road user mix in the Solomon Islands.

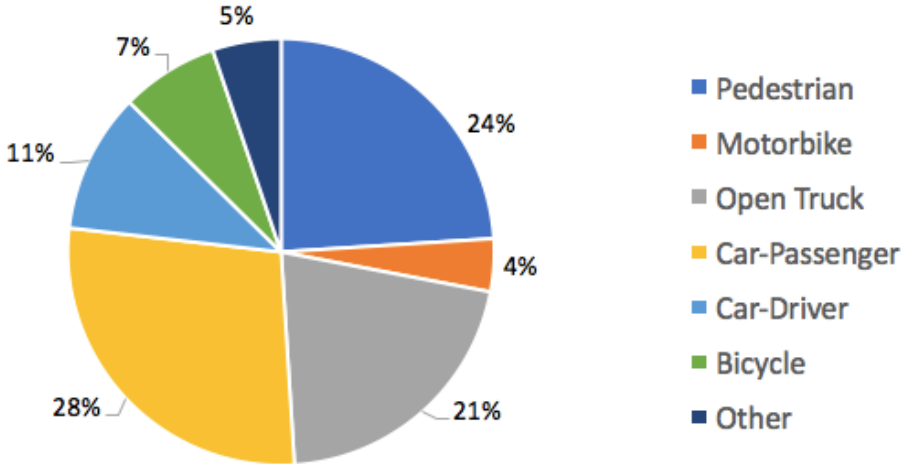


Figure 13 Injuries by Road User Type in Solomon Islands, 1993-2012 (Stewart and others 2015)

Children and adolescents (0-19 years) represent 35 percent of those injured as shown in Figure 14 (Stewart and others 2015). This is in line with the general population pyramid of the Solomon Islands, but can also point to the hostility of the road environment for children.

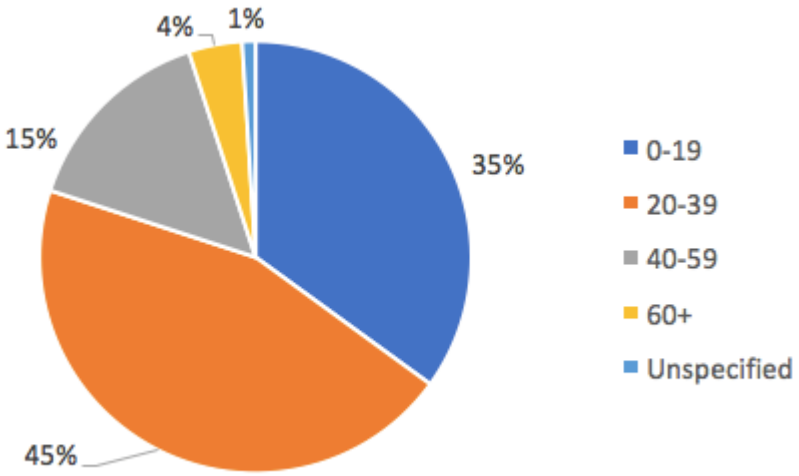


Figure 14 Injuries by Age Group in Solomon Islands, 1993-2012 (Stewart and others 2015)

Finally, the Orthopedic Department has recorded that at least 50 percent of crash injuries of car users involved alcohol and significant rates for other road users (Stewart and others 2015), indicating that drink-driving is a significant road safety

problem in the country. The global estimate for road deaths involving alcohol is between 5 and 35 percent (WHO 2018). Given the high rates of injuries and alcohol-drinking among young people (0-19 years), as well as high rates of alcohol-related injuries, it is possible that young people are significantly at risk for alcohol-related crashes.

Individual estimates of the benefits of fatalities and serious injuries avoided through specific targeted road safety investment (in infrastructure safety treatments, additional legislative/ enforcement activity, and so on) are shown in Table 4 below. This is derived from work carried out by the International Road Assessment Program (iRAP) and the Global Road Safety Facility (GRSF).

Table 4 Estimated cost of road crashes in Solomon Islands using 2019 WB GDP/capita and using iRAP economic appraisal model values (McMahon and Dahdah 2016)[4]

	Lower		Central		Upper	
	iRAP value	**Solomon Islands estimate**	**iRAP value**	**Solomon Islands estimate**	**iRAP value**	**Solomon Islands estimate**
Value of Fatality	60*GDP/Capita	USD127,652	70*GDP/Capita	USD148,928	80*GDP/Capita	USD170,203
Value of Serious Injury	12*GDP/Capita	USD25,530	17*GDP/Capita	USD36,168	24*GDP/Capita	USD51,061

This estimates the level of annual economic cost to the Solomon Islands of road crash fatalities and serious injuries, based on WHO estimates of 104 fatalities and 1560 serious injuries, and expressed in 2019 monetary terms based on iRAP data, was US$71.9 million. The GRSF Road Safety Country Profiles (World Bank 2020) provides an estimated economic cost for 2016 of US$71.1 million or 5.8 percent of gross domestic product (GDP). This indicates the scale and significance of the road safety problem for the Solomon Islands economy, as well as for the society in general.

To summarize, the Solomon Islands growing and changing economy and population warrant long-term, sustainable, and meaningful actions to improve people's mobility, particularly improving their safety on the roads. Vulnerable groups include pedestrians and public transport users who are mostly children, women, the poor, and persons with disabilities. Improving road safety brings multiple benefits especially to the marginalized members of society, including safe access to schools, hospitals, and businesses. It is also important to consider the stark difference in rural and urban road and transport infrastructure, which will require more context specific approaches in planning for road safety measures.

While the official crash data shows that crash fatalities have significantly reduced, there is evidence that this is due to issues with data collection. Crashes, and crash severity, are widely underreported, and considering the growing population, motorization and the lack of major road safety programs, it may be possible that there are significant number of crashes that were not reported, or the information was not appropriately recorded or harmonized among the responsible agencies. Improving data is an important step in realizing the gravity of the road safety problem and will involve coordination among ministries. Road crash data issues will be discussed further later in the report.

REFERENCES

ADB (Asian Development Bank). 2015. *Solomon Islands: Country Gender Assessment*. Asian Development Bank. https://www.adb.org/sites/default/files/institutional-document/176812/sol-country-gender-assessment.pdf

ADB (Asian Development Bank). 2016. *Sustainable Transport Infrastructure Improvement Program: Summary Sector Assessment*. ADB.

Auki Police Station. 2020. "Data file". Auki Police Station.

Georgeou, N and C Hawksley. 2017. "Challenges for Sustainable Communities in Solomon Islands: Food Production, Market Sale, and Livelihoods on Savo Island." *Portal Journal of Multidisciplinary International Studies* 14 (2): 67-86. https://epress.lib.uts.edu.au/journals/index.php/portal/article/view/5411.

Hobbis S. 2019. "A road to development? Rural perspectives on infrastructure maintenance in Solomon Islands." *Development in Practice* 29 (6): 748-759. https://www.tandfonline.com/doi/full/10.1080/09614524.2019.1586832.

IRD (Internal Revenue Division). 2018. *2018 Annual Report*. IRD. Report. https://solomons.gov.sb/wp-content/uploads/2020/01/20190313-IRD-2018-Annual-Report-FINAL-v4.pdf.

JICA (Japan International Cooperation Agency). 2014. *Preparatory Survey for Kukum Highway Upgrade Project in Solomon Islands*. JICA.

Marcelo, D and A Raina. 2020. *Estimating Resiliency Benefits of Road Upgradation: Case of the East Road in Malaita, Solomon Islands*. World Bank. Report. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/897691584630758472/estimating-resiliency-benefits-of-road-upgradation-case-of-the-east-road-in-malaita-solomon-islands.

McMahon, K and S Dahdah. 2016. *The True Cost of Road Crashes, Valuing Life and the Cost of a Serious Injury*. London: iRAP.

MEHRD (Ministry of Education and Human Resource Development). 2016. *Net Enrollment Rate by Province, 2016*. http://www.mehrd.gov.sb/education-management.

Ministry of Development Planning and Aid Coordination. 2016. *National Development Strategy 2016- 2035*. https://www.adb.org/sites/default/files/linked-documents/cobp-sol-2017-2019-ld-01.pdf.

MID (Ministry of Infrastructure Development). 2016. *Solomon Islands: National Transport Plan 2017-2036*. Ministry of Infrastructure Development.

Nanau, GL. 2011. "The Wantok system as a socio-economic and political network in Melanesia." *Omnes: The Journal of Multicultural Society* 2 (1): 31-55.

Quinn, B, E Peach, CJC Wright, MSC Lim, L. Davidson and P. Dietze. 2017. "Alcohol and other substance use among a sample of young people in the Solomon Islands." *Australian and New Zealand Journal of Public Health* 41 (4): PAGE NUMBERS. https://onlinelibrary.wiley.com/doi/full/10.1111/1753-6405.12669 .

RSIPF (Royal Solomon Islands Police Force). 2020. *RSIPF Annual Report*. RSIPF. Report.

SMEC. 2020. *MLT Routine Maintenance and Spot Upgrade Works: Design Philosophy Report*. Report.

Solomon Islands National Statistics Office. 2009. *Social General: Key Social Indicators*. : https://www.statistics.gov.sb/statistics/social-statistics/social-general/71-key-social-indicators.

Stewart, MJ, J Negin, P Farrell, P Houasia, AB Munamua and A Martiniuk. 2015. "Extent, causes, and impact of road traffic crashes in the Solomon Islands 1993-2012: data from the orthopedic department at the National Referral Hospital, Honiara." *Rural and Remote Health* 15 (2945). http://www.rrh.org.au.

Wilson, C. 2018. *The hidden epidemic in the shanty towns of Honiara*. Report. https://www.lowyinstitute.org/the-interpreter/hidden-epidemic-shanty-towns-honiara.

World Bank. 2017. *Systematic Country Diagnostic Priorities for Supporting Poverty Reduction and Promoting Shared Prosperity*. World Bank. http://documents1.worldbank.org/curated/en/416501528199593828/pdf/Solomon-Islands-Systematic-country-diagnostic-priorities-for-supporting-poverty-reduction-and-promoting-shared-prosperity.pdf

World Bank Group. 2019. *Environment and Social Framework for IPF Operations: Good Practice Note Road Safety*. World Bank. http://pubdocs.worldbank.org/en/648681570135612401/Good-Practice-Note-Road-Safety.pdf.

World Bank. 2020a. *Country Profiles, Samoa*. https://data.worldbank.org/country/SB.

World Bank. 2020b. *Guide for Road Safety Opportunities and Challenges: Low- and Middle-Income Country Profiles*. Washington D.C.: World Bank. http://documents1.worldbank.org/curated/en/447031581489115544/pdf/Guide-for-Road-Safety-Opportunities-and-Challenges-Low-and-Middle-Income-Country-Profiles.pdf.

World Bank. 2020c. *Solomon Islands Agricultural and Rural Transformation Project Document.* Project Document

World Bank. 2019. *Project Appraisal Document for the Solomon Islands Roads and Aviation Project*. World Bank. Project Document

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

[4] GDP per capita obtained from: https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=SB

2. KEY FINDINGS OF THE REVIEW - INSTITUTIONAL MANAGEMENT FUNCTIONS

As defined in the World Bank Global Road Safety Facility (GRSF) Capacity Review Guidelines, there are seven road safety institutional management functions:

- Results focus
- Coordination
- Legislation
- Funding and resource allocation
- Promotion
- Monitoring and evaluation
- 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 the Solomon Islands and recommendations for how they could each be strengthened.

2.1 RESULTS FOCUS AND COORDINATION

These two institutional management functions are considered together here as the interaction between a focus on outcomes and governance arrangements to support effective coordination of ministries is intertwined.

Results Focus: A results focus is the fundamental management function within a government that establishes a strong aspiration for, and delivery of, road safety improvement. It involves the establishment of a strategic direction for road safety, the identification of a lead agency, the adoption of a vision, strategy and associated targets, and ensures stakeholder accountability for results. All other road safety management functions influence this activity. In the absence of a results focus, all other institutional functions and related interventions lack direction and overall road safety outcomes are severely impacted. Crash and other intermediate data are crucial to understand the current situation and risk and to develop priority and meaningful interventions.

Coordination: Road safety management involves several government ministries who must share responsibility for the road safety outcomes of the Solomon Islands. Effective horizontal coordination across national government ministries, as well as vertical coordination from national government to provincial and district governments, including village communities, supports the necessary system-wide effort necessary for achieving effective road safety outcomes. It is also important that effective partnership coordination exists between government, key private sector associations and the community.
GRSF capacity checklists 1, 6 and 12 (see appendix E) were used to inform the below analysis.

2.1.1. REVIEW OF EXISTING PRACTICES

LEAD AGENCY AND GOVERNANCE

A lead agency for road safety is yet to be identified in the Solomon Islands. It is evident that because of this, adequate organization of the road safety effort and support for governance and decision-making cannot effectively begin to operate. It was widely recognized in the review meetings that this lack of governance and leadership limit government ministries from effectively addressing road safety issues. The acknowledgement of the importance of road safety is highlighted in the Solomon Islands Government's (SIG) overall aim for the transport sector, which is "to develop an integrated transport system that is safe, efficient, affordable, accessible, economically and environmentally sustainable." (MID 2016) Government agencies are taking some minor, isolated actions for road safety, as described in the following sub-chapter, however this is currently occurring on an ad-hoc basis and not in an integrated manner due to the lack of commitment and coordinated efforts.

The absence of an overall understanding of crash risks across the Solomon Islands and the consequent lack of identification of priority effective measures to counter the challenges is preventing implementation of committed and coordinated efforts from government ministries. A lead agency should be established to enable a clear path for shared action to be developed through regularly convening meetings of the relevant ministries within an agreed framework, providing secretariat services for the meeting program, and providing some specialist inputs to the considerations of crash risk identification and potential road safety policy measures which could address these risks.

ROLES AND RESPONSIBILITIES

The key ministries and organizations involved in road safety in the Solomon Islands are:

- **Ministry of Infrastructure Development (MID):** MID is the primary ministry responsible for providing "safe, reliable, integrated, and sustainable infrastructure and transport systems." (SIG n.d.)[5]. In relation to road safety, MID responsibilities include developing and managing the road and bridge network, conducting vehicle inspections, providing road transport services and ensuring safe conditions for the use of the road network (MID n.d.)[6]. The following departments function within the MID (MID n.d.)[7]:
    - Corporate Support Services Department - responsible for human resources, training and budget
    - Architecture Building Management Services Department – ensures building safety standards
    - Mechanical Works Services Department (MWSD) - manages vehicle fleets, conducts public and private vehicle roadworthiness inspection as a requirement of annual vehicle registration (quarterly inspection is required for buses and taxis) and conducts tests for driver licensing
    - Transport Infrastructure Management Services Department (TIMSD)– responsible for maintaining the asset management database as well as supervising the National Transport Fund (NTF)
    - Solomon Islands Maritime Safety Administration Department – oversees maritime vessels.

  The complete MID organizational structure can be found in appendix B.

  MID is facing institutional challenges such as lack of budget and capacity to maintain existing roads and build new roads, lack of clear and proper delineation of roles in Transport Act, and lack of capacity to execute programs (MDPAC 2013). It is understood that at present, there is no dedicated unit or staff positions within MID specific to safer vehicles and safer licensing or broader safe road user policy. However, there is ongoing capacity-building within MID on asset management and road safety as part workshops conducted through SIRAP and the Asian Development Bank (ADB) Sustainable Transport Infrastructure Improvement Program. MID is also expected to

provide secretariat services to the Road Transport Board (RTB) and RTB Working Group (WG). The RTB and RTB WG will be discussed in detail on the following pages.

- **Royal Solomon Islands Police Force (RSIPF):** RSIPF is the national policing body of the Solomon Islands and is responsible for enforcing the law. The main mission of RSIPF is to "provide a safe, secure, and peaceful Solomon Islands." (RSIPF 2020) The organizational structure is referenced in appendix B. In relation to road safety, the RSIPF-Traffic Department is responsible for traffic enforcement in Honiara while the General Duties and Provincial Police support road safety for the rest of the country (RSIPF n.d.). Their primary road safety responsibilities include conducting random breath testing (RBT), checking unregistered vehicles and unlicensed drivers, providing educational programs on PAOA FM radio, and collecting road crash data (RSIPF 2020) (however, at the time of the review meetings this was noted as not occurring). Limited resourcing, both in terms of staffing and equipment, as well as the absence of some key supporting legislation, are critical inhibitors to RSIPF effectively carrying out its road safety role and responsibilities. The absence of statutory signs and line marking and road rules that legally require driver compliance, severely limits police deterrence activity even if resourcing levels were to be made more appropriate. This is discussed further in subsequent chapters. Clear RSIPF policy priorities are needed for discussion within an integrated governance arrangement involving road safety related ministries.

- **Ministry of Health and Medical Services (MHMS)**: Functioning as the funder, regulator, and provider of nearly all health services, MHMS is the lead ministry in charge of Solomon Island's health system. MHMS is divided into four major divisions (MHMS 2016):
    - Health Care– oversees provincial health directors and services
    - Public Health – supervises public health programs such as for non-communicable diseases
    - Corporate Services – covers human resources, financing, among others
    - NRH – oversees the NRH, clinical services, and the District Health Information System (DHIS).

  The MHMS organizational structure can be found in appendix B.

  MHMS receive support from nongovernmental organizations (NGOs), faith-based service providers, and minimal support from the private sector (Hodge and others 2015). MHMS primarily operates through a service delivery model to reach remote islands and villages and delineate the delivery of primary and secondary care services.[81] This model is divided into five tiers with the Nurse Aide Post being slowly phased out (Hodge and others, 2015)[82]:
    - Nurse Aide Post
    - Rural Health Center
    - Area Health Center (AHC)
        - AHC Level 1
        - AHC Level 2
        - Urban Health Center
    - General Hospital
    - NRH.

  Table 5 shows the different types and number of health facilities in the Solomon Islands for each province. Only Guadalcanal has an NRH at Honiara and most provinces have provincial hospitals except for Ronnell & Bellona.

Table 5 Types of Health Facilities and Number per Province, 2015 (Hodge and others 2015)

Health facility	Central	Choiseul	Guadalcanal	Isabel	Malaita	Makira	Temotu	Rennell & Bellona	Western	Total*
Faith-based hospital	0	1	1	0	1	0	0	0	1	4
National referral hospital	0	0	1	0	0	0	0	0	0	1
Provincial hospital	1	1	0	1	1	1	1	0	1	7
Area health centre	3	1	6	4	4	5	1	1	3	38
Rural health centre	5	10	10	9	25	17	6	2	23	102
Nurse aide post	14	13	20	18	43	16	8	0	31	187

- **Ministry of Justice and Legal Affairs (MJLA):** The MJLA leads the drafting, updating, and development of legal policy in the Solomon Islands[8]. Particularly relevant in road safety is the Legal Policy Unit which reviews current laws, develops amendments and policy instruments, and conducts consultations with stakeholders[9]. They are responsible for finalizing draft policy documents progressing to Cabinet for discussion including any future policies related to road safety. This is conducted in discussion with the initiating ministry such as Ministry of Police, National Security and Correctional Services MPNSCS or MID. Policies adopted by Cabinet that require subsequent legislation, regulation or amendment, are then forwarded to the Attorney General for legislative drafting, again in association with the initiating ministry or ministries. Another relevant office within the ministry is the Law Reform Commission, which reviews and conducts research regarding possible reforms on existing laws[10]. The organizational structure of MJLA is referenced in appendix B.

- **Ministry of Education and Human Resources Development (MEHRD):** The MEHRD is responsible for education in the Solomon Islands. MEHRD emphasizes that education is a shared responsibility between the Government, the Solomon Island Education Board, provinces, and communities[11] . MEHRD is also responsible for implementing road safety education programs within schools, however this is currently not a part of the Solomon Islands school curriculum.

- **Ministry of Finance and Treasury (MoFT):** The MoFT is responsible for economic and fiscal policy in the Solomon Islands. In relation to road safety, the MoFT is responsible for preparing and managing the annual budget including allocations to road safety programs[12]. Currently, some budget is allocated to MID to implement basic road safety design safety features and treatments under donor-funded projects. There is no recurring road safety budget allocation for infrastructure safety treatments. Allocations are provided (but not readily identified) for Traffic Police operations, MID vehicle registration and driver licensing activities and data systems and as part of health budgets for emergency retrieval and treatment services for those injured in crashes. In addition to budget allocations, MoFT is also responsible for revenue collection, particularly the Inland Revenue Division (IRD), which manages the driver licensing and vehicle registration systems that covers both public and private vehicles (IRD 2018).

- **Ministry of Home Affairs (MoHA):** MoHA is primarily responsible for all the functions and programs that cater to the Solomon Island citizens. In relation to road safety it is the main ministry responsible in implementing and managing the civil registration system of the country. It coordinates with MHMS to collect birth and death registration data and with the Solomon Islands National Statistics Office and MoFT for vital statistics.[13]

- **Ambulance service (government-funded and St John Ambulance):** The ambulance services are responsible for care and retrieval of crash victims from the roadside through to post-crash emergency treatment at hospitals and health centers, by road in Malaita and Guadalcanal and often by sea in other provinces.

There are also two established groups within the land transport sector (although it is understood they are not meeting on a regular basis) that provide a valuable opportunity for initiating cross government road safety efforts for the Solomon Islands:

- **Road Transport Board (RTB):** The RTB is made up of: Permanent Secretary (PS) of MID as the Chairperson; Clerk of the Honiara City Council (HCC); Commissioner of Police (or the Commissioner's nominee); PS of the Ministry of Provincial Government (or the PS's nominee); PS of the Ministry of Commerce (or the PS's nominee); Chief Mechanical Engineer of MID; a representative of the Solomon Islands Chamber of Commerce and Industry (SICCI); and a representative each from taxi and bus operators.

  The RTB is responsible for the licensing and regulation of road transport and the enforcement of traffic regulations. It aims to ensure functions and powers under the Traffic Amendment Act (2009) are well coordinated, administered and enforced. Of critical importance is the fact that the RTB has not convened since its establishment by the Act in 2009. This is despite legislation stating it is to meet quarterly. In the absence of an alternative vehicle for road safety governance and coordination in the Solomon Islands, the RTB is well positioned to provide road safety leadership.

- **RTB Working Group (WG):** The RTB WG is made up of RSIPF, MID, SICCI; and church and community leaders. The RTB WG was established under a Memorandum of Understanding between SICCI and RSIPF in 2018 to discuss traffic congestion at the fishing village market with the intention to provide recommendations to the RTB. The working group has no formal operations or clear terms of reference, with meetings occurring on an ad-hoc basis. The RTB WG is well positioned to provide road safety policy development support to the RTB.

In addition to the above, there is a road safety leadership and coordination role to be carried out by HCC and the provincial councils. HCC has its own law enforcement agency that works with RSIPF. Whilst this enforcement agency is principally concerned with parking, validity of licenses, and other administrative functions, as opposed to prosecution, their feedback on local road conditions and issues is highly valuable to the overall results focus. The same is true for provincial councils and their local roads. Current constraints to this arrangement are staffing and budget.

NATIONAL ROAD SAFETY VISION

Currently, there is no adopted strategic vision, action plan, strategy, or targets for road safety in the Solomon Islands. SIG do, however, have in place several strategic planning documents developed by each ministry, including those relating to general development and the land transport sector with elements of road safety within each of these, as noted below:

- **National Development Strategy (NDS) 2016 – 2035 (SIG 2016):** Developed by the Ministry of Development Planning and Aid Coordination (MDPAC), the NDS sets out a long-term direction for the future development of the Solomon Islands, including several policies and programs for road safety such as introducing and reinforcing road and traffic rules and regulations, improving safety of public transportation modalities, and reinforcing the Traffic Act 2009 to enforce vehicle road worthiness.

- **Medium Term Transport Action Plan (MTTAP) 2019 – 2023 (MID 2019):** Developed by MID to accompany the National Transport Plan (NTP) 2017-2036, the MTTAP includes a plan to invest SI$12 million for urban traffic safety.

- **MID Corporate Plan 2016 – 2020 (MID 2016):** Includes an objective of ensuring public road safety through timely vehicle inspections and driver examinations, together with targets, indicators and a lead agency or focal point for each strategic action.

- **National Health Strategic Plan 2016-2020 (MHMS 2016):** Developed by MHMS, the National Health Strategic Plan identifies the key areas for improvement within MHMS, which includes coordinating with MID for injury reduction, continuing health data improvements, reviewing legislation on alcohol, drafting a youth and adolescent health strategy, and strengthening the overall health system.

- **IRD Strategic Plan 2019- 2023 (IRD 2019):** Includes improvements to the registration system of vehicles, especially taxis and buses.

- **MDPAC Solomon Islands National Infrastructure Investment Plan 2013-2023 (MDPAC 2013):** Developed by MDPAC together with the other ministries, this presents the strategic direction in terms of transport and road infrastructure. It identifies transport issues and the respective programs and projects that hope to address them.

2.1.2 RECOMMENDED NEW PRACTICES

It is essential that elements of results focus are strengthened within SIG in order to prioritize implementing activities that will reduce road deaths and serious injuries. Results focus and coordination are crucial for achieving and maintaining a consolidated and whole of government road safety effort and the delivery of progressively successful outcomes.

Key elements of the results focus function and required strengthening are listed below.

GOVERNANCE

Successful road safety performance requires leadership and accountability within a number of agencies and its' presence at many levels. These characteristics are essential for promoting good practice road safety approaches, and the implementation of practical interventions for the Solomon Islands. There is the need to foster effective coordination and shared decision-making between agencies that is maintained into the future. The arrangements described below are proposed for road safety coordination and decision-making activities in the Solomon Islands.

It is recommended that there should be five distinct governance entities utilized to coordinate road safety action. These five entities are: a Lead Agency, an Executive group (a proposed National Road Safety Committee [NRSC]), NRSC working group, a Ministerial Group, and Advisory group. A suggested structure is described below and shown in Figure 15.

Given the challenges involved in setting up these proposed arrangements it is recommended that the Executive and Working groups be the first bodies put in place, potentially building upon the RTB structure and operation if that is considered useful. Lead agency support establishment will also be necessary for the operation of both groups.

The consultation arrangements proposed can develop organically as required over the first years of operation and the ministerial group establishment could be deferred for at least two years until the Executive group is well established, operating effectively and is confident about its role and functions.

Lead agency

Good international practice recommends the creation of a lead agency for road safety in the Solomon Islands. This agency would not do all the work of the individual ministries, but rather it would provide a support role to the governance and decision-making groups. Key aspects of the role include:

- Guide the national road safety effort by convening meetings of the decision-making and consultative groups, preparing agendas, preparing and distributing minutes and as necessary combining and consolidating separate reports on particular policy development issues from various ministries and Police into a consolidated document for the Executive group (see below)
- Coordinate development of the national road safety strategy
- Support joint decision-making among the ministries
- Coordinate the efforts of all participating sectors of government and other stakeholders
- Provide specific evidence-based policy development input
- Ensure effective crash data system operation and data analysis and sharing with relevant government ministries
- Coordinate an agreed value of a life
- Provide advice for behavioral deterrence programs.

It is recommended that the secretariat for road safety in the Solomon Islands be a small unit within MID, with an agreed brief to carry out this role.

Key further elements of the coordination function and suggested strengthening are as follows:

Executive group—National Road Safety Committee

An executive group or NRSC, should be established and meet regularly to support the implementation of the road safety plan.

Given that the RTB is already established with a mandate that is closely linked to road safety, it is recommended that the NRSC be a sub-group of the RTB. It is recommended that the NRSC consist of the following:

- PS of MID as the Chairperson;
- Chief Mechanical Engineer of MID;
- National Director of RSIPF - Traffic Police;
- PS of MHMS;
- PS of MEHRD;
- PS of MoFT;
- Commissioner of IRD;
- Clerk of HCC;
- PS of MJLA;
- Permanent Secretary of MoHA;
- A representative of SICCI[14]; and
- A representative each from taxi and bus operator associations[15].

The NRSC would be provided with recommendations from a working group (discussed below) and if accepted, direct the actions to proceed or refer the recommendations to the ministerial group (to be considered in two years' time when the NRSC is operating effectively). The NRSC may also ask for further work and information to be reported back to them. Provincial governments would be engaged to provide input and comment to the NRSC where applicable.

It is essential that the members of the NRSC listed above accept their responsibility to lead and drive the road safety agenda and accept accountability for outcomes.

Working group

The establishment of a working group is recommended, consisting of senior managers from: MID; RSIPF; MHMS; MEHRD; MoHA; MJLA; IRD; and HCC. This working group would meet monthly and have a decision-making role whereby they would recommend new or amended policies and potential legislative adjustments (such as offences, penalties) to the NRSC every three months. The working group members would also attend the NRSC meetings discuss the recommendations under consideration if required, and provide any other immediate advice sought.

For both the working group and the NRSC there needs to be a government officer support group (a secretariat function provided by the lead agency) to handle agenda formulation, preparation and circulation of minutes for action and to carry out preparation of consolidated reports from ministries on major issues as and when that is relevant. The lead agency would be strengthened over time to provide specific evidence-based policy development input; crash data analysis and advice for improving behavioral deterrence programs to address higher crash risks, among other inputs. In turn, the effectiveness of the NRSC would be supported through these strengthened secretariat arrangements and through improved policy advice provided to them. By association, the capacities of all ministries which are part of the NRSC would be strengthened.

Ministerial group

The national efforts to address road safety would also benefit from the formation of a ministerial group, comprising ministers from: MID; MPNSCS; MJLA; and MHMS, for combined ministerial consideration of major policy recommendations from the NRSC and high-level monitoring of implementation progress. Other ministers would be invited to participate as and when issues relevant to their portfolios arise.

This ministerial group could approve certain matters within ministers' delegations or may determine to refer important proposed policy changes to Cabinet.

Advisory group

A fifth key component of the road safety leadership and coordination effort is an advisory group, which would be a consultation and liaison group of private sector organizations including SICCI, provincial governments, university researchers and NGO representatives. They would meet four times per year and be briefed on proposals under consideration by government. Their input would be sought on those or any other matters for which they wished to make suggestions or make comment upon. For key road safety issues and interventions affecting Provincial governments it is likely that specific consultation on key issues would also be needed.

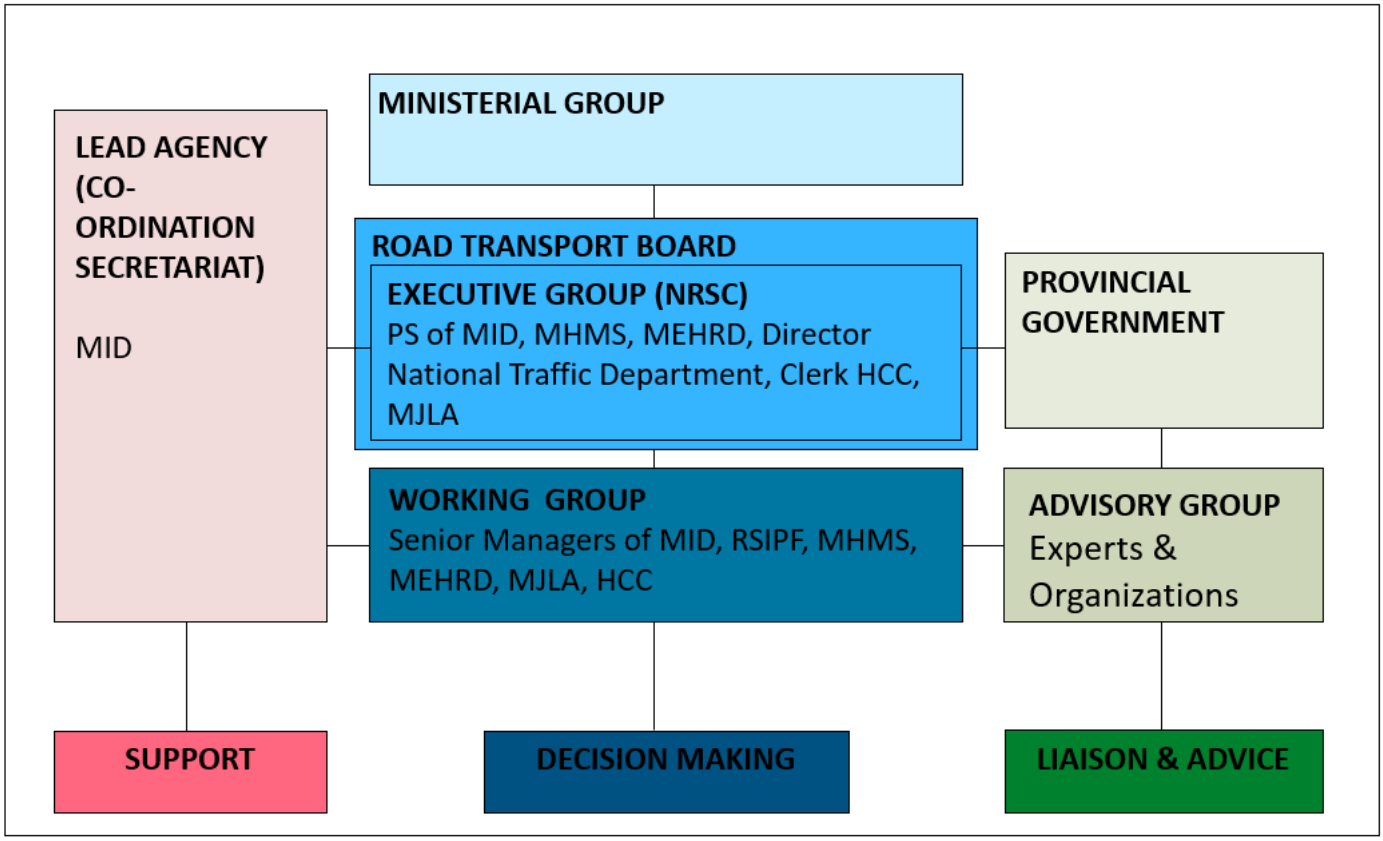


Figure 15 Outline of potential governance arrangements for Solomon Islands, utilizing the Road Transport Board and Road Transport Board Working group acting as (a) a National Road Safety Committee and (b) a road safety working group

ROLES AND RESPONSIBILITIES

In addition to fulfilling the roles and responsibilities delegated to them by legislation and described in section 2.1.1, the ministries would bring their expertise expressed in problem analysis and solution development as appropriate to the road safety governance arrangements set out in the above suggested structure, to arrive at consensus decisions and recommendations. The additional associated responsibilities would include those outlined in table 6 below.

Table 6 Suggested additional road safety responsibilities for each Ministry

Ministry	**Suggested additional responsibilities**
MID	• Lead agency support for national road safety decision-making governance and coordination • Operation of 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 serious injury avoided, with support from MoFT.
RSIPF – Traffic Department	• Expanded deterrence activity drawing upon enforcement of legislation and regulation with support for improved enforcement activity from NRSC; • Support for expanded enforcement from behavior change campaigns developed through the NRSC partnership

	• Exploring introduction of an electronic infringement system for use for speeding and drink driving offences.
MHMS	• Health system trauma management and testing of Blood Alcohol Concentration (BAC) levels in blood samples from all drivers involved in crashes.
MEHRD	• Development and provision of new specific and limited scope school road safety programs (for pedestrian safety, bus use safety, bicycle use safety, seatbelt and helmet wearing, crash risks and passenger and driver behaviors • School community involvement in, and support for, improved road safety measures outside school gates.

NATIONAL ROAD SAFETY VISION AND STRATEGY

A national road safety vision indicates commitment of government to improve road safety outcomes. It motivates stakeholders and encourages behavior change, generates actions to deliver road safety improvements, creates demand for data collection for forecasting and monitoring, and ultimately leads to results.

As such, a national road safety vision, strategy and time-based targets should be developed and implemented. This would require a level of ambition to be adopted to eliminate road fatalities and serious injuries in the longer term, with steady progress through interim strategies and targets in the short to medium term.

Suggested next steps and priority activities in terms of setting a national road safety vision and strategic direction are included in chapter 4. However, it is important to note that the initial targets for performance improvement are not specified other than for the 2020 to 2030 period, reflecting the knowledge development period ahead for all ministries. The training and knowledge development program for SIG road safety related personnel needs to be substantial and adequately resourced to ensure it takes place and achieves critical mass in terms of spreading understanding. Without the development of an informed group of SIG officers in key ministries, focused on strengthening institutional functions, enabling actions and final interventions, achieving meaningful and sustainable road safety progress will be unlikely.

By 2024 it is suggested that target setting, based on the agreed proposed actions from 2024 to 2027 and beyond, can take place for the balance of the decade to 2030. This will ensure the 2020 to 2030 overall target is more likely to be achieved.

CAPACITY BUILDING

The assessment identified significant capacity restraints among key road safety stakeholders that are required to be addressed in order to support the effective development and implementation of road safety interventions. Improved capacity and technical knowledge for road safety stakeholders is vital to ensure adherence to good practice and to provide guidance based on international approaches.

To support the effective delivery of strengthened management functions and key priority interventions, capacity-building through training of key roles is necessary. This includes the training of:

- Road safety principles (for example, the Safe System Approach) to all relevant ministries and organizations;
- All members of the RTB operating as the NRSC, in strategy and action plan development and delivery, monitoring of performance;
- Local health staff as paramedics;
- RSIPF in crash investigation and road crash data collection;
- RSIPF in drink driving enforcement and speed enforcement;

- MID, RSIPF, HCC, MHMS, and other relevant ministries in crash data analysis and transforming data into meaningful programs in road safety; and
- MID in road safety engineering, conducting road safety audits and inspection, and building safer roads.[16]

2.2 LEGISLATION

There needs to be appropriate legislation in place to support the road safety task, requiring an effective policy development process by government and a subsequent legislative development process for parliamentary consideration. Legislation for road safety roles and responsibilities for ministries and for intervention activity is most important. It typically relates to road and vehicle standards and user behavior and should be regarded as a continuous improvement opportunity with regular (often minor) amendments to legislation and regulation offering potential benefits in addition to major legislative initiatives. The process for development and discussion about potential legislative initiatives is strengthened when there is a multi-ministry governance structure for decision making in place. This is the necessary requirement to encourage legislative initiatives to be developed and debated and to enable points of difference to be resolved across the road safety departments. The governance mechanisms suggested in this assessment seek to strengthen several institutional management functions including the legislative development and delivery function.

GRSF capacity checklist 7 (see appendix E) was used to inform the below analysis.

2.2.1. REVIEW OF EXISTING PRACTICES

Given that no coordinated road safety leadership currently exists in the Solomon Islands, the current approach to recommending improved or new road safety legislation relies on the proactiveness of individuals within key ministries. The legislative drafting process focused around MJLA's Legal Policy Unit, after policy adoption by Cabinet, appears to be robust, involving a working group of key stakeholders and approvals from the Attorney General's Department (AGD) and ultimately Cabinet.

Within MID, both MWSD—who carry out inspections on vehicles and license testing of drivers—and Transport Infrastructure Management Services (TIMS)—who are focused on the construction and maintenance of transport infrastructure—operate under the mandate of the Road Act.

MJLA have an established a working relationship with MPNSCS/ RSIPF as they assisted them to make amendments to the *Police and Transport Legislation (Amendment) (Alcohol Testing) Act* (passed in 2016).

Policy submissions to Cabinet can be initiated by all departments, with the MJLA helping where required. A more coordinated governance partnership between the road safety related ministries would strengthen the effectiveness of legislative development and the likelihood of its' carriage at Cabinet level.

The Legal Policy Unit has only four staff members who provide policy and legal support and advice to almost all ministries except for the Ministry of Peace. Aside from that, they also help the AGD in preparing legislation. One of the issues that the unit raised is that while they are the ones who draft the policy, they are not included or consulted during the conceptualization of the policy. This is particularly crucial since policy drafting requires understanding the subject matter of the policy, the context and the stakeholders involved in the policy. This is made more difficult since they also lack staffing resources.

2.2.2. RECOMMENDED NEW PRACTICES

There are several improvements that could be made to the existing legislative instruments for the benefit of road safety and crash reduction. A number of priority interventions identified in the following sub-chapters will require legislative action and many existing measures will require ongoing legislative, regulatory and systems adjustment and strengthening to improve their effectiveness.

The development of a well-coordinated legislative process through the MJLA, originating with policy advice from the relevant ministry and NRSC and ministerial group being presented to the Cabinet, and (if adopted) proceeding through legislative drafting to the Parliament as a Bill, for consideration, would ensure priorities indicated to the AGD reflect current important needs. This would build on the already established legislative drafting process through MJLA's Legal Policy Unit.

Legislative adjustments on an ongoing basis are a vital tool for strengthening road safety deterrence. The coordination arrangements recommended above will assist in obtaining shared support across the key road safety agencies for any new regulations, legislation or whole of government systems augmentation.

In addition, adding a staff who will focus not only on road safety but also on overall transport and mobility within the Legal Policy Unit will give more focus to the policy and legal needs of the sector. This dedicated staff could focus on policy needs regarding speed limits, seatbelt wearing, drink-driving, among many others and can join policy discussions from conceptualization through to drafting. This is in line with the long-term strategy of the MJLA in employing lawyers who are specializing in specific issues or sectors and having them seconded to the relevant ministry. (MJLA 2017). In the future, MID can form their own legal policy unit similar to the Ministry of Peace.

2.3 FUNDING AND RESOURCE ALLOCATION

For road safety to be a genuine government priority, it must be supported by adequate annual budget allocations. Road safety funding mechanisms are then established, and progressively become more sufficient and sustainable for the road safety task. Funding is made available for investment in a comprehensive action plan of improvements to infrastructure safety, enforcement and licensing, vehicle registration and offence systems and post-crash care investments.

In the Solomon Islands, each of the government agencies involved needs to resource and develop its capacities to address road safety challenges, a new field of professional activity in the country. SIG also has an opportunity to develop strong business cases for road safety investments (Bliss and Breen 2008). This capacity will need to develop over time as understanding of key crash risks and their distribution and extent on the network and as cost-effective programs to treat them become better known.

GRSF capacity checklist 8 (see appendix E) was used to inform the below analysis.

2.3.1. REVIEW OF EXISTING PRACTICES

Limited funding is currently made available in the Solomon Islands in the form of donor-funding and incidental infrastructure allocations, for investment in improving road safety outcomes. This is not representative of a sustained funding mechanism necessary for continued road safety improvements. There are two main budget categories used by MoFT: Recurrent and Development. Road safety investments would fall under the development budget, however there is

no current allocation for this. There is also the NTF in place until July 2021. Despite the NTF being the funding source for all transport investment, it does not currently fund any road safety initiatives, only road maintenance activities.

There are also limited resources allocated to road safety throughout government—no unit or positions are funded from the recurrent budget within MID—and importantly, limited funding of enforcement and behavior change campaigns. The Traffic Department of RSIPF is understaffed, with 40 staff positions in total (32 permanent staff and eight loan positions). 60 positions have been identified by Police as necessary to meet their current demands. In terms of equipment, RSIPF have only eight RBT machines and no speed radar guns.

2.3.2. **RECOMMENDED NEW PRACTICES**

Funding and resource allocation should be built on an understanding and acceptance that selected measures do exist which will reduce fatalities and serious injuries at a cost that is much less than the generated economic benefits. There are two key areas of investment required:

- The first is that adequate recurrent budgets for establishing and strengthening the basic road safety capacity of ministries are established. Specifically, finding and assigning budget for dedicated road safety resources within MID is critical; and
- The second is that additional investment funding is identified to support programs and projects, which will deliver reduced fatalities and serious injuries.

It is essential that each of the government ministries involved be adequately resourced (requiring annual staffing and support allocations) to have progressively appropriate road safety operating capacity.

SIG, through MID and other members of the NRSC (with support from MoFT) should progressively develop strong business cases for road safety investments to be considered at ministerial and cabinet level based on cost effectiveness and cost benefit analyses (Bliss and Breen 2008). The relationship between road safety and economic development is undeniable and has been widely studied. In 2017, the World Bank published an extensive study showing the economic benefits of reducing crash fatalities and injuries. Their key findings which are particularly relevant to the Solomon Islands include:

- Increased road safety significantly benefits the youth and the working class and thus contributes to gross domestic product (GDP) growth; and
- There is strong evidence that reducing current levels of road injuries by half over 24 years could translate into additional GDP growth: 7.1 percent in Tanzania, 7.2 percent in the Philippines, 14 percent in India, 15 percent in China, and 22.2 percent in Thailand.

Social benefits of road safety significantly contribute to increased productivity, hence economic growth (World Bank 2017). The preparation of a business case and its negotiation with MoFT through the NRSC for investment in road safety interventions is the critical approach for achieving funding and resourcing support. A well-prepared business case based on research and a strong evidence-base will provide support for particular investments where the positive potential economic return on investment to the Solomon Islands community in terms of the value of lives saved and injuries avoided can be appreciated.
Agreement on the value of a life and serious injury in the Solomon Islands is required to enable the development of these business cases. It is estimated that the cost of a road fatality for a country is 70xGDP per capita and the cost of a serious injury is 0.25 x the fatality cost (McMahon and Dahdah 2008). Well-designed and carefully crafted interventions typically deliver a high benefit to cost ratio over the life of the intervention.

To develop a program of safety treatments for infrastructure, comprehensive crash data or an International Road Assessment Program (iRAP) assessment is required (neither of which are currently available in the Solomon Islands). Table 7 below provides an indicative estimate of the business case for safer roads in the Solomon Islands, calculated by the GRSF. GRSF estimates that with a targeted investment of US$27.1 million in road safety infrastructure and speed management to upgrade

the safety of existing infrastructure (as distinct from new roads) to achieve all 3-star roads or better, major annual reductions in fatalities can be achieved, as well as an economic benefit of US$314.7 million over 11 years. These estimates would be useful as an interim measure until specific agreed values for benefits (such as reductions in lives lost and serious injuries incurred, times the agreed values of life and serious injury) can be determined, potentially through a brief project by MID in association with MoFT, drawing upon international expertise if necessary.

Table 7 Economic Benefits for Building Safer Roads in Solomon Islands (World Bank 2020)

Business Case for Safer Roads	
Infrastructure and Speed Management Investment required:	**$ 27.11 million**
Annual Investment as a % of GDP (2019-2030):	**0.16%**
Reduction in fatalities per year:	**43**
Approximate reduction in fatalities and serious injuries (FSI) over 20 years:	**10,000**
Economic Benefit: **$ 314.7 million**	B/C Ratio: **12**

An adequate budget for infrastructure safety high risk (blackspot) treatments and mass action treatment programs—including pedestrian safety measures such as footpaths and pedestrian crossing safety platforms, plus inclusion within the road maintenance budget of installation of statutory road signage and line marking and so on— is required for MID and HCC, with annual progression from initial levels to a program which appropriately addresses higher risk issues.

The recommended categories of programs of expenditure to address infrastructure safety needs in the Solomon Islands (new and retrofitting needs) are set out schematically in Figure 16 below.

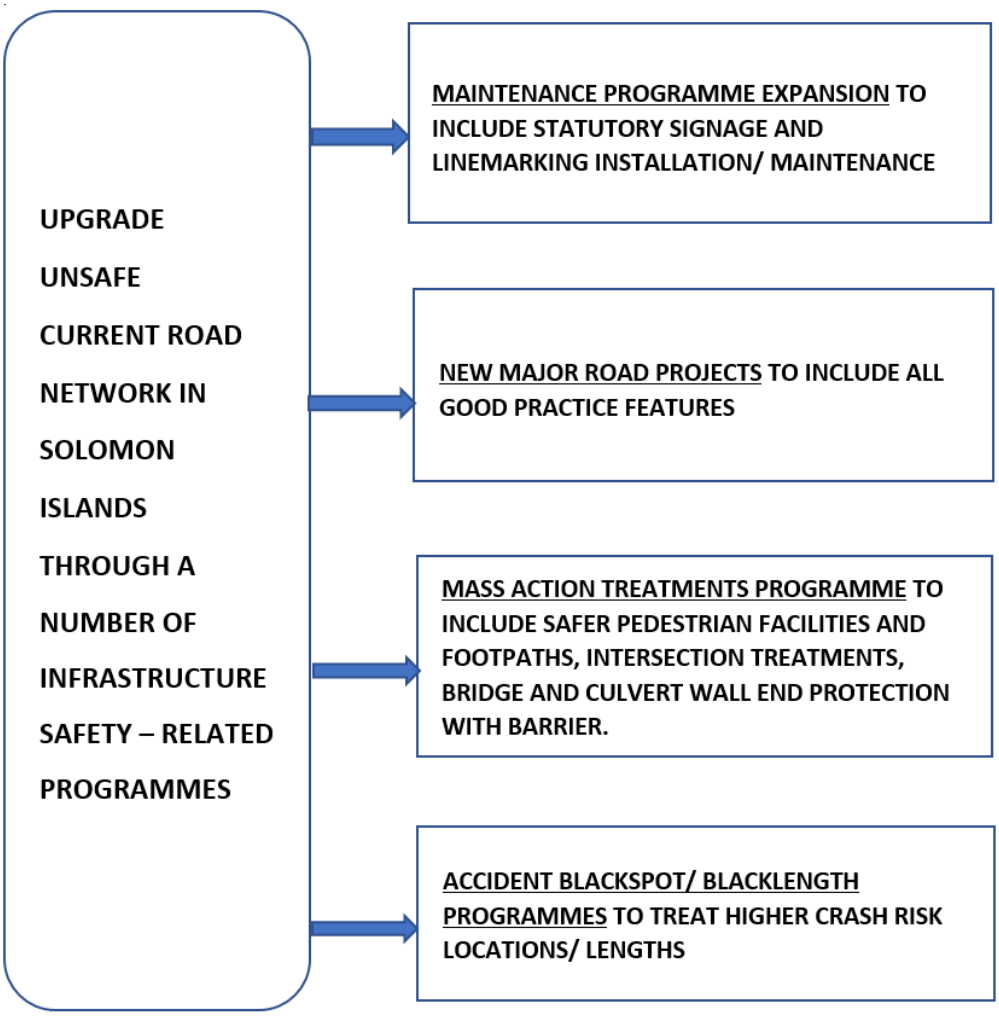


Figure 16 Categories of infrastructure safety investment required in the decades ahead

A substantially robust program is suggested in the early years to allow for the program to establish and resolve potential change management issues.

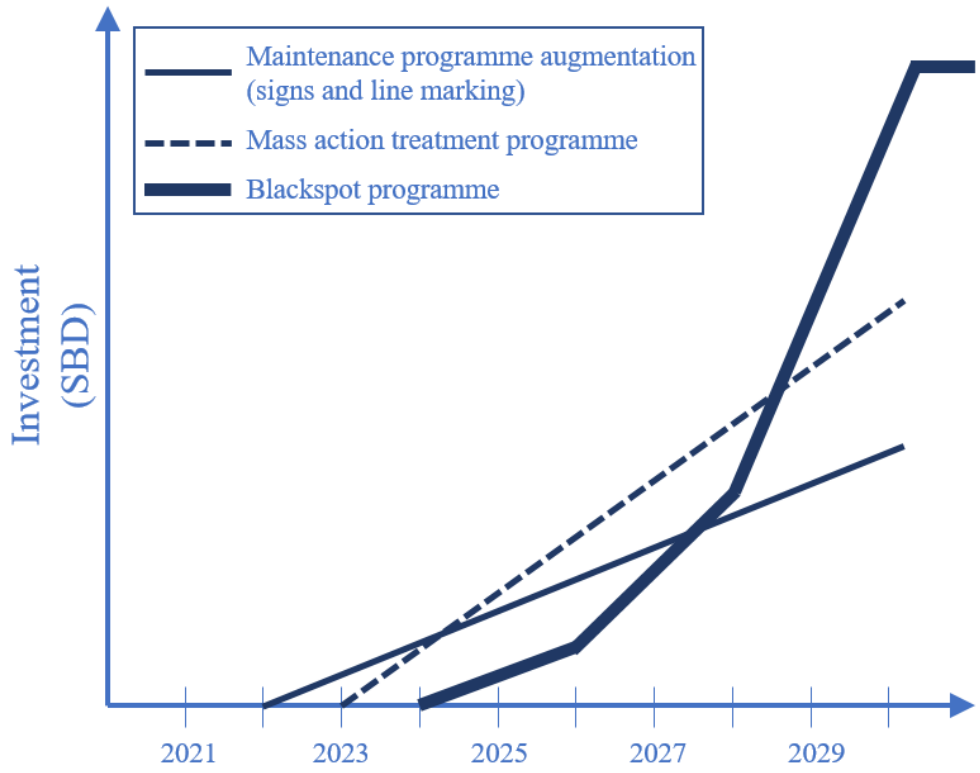


Figure 17 Indicative Investment profile for infrastructure safety by type of program for initial six years

Significant training and capacity-building funding will be required either from existing ministries' budget allocations or under new corridor treatment projects, to build the local capacity to envisage, plan and prioritize these programs, beyond the already operational planned new demonstration corridor works (for example, SIRAP).

The estimated annual expenditures for corridor projects should reflect the SIRAP program on Malaita and potential safer infrastructure projects from ADB on Guadalcanal. These programs will be important means to extend the sealed road network on both Guadalcanal and Malaita and in other islands as development pressures increase. It is critical that adequate attention is provided to infrastructure safety measures—as is proposed in the SIRAP program—to deliver adequate levels of inherent safety. This could potentially circumvent future safety problems from arising.

Figure 17suggests implementing a maintenance program that includes signs and line marking activity from the end of 2021, in addition to a mass action program implemented progressively from the start of 2023 across the entire network. This would be followed by a progressively increasing budget allocation for blackspot treatments from 2024. This investment profile recognizes that it will take some time to establish these programs, particularly for the blackspot program which will rely on robust crash data.

It is further recommended that basic signage including speed limit signage and other statutory signage and line marking be funded, if possible, from annual maintenance funding allocations.

Mass action project funding will be quite small scale but would include footpaths and pedestrian crossing improvements with pavement platforms, solar powered street lighting at crossings and intersections, pedestrian median refuges and large highly visible reflective signage for motorists at pedestrian crossings. Barrier protection of bridge end posts and culvert end walls would also be considered in this program. Local knowledge and any crash data available should be used to ensure higher risk locations are treated as a priority.

Blackspot/blacklength identification and treatment would require crash data (JICA has advised that some data is available through police, certainly for Honiara and surrounds). Blackspot/blacklength treatments should be developed and implemented and prioritized based on the locations where the highest estimated fatal and serious injury crash reductions per SI spent could be achieved. They should be linked to planning and design issues and based on the analysis from road safety audits and/or other assessments. The existing available crash data should be collected from RSIPF for the past five years and MID and HCC should use this information to identify blackspots until an upgraded road crash data system is producing outputs.

As and when this improved fatal and serious crash data becomes available, further crash data informed black lengths and black spots can be identified.

Adequate human and financial resourcing to oversee the development and delivery of these projects will be required.

As indicated above, the mass action work could commence in 2023 if funding could be made available. It is suggested that an initial program in the order of some SI$600,000 be adopted as a target budget for 2023.

The allocation necessary to get the blackspot program started in 2024 needs to be determined. A smaller allocation should be planned in 2024 but increasing progressively by 2027 and further by 2030. This slow but steady increased resourcing for blackspot and mass action programs (See Figure 17 above) will be necessary as there is quite a process of training and learning required for data collection and analysis, the selection of the economically superior treatment options and the bringing together of a program including planning, design and delivery activities. These skills will need development over a number of years.

It is also recommended that a small road safety unit be established within MID, including some dedicated road safety positions. This would support MID's lead agency role and road infrastructure safety responsibilities within the Safe System framework.

Further, adequate resourcing of additional enforcement by the RSIPF Traffic Department to substantially improve drink driving and speed compliance will dramatically reduce deaths and serious injuries. This would include resourcing to allow for 30,000 RBTs to be conducted per year and the purchase, and training in the use of, speed radar guns and, in due course, mobile covert speed cameras. More broadly, it is recommended that RSIPF have adequate staffing resources to operate shifts to monitor road rule compliance at intersections, at pedestrian crossings and on the network in general, including around the Honiara Central Market and other key areas of concern. The safety and the well-being of the Solomon Islands community on their road network will depend upon adequately resourcing these augmented enforcement tasks.

It is also critical that improved road crash data collection, behavior change campaigns to support enforcement and understanding of the Safe System vision are supported by adequate funding and resource allocation. The project focus in the early years will be on lower cost measures, moving over time to more extensive and substantial programs, especially for infrastructure and enforcement.

It is noted that most vehicle safety initiatives could be implemented at a low cost to SIG as the cost of newer safer vehicles would be borne by individuals and organizations. Costs to government in introducing a graduated licensing system in time would be a one-off cost.

To meet these funding requirements, it is recommended that a road safety fund be established in 2021 with an allocation from consolidated revenue. A review of funding sources for the longer term should be carried out, including the introduction of an annual levy on road crash injury insurance premiums (potentially US$4 per policy initially) and the net proceeds from road fines. These options could be the basis for the operation of the fund, to be overseen by the MoFT and the NRSC and which would reduce the crash risk faced by the Solomon Islander community over time.

2.4 **PROMOTION**

Leaders of government agencies involved in road safety are required to develop evidence-based road safety programs and to advocate for the strategic direction for road safety in order to ensure sustained commitment at the highest level (OECD 2008). This is first and foremost advocacy to the most senior government levels, but it also includes later stage specific public consultation and campaigns to increase community road safety understanding and deliver changes in behaviour

GRSF capacity checklist 9 (see appendix E) was used to inform the below analysis.

2.4.1. **REVIEW OF EXISTING PRACTICES**

There is little available evidence of effective and strategic provision of road safety information to advise senior government officers and the ministerial level of the availability of potential measures which, if adopted, would lower fatalities and serious injuries and deliver associated economic and social benefits for the Solomon Islands.

Lack of community awareness of how to use roads among all types of road user was highlighted as a key challenge by the stakeholders during the review meetings. There is currently no standardized or mandated road safety curriculum within the schooling system. RSIPF have previously delivered community road safety behavior change campaigns on radio or in small gatherings, however this is not currently occurring.

2.4.2. **RECOMMENDED NEW PRACTICES**

The major challenge is achieving understanding of the scale of the road safety problem when promoting upwards to the senior bureaucratic level in all government ministries and to senior executives in the private sector. It is imperative that these parties are made aware 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., A strong target for reduction of fatalities and serious injuries can be considered achievable and can be delivered if appropriate action is taken by SIG. The implementation of a lead agency and coordination arrangements as discussed previously will assist with this effort, with most of the demand falling with the working group, the NRSC and MID.

Effective upward and lateral advocacy of road safety concepts and of potential interventions to be put in place in the Solomon Islands by mid-level and senior officers (undersecretary and director level), to members of the community and parliamentarians is required. In addition, constant consultations with communities are required before and after implementing infrastructure interventions to address possible negative impacts. Examples of a small set of issues where this situation is likely to apply would include a new graduated licensing system, a lowering of the legal blood alcohol limit to zero for commercial vehicle drivers, and measures to improve public bus speed limit compliance. Increasing capacity of government officials in road safety benefits and practices through exposure to international best practices may be necessary.

2.5 MONITORING AND EVALUATION

The quality of decisions made on road safety initiatives reflects the quality of road safety data in a country (Montella and others 2012). Without data, it is more difficult for stakeholders to realize the magnitude of the road safety problem and prioritize it over other issues (Barffour and others 2012). Road safety data is essential to identify and determine the nature of issues and formulate corresponding strategies and actions. It enables government and stakeholders to invest resources, design cost-effective programs and monitor road safety performance (Barffour and others 2012). It enhances accountability of road and transport providers, traffic enforcers, and policymakers (Gudmundsson and others 2016). Ultimately, data is required to effectively implement the Safe System Approach (WHO 2010). The complex nature of road safety therefore requires the synergy of different scales and types of road safety data. While fatal and serious injury data (derived from integration of sources such as police reports, hospital data, civil registries, and even health survey data) is most important to the effective implementation of Safe System policies, exposure data (for example, the number of vehicles or licenses, volume of traffic, among others), safety performance indicators (for example, the number of vehicles exceeding speed limits, number of drivers exceed alcohol limit, seatbelt and helmet wearing, and iRAP data), and even surrogate safety measures (such as traffic conflicts, traffic speeds before and after interventions) disaggregated to individual sites and to the local, regional, and national level, can provide a comprehensive understanding of road safety challenges.

SIG should strive to make sure that these data are robust and reliable and that information on these are shared with stakeholders. These will enable them to effectively perform their responsibilities in road safety. For example:

- Road infrastructure providers will need data to determine high-risk infrastructure, design roads with appropriate speeds, and remove road hazards;
- Traffic enforcement agencies will need data to be able to deliver effective road traffic safety enforcement operations;
- Transport ministries will need data to come up with mandatory safety equipment in vehicles;
- Researchers will need the data to innovate and conduct in-depth road safety studies.

GRSF capacity checklist 10 (see appendix E) was used to inform the below analysis.

2.5.1. REVIEW OF EXISTING PRACTICES

In the Solomon Islands, there is no data sharing agreement between government ministries and the robustness of the data collected within individual ministries is not known. The inaccessibility of road safety data, and lack of usage and analysis by key government ministries, especially MID, is a critical issue and relates to the current absence of road safety results focus and coordination in the Solomon Islands. MID only gets road crash data from RSIPF and not from other sources such as the health sector which prevent them from having a comprehensive understanding of road safety issues. The following sub-chapter provides more detail and primarily discusses gaps in road crash data collection and to the extent possible, other road safety data in the Solomon Islands.

RSIPF- JUSTICE INFORMATION SYSTEM

RSIPF has the legal mandate to collect official crash data for the Solomon Islands. Aside from crash data, they also collect data on drink-driving violations and other traffic violations. The Justice Information System (JIMS) is the platform that stores these data although JIMS is only intended to monitor, track, prosecute all types of crimes (UNDP 2019).

Regarding crash data, the data collection process is relatively straightforward: police attend to the crash scene, fill out a paper form, and encode the form into JIMS (Figure 18).

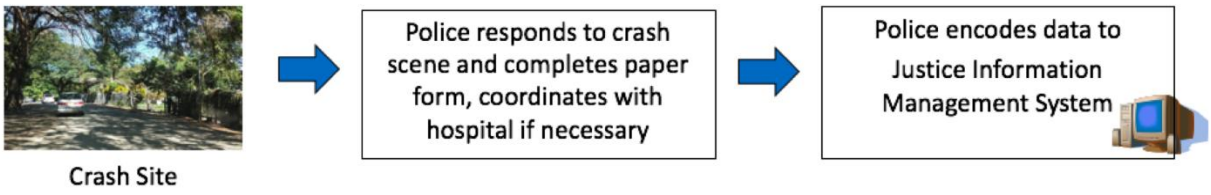


Figure 18 Royal Solomon Islands Police Force Data Collection Process

The following issues have been observed:

- *Not all crashes are attended to by RSIPF:*
  In a study led by the United Nations Development Programme (UNDP 2019), RSIPF presence is regarded as insufficient, especially in the provinces. This implies that due to a lack of resources, there are injuries and fatalities that are not recorded by RSIPF but by other entities such as health facilities.
- *No standard definition for fatalities and injuries:*
  Road safety fatalities are usually defined as those where the fatality occurs at the time of crash although there are instances when RSIPF coordinates with health facilities. There is also no injury severity classification in RSIPF data. Serious injuries are lumped together with slight injuries. Presence of injury and severity is based on the discretion of RSIPF.
- *Lack of central database for crashes.*
  This implies that the data elements collected, the design of survey forms, and the whole data collection process is intended for prosecution purposes rather than road safety. Furthermore, there is evidence that the process of centralizing all data with the Honiara-based RSIPF staff can be improved.
- *The manual forms are open to interpretation and errors.*
  This makes the form highly prone to error especially because two different people (an officer at the crash scene and an encoder at a computer terminal) will be using and reading the form. Data entry is not standardized, handwriting can be illegible, and the form can be vulnerable to loss or damage. When the data is uploaded into the system, it may contain incorrect information.
- *Lack of working computers and internet access.*
  Not all police stations have a working computer and for those who have computers, not all have internet access. This poses a risk to the quality and reliability of crash data as some of the forms may not have been encoded.
- *Informal village courts exist in parallel with the formal system and lacks coordination* (ADB, 2017).
  It is possible that village courts have a tally on crash disputes that are not recorded into JIMS.

It is also possible that fatalities and serious injuries are not reported to the police and hospitals for reasons aside from formal data systems and data collection processes. Such reasons can include difficulty of reporting from remote islands, religious customs and beliefs on burial and treating the dead, costs, among other possible reasons.

Aside from issues related to data collection, data available in RSIPF are often underreported because people feel that they do not have to report the crash to the police. The reasons identified include because a crash is a hit-and-run case, the case is amicably settled between involved parties, the crash was a single-vehicle collision, among others. Therefore, these inherent gaps in police data require authorities to integrate these data with other sources of data to fully understand the road safety situation.

In addition to crash data, RSIPF also has data on drink-driving violations. However, this is only used for monitoring and is not leveraged to inform where random breath testing is conducted as well as other targeted measures to reduce incidents of drink-driving. This is also true for traffic violation counts. There is a lack of data on speed violations because of the lack of speed limit signage which makes adequate enforcement difficult, and no data on usage of safety equipment such as seatbelts and helmets because of the absence of legislation and associated enforcement.

MHMS- DHIS

As mentioned previously, MHMS is the lead health ministry in the Solomon Islands and is thus responsible in collecting health data. Particularly the Medical Statistics Unit under the Policy and Planning Directorate collects, compiles, analyzes, and reports all health information (MHMS 2017). They employ different procedures in health data collection, which include:

- Health statistics unit which receives, collates, and analyzes reports from primary health facilities and inputs them in the DHIS
- Demographic Health Survey
- Family Health Card Surveys
- Census (Hodge and others 2015).

From individual health facilities to provincial health directorates, health data is recorded manually on paper forms. From that point, the data is then entered to the DHIS. Historically, the DHIS has been implemented successfully and is believed to cover 80-85 percent of reports (Hodge and others 2015). In 2011 and 2012, DHIS has been upgraded to an open-source software for data management, analysis, monitoring, and evaluation. In 2014, DHIS has been scaled-up to DHIS2 and is being implemented to all provinces in the Solomon Islands, except for Rennel and Bellona (Hodge and others 2015).

The DHIS2 is one of the key achievements realized by MHMS, especially since reporting coverage is at 90 percent (MHMS 2017). The challenges for MHMS include lack of staffing resources—eight out of nine provinces not having a dedicated provincial DHIS coordinator—and growing demand for health data from different sectors, which are often not standardized in terms of collection and reporting method (MHMS 2017). Other surveillance systems have also been developed and implemented such as for malaria and reproductive health but will be soon be migrated to DHIS (Hodge and others 2015). It is likely that crash and injury data is included in the DHIS. MHMS have yet to elaborate on this.

According to the Orthopedic department of the NRH, they no longer use the DHIS and instead they are using Microsoft Access as their own injury database system. They make use of manual forms (see appendix G) that cover personal details, type of injuries, and detailed injury and fracture data which they then encode in Microsoft Access. According to NRH, since most hospitalizations from crashes are referred to them, they are able to capture most injury and fatality data. This however does not include minor injuries and fatalities occurring at the crash scene. In addition, Microsoft Access is proprietary and makes use of its own file format and programming language which can be a potential issue in the future when database systems in the Solomon Islands are to be integrated. It is unknown whether NRH also has a database on disabilities incurred for every road crash injury however, NRH is able to keep records of patients requiring long-term care and rehabilitation especially because they are the only hospital that provide this type of care.

MOHA – CIVIL REGISTRATION AND VITAL STATISTICS SYSTEM

The civil registration vital statistics system was developed and implemented in 2014 (UNESCAP n.d). The death registration system is still being scaled up. In 2017, approximately 12 percent of deaths have been recorded into the system (UNESCAP n.d) while MHMS believes 50 percent of deaths were captured in 2020 [17]. Aside from limited availability, there are also issues in properly identifying causes of death which is crucial to monitor crash fatality data (WHO 2018).

MID – ASSET MANAGEMENT SYSTEM

The MID through the TIMSD maintains the asset management database which currently stores data on road conditions and defects and organizes road infrastructure data. This database system is currently undergoing improvement with support from development partners. This however is not used together with crash data from JIMS.

IRD - DRIVER LICENSING AND VEHICLE REGISTRATION SYSTEM

The IRD manages, operates, and maintains the Transport Management System (TMS), which is the database system for driver and vehicle licenses. The TMS is able to not only organize licensing data but also enable the IRD to monitor the multiple types of data concerning the current vehicle fleet and driver mix. Sample forms are provided in appendix C.

Issues in implementing TMS include internet connectivity problems (IRD 2018), limitations in the functionality of TMS, fragmented process, and lack of internal systems expertise for troubleshooting, maintenance, and enhancements (IRD 2019).

OTHER SOURCES OF ROAD SAFETY DATA

Other sources of road safety data include data from the HCC and St. John's Ambulance. HCC collect crash data and traffic violation data in Honiara while St. John's Ambulance collect data on injuries and fatalities and emergency response. These are all limited and are manually recorded in logbooks. It is unknown whether there are more safety performance indicators, exposure data, and surrogate safety measures that are collected.

2.5.2. **RECOMMENDED NEW PRACTICES**

While there is a vast array of road safety data, improvements to the collection of road crash data must be prioritized. Availability of a comprehensive, reliable and accessible road crash data system and use of data which is made available in a timely manner for competent continuous analysis enables decision makers and the public to be informed and to monitor intervention effects and detect changed crash risk circumstances. Strengthened crash data analysis mean:

- Data must be easy to access and shared to as many stakeholders as possible
- Data should primarily be collected by RSIPF but be supplemented by data from MHMS, and others
- A national crash database system should be managed by the national road safety lead agency (MID)
- Non-crash data such as data on infrastructure, vehicles, road user behavior, road assessments should also be routinely collected and shared.

With the development of a strengthened road crash data system, clear guidelines should be set for data collection, reporting and analysis. This will enable a comprehensive new governance framework to deliver evidence-based recommendations to government at high level and achieve outcomes which improve road safety performance that can be readily measured and evaluated. This is essential to building government and community confidence around any proposed and applicable strategy. To operationalize this, the ministries should first be able to conduct their own individual data improvement programs.

An immediate consideration for RSIPF specifically is to design and develop a standardized crash data form. The crash data elements collected must be designed in such a way that its purpose is also for road safety and not just prosecution purposes. The format of the data collection form together with the data elements to be collected, method, quality and standard of collection, and definitions, should be agreed upon by the different ministries as they will have their own data needs and standards. A definition of fatality and injury severity must be aligned with MHMS and other elements such as person details must be kept consistent between the other ministries to allow future integration. It is recommended that the definition of a fatality should be within 30 days of a crash. In addition, serious injury crashes can be defined as a person being hospitalized for more than 24 hours because of sustained injuries from a crash while minor or slight injury crashes can be a person being hospitalized for less than 24 hours or not being hospitalized at all. This will require police to be instructed to follow-up data from hospitals, and the database system to be designed in such a way that updating records is easy to do. The WHO Data Systems Guide (WHO 2010) is a valuable reference that can guide this activity.

For the data collection process, data should be collected through a mobile app or a laptop on site but if this is not possible, a manual form can be used. In order to eliminate recording or encoding error, data fields must have assigned values for selection to the greatest extent possible. It is recommended that RSIPF are equipped with a global positioning system (GPS) device, which could be an app installed on mobile phones. Recording the exact location is one of the most important pieces of information, and the form should not be approved if the field on GPS coordinates has not been completed. Finally, it is recommended that RSIPF ensures that all police stations have laptops or computers and an internet connection.

Aside from technical considerations, the police should also assess the barriers or disincentives that stakeholders experience in properly reporting crash fatalities and severe injuries. To know more about disincentives in reporting road crash fatalities and severe injuries, it is advisable that the government conducts interviews and focused group discussions with communities and stakeholders.

For MHMS, MoHA, IRD, the implementation of data improvement programs would ensure that their own data are reliable, accurate, and complete. More specific recommendations can be provided after consultations with each of these ministries. The government can also explore other innovative means of collecting data such as engaging other stakeholders to collect data. One example is coordinating with churches who are available in almost every community and who officiate at burials, and hence might have fatality data.

In addition to individual data improvement programs by each ministry, another immediate consideration is to consolidate, organize, and map existing data for the last five years so that it can already be used for analysis. The primary source of data is crash data from police, but this should be supplemented by data from NRH. SIG should also leverage other existing data available for this initial analysis such as health surveys. It is recommended that questions regarding transport, mobility, and road safety be included in the next national health survey to be conducted in 2022. Furthermore, once high-risk locations are identified, MID would be able to conduct road safety inspections and traffic conflict studies, which can help to tailor relevant interventions.

It is recommended that while these activities are taking place, MID is taking steps to develop a national crash database system for the Solomon Islands. Figure 19 illustrates a recommended crash database institutional structure for the country. This stand-alone database would primarily be used by RSIPF in coordination with MID which is envisaged as the lead agency for road safety in the country. RSIPF would primarily collect crash data and MID would establish linkages between the crash database system with the other database systems of MHMS, MoHA, and IRD. These linkages would allow the use of crash data in conjunction with other types of road safety data. The government, advocates, and researchers would then be able to use all these data for analysis and coordinate with each other regarding plans and monitoring of programs. The previously consolidated and mapped historical crash data could then be uploaded to this new system.

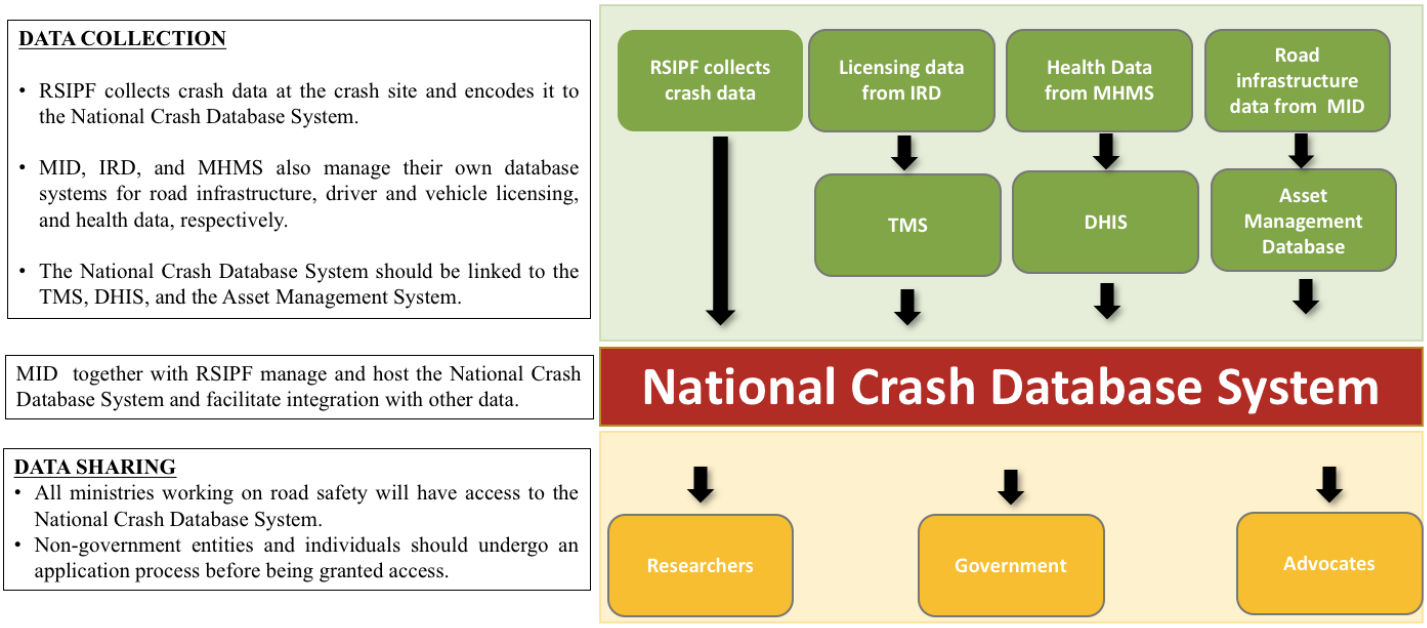


Figure 19 Proposed Crash Data Management Structure

There are multiple existing platforms currently available that can serve as the National Crash Database System. One of which is the DRIVER system (for more information see appendix H) which is a low-cost, non-proprietary database system already available in the internet. We recommend that an inter-ministerial workshop be conducted to finalize data needs and resources of each ministry, present options for the enhanced crash database, and select the platform, which will be scaled-up nationwide. It will also be crucial to include the Information and Communications Technology Support Unit (ICTSU) of the MoFT in these discussions as they have the capacity and mandate to develop information technology (IT) for SIG ministries (Coffey International Development and the Whitelum Group 2017). The initial implementation plan is provided in Chapter 4.

However, fatality and injury data alone are not sufficient to understand the road safety situation, which is why other road safety data such as safety performance indicators should also be routinely collected. These measures are critical tools to readily assess current conditions and track performance of infrastructure, vehicle, and behavior programs. Appropriate intermediate outcomes provide powerful immediate insight about crash risk and support active and focused management of long-term policy matters and their short-term implementation.

Recommended indicators include:

- Mean speeds - Lower mean speeds will reduce fatal crash outcomes on the roads where the speeds are reducing, at a rate of 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 setting, measuring and reporting on intermediate outcome measures. This type of data can be collected by the roadside through speed enforcement devices or through GPS and vehicle monitoring applications
- Drink driving detection rates for a constant testing output regime – The risk of fatal crashes sharply increases as the frequency of drink driving cases increases. It is therefore not enough that the police only collect counts of violations. Rather, a study survey should be conducted together with a research institute. Drink driving data disaggregated by vehicle type, time of day, driver/rider age and gender, are useful data to develop targeted and effective interventions against drink driving

- Seatbelt and helmet wearing rates – Seatbelt wearing decreases the severity of crashes and injuries by 45-50 percent for front seat occupants and 25 percent for rear seat passengers. Helmet wearing for motorcyclists on the other hand, reduce the risk of fatality by 28-73 percent and severe injury by 46-85 percent. This data can be collected at the roadside at high-risk locations by the police together with a research institution
- iRAP star rating of new and existing road infrastructure - iRAP Star Ratings uses a well-established methodology tested in different parts of the world in order to assess the safety of road infrastructure for cars, motorcyclists, cyclists, and pedestrians. In a scale of one to five stars, with one star being the most unsafe, and five starts being the safest, iRAP assessments are able to show which sections of the road have become safer or more unsafe after the construction of an infrastructure. In addition, iRAP assessments also provide data on road attributes and how each attribute impacts the star rating of the road
- Data on Public Transport - Given that a significant portion of crashes involve public transport, it is recommended that indicators on public transport such as buses and flatbed trucks are implemented. Examples of these are speed limit compliance of public buses, frequency of overloading, mode share for various types of public transport, and frequency of public buses using bus bays or pulling off the through carriageway when setting down or picking up passengers.

2.6 RESEARCH AND DEVELOPMENT AND KNOWLEDGE TRANSFER

Research and development (R & D) and knowledge transfer refer to the contribution of research and evidence to road safety policy, programs, and public debate. Technical support through improved knowledge transfer strengthens road safety outcomes.

GRSF capacity checklist 11 (see appendix E) was used to inform the below analysis.

2.6.1. REVIEW OF EXISTING PRACTICES

There is currently no road safety R & D occurring within the Solomon Islands. There are two universities operating in the Solomon Islands: Solomon Islands National University (SINU) and University of South Pacific (USP). Their capacity to undertake R & D should be explored and if appropriate, improved.

Data needed for R & D, including crash data, is not currently being shared amongst government ministries and other relevant stakeholders.

2.6.2. RECOMMENDED NEW PRACTICES

There are practical knowledge transfer demands on the Solomon Islands, such as paramedic training of local staff for ambulance roles and increased capacity to calibrate alcohol testing devices and speed guns, which would assist in the development and implementation of road safety initiatives. There is also a need for independent evaluation of proposed road safety policy changes and the effects of related policy implementation.
The community needs independent evidence-based evaluation capacity and information in order to be confident that government measures are delivering projected fatality and serious injury 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 in collaboration with road safety research organizations based at Australian or New Zealand universities. Collaboration here is crucial so that research and best practice can be contextualized for the Solomon Islands. This should include a program for comprehensive training and briefing, as well as training of engineering consultants over at least a five-year outlook.

REFERENCES

Asia Development Bank. 2015. "Solomon Islands: Country Gender Assessment." https://www.adb.org/sites/default/files/institutional-document/176812/sol-country-gender-assessment.pdf. Barffour, M, S Gupta, G Gururaj and Adnan Hyder. 2012. "Evidence-Based Road Safety Practice in India: Assessment of the Adequacy of Publicly Available Data in Meeting Requirements for Comprehensive Road Safety Data Systems." *Traffic Injury Prevention* 13 (1): 17-23.

Bliss, Tony and J Breen. 2008. *Implementing the Recommendations of The World Report on Road Traffic Injury Prevention Country guidelines for the conduct of road safety management capacity reviews and the related specification of lead agency reforms, investment strategies and safety programs and projects*. Washington D.C: World Bank.

Coffey International Development and the Whitelum Group. 2017. *Solomon Islands Justice Program Design Document*. Report. https://www.dfat.gov.au/sites/default/files/solomon-islands-justice-program-design-2017-2021.pdf.

Gudmundsson, H, RP Hall, G Marsden and J Zietsman. 2016. *Sustainable Transportation Indicators, Frameworks, and Performance Management*. Berlin: Heidelberg Springer.

Hodge, N, B Slayter, L Skiller. 2015. "Solomon Island Health System Review." *Health Systems in Transition* 5 (1): 14-33. https://apps.who.int/iris/bitstream/handle/10665/208212/9789290616931_eng.pdf;jsessionid=DB23A6229AFA107B52F8CE609E39D934?sequence=1.

IRD (Internal Revenue Division). 2018. *2018 Annual Report*. IRD. Report. https://solomons.gov.sb/wp-content/uploads/2020/01/20190313-IRD-2018-Annual-Report-FINAL-v4.pdf.

IRD (Internal Revenue Division). 2019. *Strategic Plan 2019-2023*. IRD. https://solomons.gov.sb/wp-content/uploads/2020/01/2019-23-IRD-Strategy-and-Corporate-Plan-FINAL.pdf.

MDPAC (Ministry of Development Planning and Aid Coordination). 2013. *National Infrastructure Investment Plan*. MDPAC. https://policy.asiapacificenergy.org/sites/default/files/Solomon-Islands-National-Infrastructure-Investment-Plan-2013.pdf.

MHMS (Ministry of Health and Medical Services). 2016. *National Health Strategic Plan 2016-2020*. MHMS. https://daisi.com.au/wp-content/uploads/2016/09/Strategic-Plan-for-Solomon-Islands-2016-2010.pdf.

MHMS (Ministry of Health and Medical Services). 2017. *MHMS Annual Report 2017*. MHMS. Report. https://solomons.gov.sb/wp-content/uploads/2020/02/MHMS-2017-Annual-report.pdf.

MID (Ministry of Infrastructure Development). 2016a. *MID Corporate Plan 2016-2020*. MID. https://solomons.gov.sb/wp-content/uploads/2020/02/MID-CorpPlan-final20160125_PS_15Feb2016.pdf.

MID (Ministry of Infrastructure Development). 2016b. *Ministry of Infrastructure Development Corporate Plan 2016-2020*. MID. https://solomons.gov.sb/wp-content/uploads/2020/02/MID-CorpPlan-final20160125_PS_15Feb2016.pdf.

MID (Ministry of Infrastructure Development). 2019. *Medium Term Transport Action Plan.*

MJLA (Ministry for Justice and Legal Affairs). 2017. Ministry for Justice and Legal Affairs Human Resource Development Plan 2017-2021. MJLA. https://solomons.gov.sb/wp-content/uploads/2020/02/Human-Resorce-Development-Plan-2017-to-2021-final.pdf.

McMahon, K and S Dahdah. 2008. *The True Cost of Road Crashes, Valuing Life and the Cost of a Serious Injury*. London: iRAP.

Montella, A, D Andreassen, A Tarko, S Turner, F Mauriello, L Imbriani, M Romero and R Singh. 2012. "Critical Review of the International Crash Databases and Proposals for Improvement of the Italian National Database." *Procedia - Social and Behavioral Sciences* 53: 49-61. https://www.sciencedirect.com/science/article/pii/S1877042812043212.

OECD (Organization for Economic Cooperation and Development). 2008. *Achieving Ambitious Road Safety Targets through a Safe System Approach*. Paris: OECD.

RSIPF (Royal Solomon Islands Police Force). N.D. *Traffic and Road Safety*. RSIPF. https://www.rsipf.gov.sb/?q=node/3.

SIG (Solomon Islands Government). 2016. *National Development Strategy 2016-2035*. SIG. https://www.adb.org/sites/default/files/linked-documents/cobp-sol-2017-2019-ld-01.pdf.

UNDP (United Nations Development Programme). 2019. Access to Justice Study: Solomon Islands. UNDP. Report. www.undp.org › fiji › docs › SOI-A2J-Study-Report.

UNESCAP (United Nations Economic and Social Commission for Asia and the Pacific). N.D. *Civil Registration and Vital Statistics: Solomon Islands*. UNESCAP. https://getinthepicture.org/country/solomon-islands.

World Bank. 2017. *The High Toll of Road Traffic Injuries: Unacceptable and Preventable*. World Bank. Report. https://openknowledge.worldbank.org/bitstream/handle/10986/29129/HighTollofTrafficInjuries.pdf?sequence=5&isAllowed=y.

World Bank. 2020. *Guide for Road Safety Opportunities and Challenges: Low- and Middle-Income Country Profiles*. World Bank. http://documents1.worldbank.org/curated/en/447031581489115544/pdf/Guide-for-Road-Safety-Opportunities-and-Challenges-Low-and-Middle-Income-Country-Profiles.pdf.

WHO (World Health Organization). 2010. *Data systems: a road safety manual for decision-makers and practitioners*. Geneva: World Health Organization. https://www.who.int/roadsafety/projects/manuals/data/en/.

WHO (World Health Organization). 2018. *UHC and SDG Country Profile 2018: Solomon Island*s. World Health Organization. https://iris.wpro.who.int/bitstream/handle/10665.1/14062/WPR-2018-DHS-023-slb-eng.pdf.

[5] More information about the Ministry of Infrastructure development is available at https://solomons.gov.sb/ministry-of-infrastructure-development/.

[6] MID. (n.d.) More information about the Ministry of Infrastructure development is available. at https://solomons.gov.sb/ministry-of-infrastructure-development/..

[7] MID. (n.d.) More information about the Ministry of Infrastructure development is available at https://solomons.gov.sb/ministry-of-infrastructure-development/.

[8] Further information about the Ministry of Justice and Legal Affairs available at https://solomons.gov.sb/ministry-of-justice-and-legal-affairs/#:~:text=The%20Ministry%20of%20Justice%20and%20Legal%20Affairs%20(MJLA)%20is%20responsible,Islands'%20justice%20and%20legal%20affairs.&text=The%20Ministry%20oversees%20the%20review,of%20the%20Solomon%20Islands%20people.].

[9] Further information about the Ministry of Justice and Legal Affairs available at https://solomons.gov.sb/ministry-of-justice-and-legal-affairs/#:~:text=The%20Ministry%20of%20Justice%20and%20Legal%20Affairs%20(MJLA)%20is%20responsible,Islands'%20justice%20and%20legal%20affairs.&text=The%20Ministry%20oversees%20the%20review,of%20the%20Solomon%20Islands%20people.

[10] Further information about the Ministry of Justice and Legal Affairs available at https://solomons.gov.sb/ministry-of-justice-and-legal-affairs/#:~:text=The%20Ministry%20of%20Justice%20and%20Legal%20Affairs%20(MJLA)%20is%20responsible,Islands'%20justice%20and%20legal%20affairs.&text=The%20Ministry%20oversees%20the%20review,of%20the%20Solomon%20Islands%20people.

[11] Further information about the Ministry of Education and Human Resources Development available at https://solomons.gov.sb/ministry-of-education-and-human-resources-development/#:~:text=The%20Ministry%20of%20Education%20and%20Human%20Resources%20Development%20(MEHRD)%20is,Education%20Authorities%2C%20families%20and%20communities..

[12] Further information about the Ministry of Finance and Treasury available at https://solomons.gov.sb/ministry-of-finance-and-treasury/.

[13] Further information about the Ministry of Home Affairs available at https://solomons.gov.sb/ministry-of-home-affairs/.

[14] It is recommended that if this approach is supported in principle, that SICCI and the taxi and bus operators form part of the consultation arrangements rather than being involved in all government departmental discussions and decisions. Experience elsewhere is that open discussions of government actions, legislation and budgeting submissions cannot be full and frank with parties outside government in attendance.

[15] See above comment.

[16] Two half-day online workshops on road safety engineering were held for MID and consultants by the SIRAP Road Safety Advisor on July 9 and 10, 2020.

[17] From an interview with C. Lucaszyk conducted in 2020.

3. RECOMMENDED INTERVENTIONS WITHIN A SAFE SYSTEM APPROACH

This Road Safety Management Capacity Assessment (RSMCA) is aligned with the Safe System approach to road safety (detailed in appendix A).

> The Safe System approach requires a shift from ad hoc one-off interventions (traditional view) to a more systematic and holistic approach to the road safety challenge. Road users are commonly blamed for traffic collisions—for not paying attention of taking unnecessary risks—but this fails to account for the built environment and how it affects travel choice and behavior. Instead of relying on public education, training regulation and enforcements, other variables such as transport governance and planning, road design, and protective road infrastructure must be considered.
>
> Shifting much of the responsibility from the road user to the transport system designers is an important development and is already leading to remarkable change - countries with a Safe System approach to road safety have reduced traffic deaths and serious injuries to lower levels at faster rates, than those without.
>
> **Global Road Safety Facility (GRSF) On-line Road Safety Training Program (2020)**

The Safe System includes six road safety intervention pillars:

- Road safety management
- Safe roads and mobility
- Safe vehicles
- Safe road users
- Post-crash care
- Safe speeds.

The following sections provide commentary on the existing practices in the Solomon Islands, as well as recommendations relevant to each Safe System pillar. The success of the recommendations will depend, to a large extent, on the level of ambition and aspiration expressed by SIG to improve their road safety outcomes. Appendix E also includes completed GRSF capacity checklists for the Solomon Islands in relation to the Safe System Approach.

3.1 ROAD SAFETY MANAGEMENT

Road safety management (pillar 1) draws on institutional management functions and management practice to make interventions occur. These interventions, described in detail in sections 3.2-3.6, seek to manage exposure to the risk and consequences of serious injury crash outcomes. Road safety needs to be produced much like other goods and services. This 'production process' implements interventions that deliver improved road safety results and it can be viewed as a management system with three interrelated elements: *Institutional management functions* outlined in Chapter 2 of this report, which enable production of *Interventions* (this chapter), which are Safe System focused in nature, to produce *Results*, over a period of time, usually specified as a national target for reductions in fatalities and serious injuries.

3.1.1. REVIEW OF EXISTING PRACTICES

The road safety 'production process' is yet to be established in the Solomon Islands and this capacity review will provide guidance about that process and the development steps, institutional arrangements and other supports that will be required to deliver it as an effective means to initiate and continuously improve road safety performance.

3.1.2. RECOMMENDED NEW PRACTICES

The Solomon Islands requires the establishment of, or improvement to, various aspects of road safety management in order to improve road safety outcomes. The agencies demonstrated an appreciation for the necessity of high-level commitment and acknowledged that this is currently missing in the Solomon Islands. Management skill in leading the strengthening of institutional functions and developing the process of analysis of crash data to identify and implement interventions in a prioritized cost-effective manner will be critical.

Adoption of a vision, and preparation of an initial priority activities plan (to be followed by strategy and action plan preparation from 2024) to address those issues and the adoption of an ambitious but achievable performance outcome target for fatalities and serious injuries for the medium term and the long term will be needed. Establishing appropriate levels of funding when informed evidence-based business cases can be prepared and developing monitoring and evaluation of interventions and overall performance over time, will also be critical steps.

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

3.2 SAFE ROADS AND MOBILITY

Safe roads and mobility refer to raising the inherent safety and protective quality of road networks for the benefit of all road users, especially the most vulnerable road users (for example, in the Solomon Islands these are pedestrians and public transport users). This will be achieved through the implementation of various road infrastructure interventions to retrofit improved safety to existing networks, road infrastructure assessment and improved safety-conscious planning, design, construction and operation of roads. As described in section 3.4, 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 a key message of change inherent to Safe System thinking.

GRSF capacity checklist 2 (see appendix E) was used to inform the below analysis.

3.2.1. REVIEW OF EXISTING PRACTICES

Safe roads and mobility fall under the mandate of Ministry of Infrastructure Development (MID), since they are responsible for the planning, design, operation and maintenance of the Solomon Islands road network. MID is currently faced with the challenge of building new surfaced roads connecting communities in the rural areas to social and economic services, while at the same time maintaining the deteriorating road network in the urban areas.

LACK OF SAFE DESIGN STANDARDS FOR ROADS

Comprehensive safety standards and rules for design of new roads are being progressively introduced through donor-funded projects but are yet to be developed and implemented in a planned and comprehensive manner. Associated performance targets are also yet to be established. The safety standards and rules do not currently address the risks faced by vulnerable road users such as pedestrians in both urban and rural roads. The fact that roads are not built to withstand the heavy loads of the large trucks that are now operating there, including timber haulage vehicles, is another critical design issue that will need to be resolved. The recent provision of bus bays at three locations in Honiara is a good start to improving the overall level of network safety. As road standards and maintenance are improved it is critical that the planning and design of roads in the Solomon Islands proceeds with road safety as a fundamental commitment through a structured application of simple safety measures.

POOR ROAD CONDITIONS IN RURAL AREAS

While poor road conditions prevent vehicles from speeding, a significant portion of crashes in the rural area are single vehicle crashes, evidenced by data from the Auki police station. There can be several reasons behind this which include lack of safety barriers in mountainous terrains, lack of street lighting, and presence of road hazards.

POOR PEDESTRIAN INFRASTRUCTURE

The design of the existing road network provides little segregation of pedestrians and vehicles. There is currently a limited number of footpaths—only on primary roads—and guardrails are not present on most rural roads. By observing photos in Mapillary it is evident that the main roads in Honiara cut through places with high pedestrian activity (for example, markets), which can be hazardous to pedestrians. This means that there is a mismatch between the design of the road and its current function. However, it is noted that this is the only place available for the main roads due to the proximity to the hills and mountains on one side, and to the ocean on the other side.

This also pertains to overpasses. Government ministries have recognized that the pedestrian overpass and underpass in Honiara are not effective in preventing people from crossing the road. Pedestrians adapt to the built environment to balance safety and accessibility (Carsten and others 1998), which can explain the non-usage of these types of infrastructure. To some extent, the pedestrians feel 'safe' to cross the road possibly because incoming traffic speeds are slow, and the overpass or underpass causes inconvenience. However, this is a significant safety risk and can lead to pedestrian fatality, especially at night when traffic speeds are higher. Incoming vehicles will not be alert and will not expect to see pedestrians suddenly crossing the road when they see the overpass. In these instances, these types of infrastructure are more harmful and on-street crossings with complete pedestrian infrastructure and traffic calming is better.

Given that almost 50 percent of road crash fatalities annually are pedestrians, this is a clear shortcoming in the planning and design of the road network. In the Solomon Islands, this lack of safe pedestrian infrastructure disproportionately affects children, women, poor, the working class and people-with-disabilities.

LACK OF SPEED LIMIT SIGNAGE AND TRAFFIC CALMING

Speed limit signage is not provided in urban or rural areas in the Solomon Islands and other regulatory, warning or advisory signage is scarce. As such, road user behaviors are at the discretion of road users, rather than managed by those that have responsibility to ensure safe operations, such as the MID. This also means that there are no measures in place to control and enable enforced driver behavior, such as speed reduction to appropriate limits around highly pedestrianized areas such as those outside schools or churches. This is an issue particularly in the absence of footpaths and adequate safe pedestrian crossing opportunities in the linear village sections of major roads. Privately provided speed humps in villages to overcome this issue are not standard sizes, not adequately maintained and often present as hazards themselves. It is noted that through the Asian Development Bank (ADB) financed Sustainable Transport Infrastructure Improvement Program and the Japan International Cooperation Agency (JICA) financed Greater Honiara Transport Masterplan, MID will be installing some road signage. There is also limited line marking on roads.

LOGGING AND MINING

Significant mining and logging activities occurring across the islands, particularly Malaita, has resulted in the construction of several major routes on private property that are not gazetted as public roads. This means that they are not managed by MID and traffic laws are not able to be enforced by Royal Solomon Islands Police Force (RSIPF). These roads are not maintained, cut across communities, and are traversed by heavy vehicles. There are report that these private routes are also associated with overloading of vehicles, damage to road and bridges and are the locations of many road crash fatalities, often involving impaired driving related to alcohol use (Minter and others 2018).[18]

In addition, there are road safety issues related to logging activities on the public road network as logs are transported to the coast. These include:

- Overloaded logging trucks that have damaged and collapsed bridges on the public roads;
- Weak capacity of the Ministry of Forestry and Research (MOFR) to enforce the environmental safeguards as laid out in Code of Logging Practice; and
- A lack of coordination between MOFR responsible for overseeing the management of logging activities and MID responsible for managing the public road network, road transport services and road safety related regulation of the use of bridges by logging trucks.

The lack of enforcement of vehicle loading regulations has led to overloaded logging trucks, which have damaged and collapsed bridges on the public roads. The Traffic Act (SIG 1996) states that no vehicle shall be used on a road if it is loaded in such a manner as to make it a danger to other persons using the road or to persons travelling on the vehicle (Section 45. Limitation of Loads, Chapter 131 Traffic). The MID Specification for Road and Bridge Works (2013) also specifies the five

load limits that shall be applied to each axle group (Section 1.11. Loading Limit on Public Roads). However, it is understood that these vehicle loading regulations have not been enforced effectively especially for logging trucks. There have been some cases of Bailey bridges collapsing due to overloaded trucks used by logging operators. For example, the 18.5 m long Finabola bridge at 29.4 km of South Road between Auki and Huahui on Malaita Island collapsed in 2018 due to an overloaded logging truck carrying gravel (see the picture below). The 21.7 m long Suu Harbour bridge at 66.6 km of South Road was also destroyed by logging trucks. While a detour or a temporary log bridge are now available at these sites, this issue has been continuously reported across the island and remains an issue for asset protection and safety.

Photograph 9: Finabola bridge – at 29.4 km of South Road, between Auki and Huahui, Malaita (World Bank 2018)

Consultation with MOFR to better understand the above potential issues from their perspective in the lead up to the draft report workshop is proposed.

CURRENT AND FUTURE PROJECTS

Budget constraints on road projects are impacting the feasibility and inclusion of road safety interventions in road upgrades and new projects. However, there are a number of planned targeted individual road safety treatments for the Solomon Islands road network through the JICA funded Greater Honiara Transport Masterplan, ADB funded Land and Maritime Connectivity Project, and the World Bank Solomon Islands Roads and Aviation Project (SIRAP). These will contribute significantly to improving the safety standard of existing roads, as well as provide opportunity for MID to build lessons learned from this into their work going forward to improve infrastructure safety standards. Specifically, they include:

- **Greater Honiara Transport Masterplan:** Roadmap towards an optimized transport system for Honiara.
- **Land and Maritime Connectivity Project:** Reconstruction and upgrade of main roads in Honiara and greater Honiara, with safety as an integral part of the project including provision of footpaths, pedestrian crossings and guard rails on rural roads.
- **SIRAP:** Malaita road investments to reduce minor roadside hazards; provide speed control for 25-50 percent of the project length (for example, speed humps) and reduce crash risk for vulnerable road users (for example, pedestrians, cyclists). A road safety audit has informed the proposed designs and a post-construction audit will validate the achievement of the road safety goals.

MID staff are gaining and will continue to gain valuable knowledge of safe road design and operation through capacity-building activities associated with the above projects. However, it has been suggested that the local consulting engineering industry is not as well informed, or aware, of these practices and this needs to be addressed.

3.2.2. **RECOMMENDED NEW PRACTICES**

There are several actions that could be taken to improve the infrastructure aspects of road safety in the Solomon Islands, through retrofitting programs on existing networks and the adoption of higher safety standards on new road projects. Road safety should be a central consideration for any investment in the improvement of roads and mobility. This is particularly paramount given the likelihood of increased speeds resulting from road improvements, and by association the increased crash risk which will be experienced.

In the short-term, MID should be supported to identify a set of suitable safety improvements that have a high cost-effectiveness that would form the basis of their infrastructure safety retrofitting programs. These treatments will be identified, and designs developed through ongoing support from World Bank, ADB and JICA, followed by implementation support within the relevant projects. These improvements should focus on physical traffic calming measures at locations with high pedestrian volumes (schools, markets, and so on), as well as the use of safety barriers on bridges and at bridge approaches. As part of maintenance activities, improved road signage, upgraded line marking and footpaths in busier pedestrian movement locations, particularly along roads with adjacent ribbon urban development, should be delivered. Retrofitting programs should target:

- Pedestrian infrastructure; and
- Lower cost mass action safety treatments, such as small roundabouts, gateway treatments at villages, bridge end-post protection barrier treatments, treating poor visibility rural intersections and installation of barriers on hilly roads.

The safe pedestrian infrastructure recommended above would include footpaths free of obstructions, compliant with universal design guidelines, and accessible by children, pregnant women, elderly, and persons-with-disabilities. It also includes safe intersections and pedestrian crossings such as provision of raised pedestrian platforms, highly visible advanced warning signage, adequate street lighting, mid crossing refuges, and traffic calming for motorized vehicles. Other safe and inclusive infrastructure are tactile paving on sidewalks of high-volume transport corridors for the benefit of pedestrians who are blind, proper streetlighting, and proper public transport stops. It is noted that a number of these interventions have already been identified as priorities by MID and will be completed as part of SIRAP. These include the installation of three dedicated pedestrian bridge crossings; the sealing of shoulders where there are schools (0.5 m width for 50 m either side of the school); improvements to drainage; and installation of road signage. In the medium-long term, MID should be resourced to implement a blackspot program that targets problem locations with evidence-based, cost-effective treatments (informed by a georeferenced crash database). This will include activities such as minor infrastructure upgrade projects including roundabouts at higher risk intersections, mass action treatments, installation of pedestrian protection devices, and more.

Bus infrastructure must accompany the bus public transport system. This will be particularly important as public transport demand and the number of buses on the road increases. This includes designated locations where buses are able to pull off the road to stop, as well as signposted bus stops with a safe area off the road for bus passengers to wait.

Safety standards for existing private roads (operated for logging and mining purposes) should be examined by government, possibly through the occupational safety and health unit (within the Ministry of Commerce, Industry, Labor and Immigration) with advice from MID. MID should carefully monitor the condition of public roads near ports and jetties which are utilized by heavy vehicles, and ensure overloading is minimized and that legal action for restitution for any damage is pursued.

There would also be benefits in applying the Movement and Place framework (Figure 20) over time to respond to the actual safety and flow conditions for transport, pedestrian and cycling activity in various environments plus some provision for access for persons-with-disabilities on any street or length of road. The framework matches road function (local streets up to motorways) with user groups and level-of-people activity to create better places for communities. The approach is an important and readily applied subset of Sustainable Mobility for All (Sum4All), as set out in the World Bank Global

Roadmap of Action Toward Sustainable Mobility Report (2019). 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 serious injuries to pedestrians and cyclists. An actual application of this framework is the construction of safe and accessible pedestrian facilities, such as sidewalks, footpaths and crossings throughout Honiara.

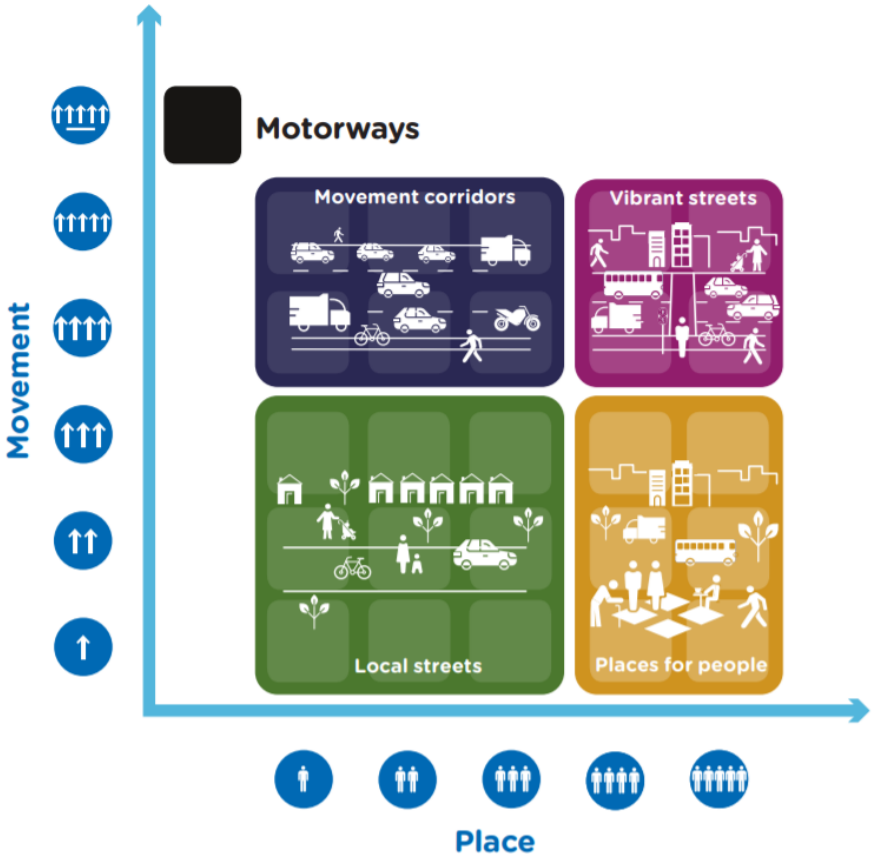


Figure 20 Movement and Place Framework (Transport for NSW 2018)

Development partners should strongly consider making elements of road safety improvement a condition of funding of road projects. In the meantime, until MID establishes a road safety unit, design consultants must be firmly encouraged to design with road safety principles.

MID should agree on and adopt established applicable road design standards such as Austroads, which reflect good road safety practice.

3.3 SAFE VEHICLES

Safe vehicles avoid crashes or reduce crash outcome severity by protecting road users, including occupants, pedestrians and cyclists, in the event of a crash. Countries influence and control the safety standards (crashworthiness and roadworthiness) of the vehicles on their roads through:

- importation safety requirements for crashworthiness standards and specific safety feature standards; and
- roadworthiness standards for the operating condition of vehicles though vehicle inspection and annual registration procedures.

GRSF capacity checklist 3 (see appendix E) was used to inform the below analysis.

3.3.1. REVIEW OF EXISTING PRACTICES

There is currently no limitation on the maximum age of private vehicles that can be imported into the Solomon Islands. Similarly, there are no regulations on the required safety features of imported vehicles. Yearly vehicle inspections are required for vehicle registration renewal by Mechanical Works Services Department (MWSD).

There are currently no regulations on the vehicle specifications of public transport vehicles in the Solomon Islands. Public transport typically consists of 15-seat vans in Honiara and open trailers in the provinces. Quarterly vehicle inspections are required for vehicle registration renewal by MWSD.

Heavy vehicles are relatively prominent in the Solomon Islands, particularly in Malaita with its high levels of logging and mining activity. Like public transport vehicles, these are not regulated in terms of specifications, but are inspected quarterly and yearly.

A record of vehicles imported to the Solomon Islands is kept by the Solomon Islands National Statistics Office (SINSO) under the MoFT and published as part of the International Merchandise Trade Statistics. This data is published in terms of the monetary value, not number of vehicles, however it is assumed that this data is also available within Ministry of Finance and Treasury's (MoFT) Inland Revenue Division (IRD) who issue vehicle registrations following MWSD inspections.

The process for registering a vehicle is summarized in Table 8 Process for registering a vehicle (adapted from Table 9.3-2, Greater Honiara Transport Master Plan Study (GHTMPS), Progress Report, (JICA 2020).

Table 8 Process for registering a vehicle (adapted from Table 9.3-2, Greater Honiara Transport Master Plan Study (GHTMPS), Progress Report, (JICA 2020)

Step	Activity	Responsible ministry
1	Vehicle inspection	MID - MWSD
2	Third party injury insurance is obtained	
3	Certificate of registration is issued	MoFT - IRD

3.3.2. **RECOMMENDED NEW PRACTICES**

It is recommended that the maximum age of used vehicles imported to the Solomon Islands be no more than eight years. This will require amendments to legislation and vehicle inspection processes and for SIG to introduce regulations to require all imported vehicles to meet United Nations Economic Commission for Europe (UNECE) vehicle safety regulations. Evidence shows that vehicles that meet and exceed the requirements of the most important United Nations crashworthiness safety standards contribute substantially to the avoidance of road traffic crashes and to a reduction in the likelihood of serious injury in the event of a crash (WHO 2017). The seven international standards that are increasingly accepted as basic minimum standards for vehicle manufacture and assembly are included in the table 9.

The above changes to the Solomon Islands vehicle fleet – i.e. maximum vehicle importation age and safety feature requirements – are not expected to be step changes, rather transitional changes that may occur over time. The importation requirements, necessary checking and any import administrative requirements will come into effect following the amendments to legislation. Vehicles already in the Solomon Islands will remain.

Table 9 Recommended United Nations safety standards to adopt

Regulation Number(s)	Related To	Description and importance
94. 95	Frontal and side impacts	Protects occupants and ensures that cars withstand the impacts of a frontal and side impact crash at certain speeds.
78	Motorcycle antilock braking systems	These devices prevent wheels from locking during braking. They help motorcyclists to maintain stability and steering control when braking hard by allowing the wheels to maintain traction with the road surface. Whilst there are currently low numbers of motorcycles present in the Solomon Islands vehicle fleet, this remains an important safety feature for those that are present.
127	Pedestrian protection standards	Includes softer bumpers and modification to the front ends of vehicles (for example, removal of unnecessarily rigid structures) that reduce the severity of a pedestrian impact with a car. This is particularly important given the high risk associated with pedestrians being involved in crashes in Solomon Islands.
140	Electronic stability control	Prevents skidding and loss of control in cases of oversteering or understeering. Single vehicle loss of control (which is a considerable cause of crashes in Solomon Islands) can be reduced substantially through the introduction of electronic stability control.
14, 16	Seat belts and anchorages	Ensures that seatbelts are fitted in vehicles during manufacture and assembly and that seatbelt anchorages can withstand the impact incurred during a crash.

The introduction of regulations for heavy vehicle and bus standards should also be prioritized. A vehicle registration system is critical to ensure effective administration of all vehicles on Solomon Island roads.

MID should ensure that their vehicle roadworthiness inspections, that are requirements of annual vehicle registration, are effective and meet basic safety requirements for key safety features including the condition of tires, steering, brakes and windscreen condition. It will be necessary for arrangements for robustly testing these features efficiently but comprehensively to be put in place and maintained.

3.4 SAFE ROAD USERS

Safe road users are alert, unimpaired, aware of and comply with road rules. Many countries over-estimate both the effectiveness and potential benefits of countermeasures targeting road user behavior. It should be noted however, that valuable resources can be wasted on ineffective interventions targeting road user behavior, such as campaigns that are not strongly linked to particular enforcement efforts, school education programs that seek to provide general road safety knowledge rather than skills development. Well-planned and resourced enforcement, however, is highly effective.

GRSF capacity checklist 4 (see appendix E) was used to inform the below analysis.

3.4.1. REVIEW OF EXISTING PRACTICES

In general, road user awareness of road rules and safe practices across key user types—such as pedestrians and drivers—is low in the Solomon Islands. A key contributing reason for this is that a set of national road rules to govern road user behavior is yet to be developed. Details on the existing practices of vehicle drivers, public transport, road safety education and traffic law enforcement are provided below.

VEHICLE DRIVERS

Road safety is inherently connected to the standard of vehicle driver training, testing and licensing.

According to the Solomon Islands Traffic Act (1996) the minimum age for obtaining a license is:

- 16 for motorcycle riders
- 17 for private motor car or light goods vehicle drivers
- 21 for public service vehicle drivers, or 18 with the written consent of a licensing officer
- 18 for all other motor vehicles drivers (assumed to include heavy vehicles.)

No person shall drive a motor vehicle of any class on a road unless they hold a valid driving license, or a provisional license endorsed with respect to that class of vehicle. To obtain a license, a person must pass a test of competence to drive that class of motor vehicle or produce to the licensing officer a current driving license issued to them by a recognized licensing authority.

The process for obtaining a private vehicle driver's license in the Solomon Islands is summarized in Table 10 Process for obtaining a private vehicle driver's license (adapted from Table 9.3-1, Greater Honiara Transport Master Plan Study), Progress Report, JICA 2020). A three-month provisional license can be issued to people aged 17 and above. However, there is no associated requirements for the minimum number of hours to be logged, or requirements for night driving experience prior to undergoing the theoretical and practical testing, and ultimately being issued with a full driver's license.

Table 10 Process for obtaining a private vehicle driver's license (adapted from Table 9.3-1, Greater Honiara Transport Master Plan Study), Progress Report, JICA 2020)

Step	Activity	Responsible ministry
1	Individual applies for provisional license	MoFT - IRD
2	Provisional license is issued (valid for three months)	MoFT - IRD
3	Individual gains driving experience through driving on the road with a full private vehicle driver's license holder.	-
4	Individual undergoes theoretical and practical testing	MID - MWSD
5	Pass certificate is issued for testing	MID - MWSD
6	Full driver's license is issued	MoFT - IRD

There are perceived problems with younger driver competence as well as issues with the number of unlicensed drivers on the road. Research has shown that unlicensed drivers can experience much higher rates of crash involvement compared to licensed drivers.

A heavy vehicle driver's license can be obtained at the age of 18, and a public service vehicle driver's license at the age of 21 (or at 18 with the written consent of a licensing officer). There are no experience requirements to drive these classes of vehicle and no further testing. Anecdotally, the poor behavior and skill of bus drivers is an issue.

PUBLIC TRANSPORT

Many stakeholders have flagged the issue of the behavior of public transport drivers such as drivers of minibuses, buses, and flatbed trucks. While these vehicles are different in terms of configuration, they all share the same operational and business model, which is a revenue-based system. This means that the income of the drivers and operators depend on the number of passengers they can transport.

While to some extent, unsafe behavior can be attributed to some individual drivers, the current operational model forces public transport drivers to compete for passengers and have unpredictable movement and behaviors on the road. This unsafe behavior is characterized by frequent acceleration and stops, long idle times, and excessive overtaking and lane changing to compete for passengers. The current operational model of public transport combined with socio-economic factors also push drivers to driving without sleep or fatigue which prevent them from being alert and safe on the road.

Facing a greater risk are users of flatbed or open trucks which is the most common public transport in rural areas. The consequences of a vehicle carrying several unrestrained passengers with no vehicle body protecting them being involved in a road crash are substantial. The inherent lack of safety of carriage of passengers in unprotected load areas of light trucks, whether private transport arrangements or not, should be carefully reviewed as a priority. There are a limited number of fixed public transport stops available especially in the urban areas. There will be instances when buses will load and unload passengers in the middle of the road. This forces pedestrians to suddenly cross the road exposing them to conflicts and crashes with incoming traffic.

Vehicle overloading was also noted as a significant road safety concern and is again influenced by the revenue-based system. According to the Traffic Act 1996 (SIG1996)*:*

- No vehicle shall be used on a road with a load greater than the load specified by the manufacturer of the chassis of the vehicle or than the load capacity determined by an inspector under the Act; and
- No vehicle shall be used on a road if it is loaded in such a manner as to make it a danger to other persons using the road or to persons travelling on the vehicle.

Overloaded vehicles are less stable, difficult to steer and take longer to stop, all posing serious safety risks.
The revenue-based model of public transport is a huge safety risk especially as most of the population relies on public transport. This also explains why a significant proportion of crashes involve flatbed trucks which are mostly used for public transportation.

In other Pacific Island Countries, trials are being conducted of speed monitoring for speed limit compliance by buses by government transport authorities, using GPS. Improved speed limit signage would enable enforcement for compliance, including application of technology of this nature, to be implemented effectively. It is important that a recognized road safety risk is addressed. It is recommended that steps are taken to monitor public bus speed compliance, with continued operation to be dependent on an operator not exceeding certain performance criteria annually. It is also important that bus operations are reviewed to identify measures which will reduce economic incentives to speed.

ROAD SAFETY EDUCATION

Lack of awareness of road rules and general safe road user behavior among vehicle drivers and pedestrians was noted as an issue by several stakeholders. This is of particular concern for pedestrian safety, which was flagged as a key road safety issue by the stakeholders and is confirmed through the GRSF country profile data included in chapter 1 and appendix F. There are currently no basic road safety programs incorporated within the Solomon Islands school curriculum to support this essential learning, such as concepts regarding how and where to safely crossroads, which is especially crucial given most school students walk to school. Further, some students come to Honiara from the provinces to study and these students are not accustomed to living in the city and have little to no experience with roads and vehicles.

While general public awareness and deterrence campaigns are not currently a SIG focus, it is noted that RSIPF have previously provided some resources towards this effort in the form of radio announcements and presentations to small gatherings.

The presence of bicycles is currently low in the Solomon Islands, however scooters and motorcycles are increasing in number (data collected for the Greater Honiara Masterplan (JICA, 2020) indicates motorcycles have increased by between two and three times along sections of Kukum Highway between 2013 and 2019). Currently, the main deterrent for these vehicle types is the presence of potholes and generally poor road conditions. Drivers are currently untrained to react to these emerging user types and this will need to be addressed as they continue to increase in number, particularly as road conditions are improved.

TRAFFIC LAW ENFORCEMENT

Traffic law enforcement is the responsibility of RSIPF, which has several resourcing constraints both in terms of equipment and staffing. These are limiting the extent of enforcement and its effectiveness. Additionally, the current legislative arrangements which enable RSIPF to carry out enforcement tasks are not conducive of a robust traffic law enforcement operation. There is currently no legislation for RSIPF to issue roadside infringement notices. Rather, all persons who commit a traffic-related offence are issued with a court summons. This system is not resource efficient for RSIPF, requiring police officers to prepare court briefings and attend court, or the justice system more broadly. Current traffic law enforcement efforts are suffering as a result of this system.

Drink driving has been identified as a critical issue in the Solomon Islands and is likely a large contributor to the high proportion of pedestrian deaths (as a result of both intoxicated drivers and intoxicated pedestrians). In fact, half of all vehicular crashes are alcohol related (Stewart and others 2015). According to the *Criminal Law in Solomon Islands, Chapter 50: Liquor Act* (SIG 1978):

- It is an offence to consume liquor in a moving or stationary motor vehicle; and
- It is an offence to consume alcohol under the age of 21.

According to the *Police and Transport Legislation (Amendment) (Alcohol Testing) Act 2016* (SIG 2016)*:*

- Police officers have the power to conduct alcohol testing on the person driving a vehicle, a person who is in the driver's seat and attempting to put a vehicle in motion, or a person who the officer has reasonable cause to suspect was within the previous hour driving or in charge of a vehicle and was driving or in charge of the vehicle at the time it was involved in a crash; and
- The Blood Alcohol Concentration (BAC) limit is 0.05 percent. This is in line with international good practice for experienced drivers of private vehicles. However, it is considered high for young drivers—within the first three years of driving—and for drivers of commercial or large vehicles.

It is acknowledged that the legal drinking age of 21 serves to restrict young drivers from consuming any alcohol and driving. However, there is evidence that many young people consume alcohol and that levels of enforcement are low.

There is no existing legislation that restricts people from driving under the influence of drugs (both legal and illegal).

Enforcement efforts are being made by RSIPF through random breath testing (RBT), as documented in their annual reports, however the prevalence appears to be currently larger than the available enforcement resources can respond to. Drivers and passengers of vehicles in the Solomon Islands are not legally required to wear a seatbelt. Similarly, there is no child restraint legislation, nor is there a restriction against children sitting in the front seat.

Speeding is not currently a major issue in the Solomon Islands, since generally poor road conditions naturally slow drivers down. With increased investment in road upgrades, speeds are likely to increase, as are the risk of fatalities. It is therefore important that enforcement measures are in place (as well as various design interventions) to ensure that these risks are mitigated. According to the *Traffic Act 1996* (SIG 1996)*:*

- It is an offense to drive a motor vehicle on a road at a speed greater than the speed prescribed in the Act
- The RTB may prescribe speed limits; and
- A highway authority (RTB) shall erect and maintain traffic signs to indicate to drivers entering or leaving such areas or roads the speed limits and where they begin and end.

The current critical issue surrounding speed and speed management is the lack of speed limit signage. This means that drivers are unaware of the speed limit. This highlights a broader issue of understanding of road traffic laws. Lack of signage also prevents police from effectively enforcing speed limits. There is also currently no legislative provision for the use of electronic speed guns by RSIPF.

3.4.2. **RECOMMENDED NEW PRACTICES**

VEHICLE DRIVERS

The adoption of expanded learner arrangements for novice drivers in the Solomon Islands is recommended in the next ten years. Limitations should be introduced that are in place for a three-year period after achieving solo licensing. Limitations

could include a passenger restriction of one peer aged passenger with all other passengers who are either immediate family or fully licensed drivers, and a zero BAC limit for novice drivers up toto 21 years of age (legal drinking age) or a two-year period of zero BAC limit for novice drivers 21 years of age or older. In the learner period, drivers from 16 years of age should complete 60 hours of supervised driving practice under the supervision of a fully licensed driver. The learner driver should fill out a logbook which is countersigned by the supervisor after each practice session and has to be presented to the testing officer at MWSD before sitting for the practical driving test from age 17. This responds to international knowledge that it is critical for learners to develop experience in real traffic conditions in order to reduce their crash risk. This learner driver approach would be part of a potential graduated licensing system (GLS), which seeks to progressively match increased risk on the roads to the increased driving experience young drivers have achieved. An outline of the GLS in place in New South Wales, Australia, is shown in Figure 21.

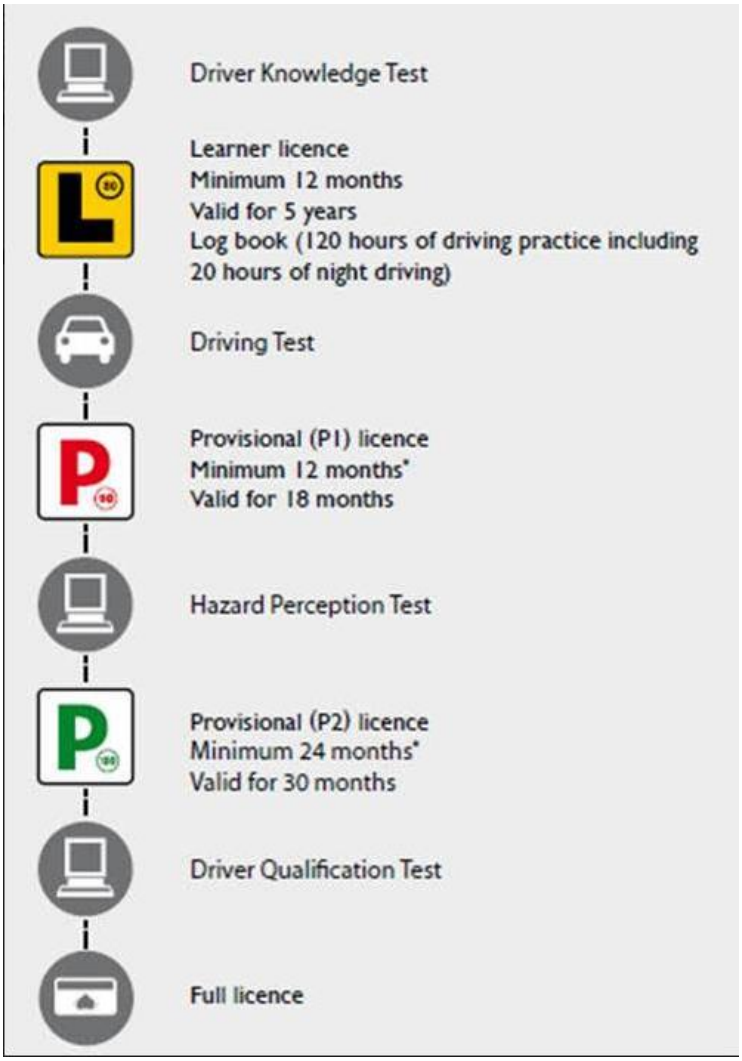


Figure 21 GLS in place in New South Wales, Australia

ROAD SAFETY EDUCATION

Lack of awareness of road rules and safe road practices needs to be addressed in parallel to infrastructure upgrades in the Solomon Islands. Road safety education programs should focus on five key road safety issues relating to school children, 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 so on. In theory, MEHRD have indicated that they see the value of this type of program being incorporated into the school curriculum. It is recommended that SIG work with other Pacific Island Countries (PICs), such as Fiji, to develop a basic school road safety education program for the Solomon Islands. This program of basic practical road safety training (to include crossing roads safely, safe use of buses, accessing the school entry safely, safe transport to school and safe bicycle use) should be delivered by school teachers who understand the learning needs of their students, and are trained to do this.

Measures to be pursued within the general community will also require attention and this should be driven by the National Road Safety Council (NRSC), and led by MID. It is recommended that RSIPF be supported to re-establish their behavior change campaigns within the community. Campaigns should aim to:

- Inform of the risks and consequences of unsafe road behavior;
- Provide education on the road rules and how to safely use the road as all user types;
- Deter drink driving through reporting on numbers of drivers screened and offences detected;
- Deter speeding through reporting on numbers of RBT and offences detected; and
- Inform of the benefits of seatbelts, child restraints and helmets.

These campaigns should be part of a comprehensive program which also includes legislative change and education.

PUBLIC TRANSPORT

Strong consideration for the implementation of public transport reforms is required in the Solomon Islands, starting in Honiara. These reforms should focus on public transport operations (for buses, minibuses, flatbed trucks) and should aim to reduce economic incentives to speed and to eliminate dangerous on-street competition as well as other unsafe behaviors. MID, working together with stakeholders such as bus operators, can experiment with various legal and institutional structures that will set fixed public transport routes and stops, standardize wages for public transport drivers, and set driving and vehicle safety standards. These standards include maximum hours of operations for drivers, installing speed limiters, among many other things. An example is implementing a service contracting scheme where a government body will pay operators and drivers a service fee to run routes provided, they meet certain performance and safety standards. JICA is also currently conducting a study on bus transport operations along Kukum Highway. This study can serve as guide as to how to further improve the safety of public transport in Honiara.

Outside Honiara, MID can work with local communities to develop demand-based or schedule-based point-to-point bus services that will efficiently and safely connect communities to the city center. This will ensure that vehicle safety standards are met, communities are given adequate transport options, and vehicle overloading is prevented.

In addition to reforms in operations, public bus speed compliance should be mandated, with continued operation to be subject to no more than three speed infringements per year.

TRAFFIC LAW ENFORCEMENT

Traffic law enforcement targets adequate enforcement of road laws and rules to achieve good compliance levels by road users and seeks to strengthen legislation. The resourcing constraints on RSIPF are acknowledged and a tactical plan and

additional resourcing from SIG is required. It is understood that the RSIPF Traffic Department has put forward an application to expand its staff resources from 40 to 60 staff. This is recommended as a necessity for improved road safety outcomes in the Solomon Islands.

The current legislative system supporting traffic law enforcement requires review. An infringement system should be developed to allow RSIPF to issue roadside infringement notices, rather than only court summons. This will reduce the cost to the court system, particularly for simple offences such as speeding <10 km/h. over the speed limit that would not require thorough court analysis. Existing links with the Australian Federal Police should be leveraged to support this, as well as the development and implementation of the recommended actions described below.

A legislative requirement for wearing of seatbelts in vehicles where belts are fitted (updated vehicle import regulations should require seat belts fitted for all seats) and enforcement of this legislation, plus legislation requiring fitting and wearing of child restraints for young children should be introduced and then robustly enforced.

Speed compliance should be a traffic police priority, particularly as it becomes a larger risk as a result of increased investment in road upgrades. First and foremost, this should be through legislating speed limits that are aligned with the Safe System Approach (see section 3.6 for more details). It is then essential that the general public are aware of these speed limits through the installation of speed limit signage, and that these limits are enforced by RSIPF in a robust and widespread manner. However, as an enforcement priority speed limit compliance in higher pedestrian activity areas and by public buses in Honiara should be the focus. The installation of automated speed cameras should be planned for within the decade, particularly at these high-risk locations.

An increased focus on drink driving is needed in the Solomon Islands, which can be enabled through expanded resourcing for RSIPF and the purchase of necessary equipment. It is recommended that drink driving enforcement be expanded to 30,000 RBTs per year. Beyond this, the health system should be resourced to implement blood sampling to detect alcohol levels above legal limits for drivers in all fatal and serious injury crashes, supported through legislative arrangements. 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. It is estimated this will take up to five years as the administrative and legislative requirements for interlock system are complex and will take time to implement. The legal BAC limit for heavy vehicle (those > 4.5-ton GVM) drivers and public transport vehicle drivers should be reduced from 0.05 percent to 0.02 percent. Further, as described above, the legal BAC limit for novice drivers in their first three years of driving should be 0.00 percent.

General steps to enhance speed and drink driving enforcement would include:

- SIG to agree and implement an enforcement program;
- Legislate and regulate for use of specific equipment;
- Procure speed guns/more breathalyzers;
- Train RSIPF on the use of equipment and tactical operational planning and programming;
- Ensure adequate administrative processing and follow up of infringements for payment are established;
- Conduct campaigns to warn public and deter speeding and drink driving;
- Report on levels of vehicles screened and offences detected;
- Move to automated offence processing for lower level infringements, not requiring court appearances; and
- Review the first 12 months of implementation.

Increased checking for unlicensed drivers could be carried out in association with a significantly expanded RBT regime. More generally, a stronger focus on police training in road crash data collection and investigation activities should be a recognized priority and a program of training is planned under this project later in 2020. The Australian Federal Police (AFP), who are already providing support to RSIPF, are an established critical advisor that could provide supplementary training and guidance. It is noted that the AFP are currently investigating possibilities to sponsor a dedicated traffic advisor to be in the Solomon Islands for a time period to support the National Traffic Department.

Training programs to train traffic police in the use of enforcement equipment and tactical operational planning and programming, as well as in road crash investigation is also necessary.

A new road rules initiative should be considered with MID and Police, Ministry of Justice and Legal Affairs (MJLA) and the Attorney General's Department (AGD) leading their development and with an extensive program of police officer familiarization and public awareness being carefully crafted before any implementation. It will also be necessary for MID with Police to adopt a specific road signage guideline which will have linkage to the road rules.

3.5 POST-CRASH CARE

3.5.1. REVIEW OF EXISTING PRACTICES

The ambulance services operators within the Solomon Islands, together with Ministry of Health and Medical Services (MHMS) are responsible for care and retrieval of crash victims from the roadside to post-crash emergency treatment. Post-crash care is currently limited by the number of ambulances with appropriate equipment and availability of trained paramedics within the Solomon Islands.

GRSF capacity checklist 5 (see appendix E) was used to inform the below analysis.

PRE-HOSPITAL

In the Solomon Islands, post-crash emergency response is delivered through the different health facilities: hospitals, health clinics, nurse aide posts, and village health workers although patients are usually referred to the National Referral Hospital (NRH) in Honiara for emergency care. However, this ultimately depends on location, weather conditions, and transportation availability. Small airplanes are only available during the day and therefore emergencies during the night often do not receive urgent medical treatment (Hodge and others 2015). An emergency number and emergency communications center has recently been established to coordinate the pre-hospital emergency response. There is a database associated with this, but it is still in its infancy and so this data has not been analyzed in this assessment. St John's Ambulance is in its third year of operation in the Solomon Islands and has 11 ambulances deployed, four of which are in Malaita. It is operated under Australian standards, with training of staff in equipment and ambulance driving provided by Australian paramedics from the state of Queensland. Despite this, there are serious deficiencies in the number of resources available (maximum of 35 staff members) and the qualifications of staff. All St John's Ambulance staff are volunteer nurses and there are no full-time staff or trained paramedics as part of the service. Further, the review team was made aware that approximately 20 percent of St John's Ambulance drivers don't have a driver's license. This, as well as the lack of trained paramedic staff, is a key concern.

There are different types of health facilities in the Solomon Islands. The main facilities are rural health clinics, area health centers, provincial hospitals, and the NRH (Table 11). Each type of health facility has varying degrees of resources which attend to the needs of the surrounding population (WHO 2014). Treatments for crash injuries are mostly available in the NRH which houses specialists and its own orthopedic department.

Table 11 Characteristics of Different Health Facilities in Solomon Islands (WHO 2014)

Type of facility	Total	Population of catchment area	Authority	Services offered	Health workers posted
Rural health clinic 1	185	0–1500	Wards	Primary (day care), public health	Nurses, village health workers, traditional birth attendants Nurse aides to be phased out
Rural health clinic 2	103	1500–3000			
Area health centres (1 & 2)	37	3000–20 000+	Area council	Primary care (day and some admissions, especially postnatal)	Assistant nursing officers, nurses
Provincial hospitals: Small Large	(9) 7 2	20 000–60,000 60 000–100 000+	Provincial	Primary and secondary care (day and inpatient)	Doctors, nurses and paramedical staff
National Referral Hospital	1	Nationwide	National	Secondary and tertiary care (day and inpatient)	Specialists, general practitioners, nurses, paramedical staff

There is a lack of health workers for all types of patients throughout the country and in 2013 there was found to be barely one health worker for 1000 population except for nursing personnel (Table 12) (WHO 2014).

Table 12 Health Professionals in Solomon Islands (WHO 2014)

Health Professional Group/Cadre	2008[1]		2012[2]		2013[2]	
	Total	HW/1000 population (Pop. 510 221)	Total	HW/1,000 population (Pop. 552 267)	Total	HW/1,000 population (Pop. 581 358)
Generalist medical practitioners	89	0.17	65	0.12	107	0.18
Specialist medical practitioners			21	0.04	-	-
Nursing personnel	694	1.36	966	1.75	890	1.53
Nurse aides/nurse assistants	-	-	-	-	108	0.19
Dentists	52	0.1	57	0.1	27	0.05
Dental technicians and assistants		-	-	-	31	0.05
Pharmaceutical personnel	53	0.1	61	0.11	75	0.13
Medical imaging and therapeutic equipment technicians	-	-	21	0.04	21	0.04
Medical and pathology laboratory technicians	-	-	36	0.07	42	0.07
Physiotherapists	-	-	6	0.01	25	0.04
Physiotherapy technicians and assistants	-	-	14	0.03	-	-
Environmental and occupational health and hygiene professionals	-	-	173	0.31	180	0.31
Public health and health promotion	-	-	52	0.09	88	0.15
Social work and counselling professionals	-	-	12	0.02	13	0.02
Non-health professionals not elsewhere classified	-	-	45	0.08	148	0.25
Clerical support workers	-	-			58	0.10
Domestic and ancillary support workers	-	-	158	0.29	14	0.02
Total	**888**	**1.73**	**1687**	**3.06**	**1827**	3.14

In addition, these health workers are mostly located in the NRH. Table 13 shows the distribution of health workers. 33 percent of all practitioners work in NRH while the rest of the population who reside outside Honiara (more than 80 percent)

are catered to by at least only 47 percent. This imbalance implies that crash injuries from rural areas will less likely receive treatment than those from Honiara.

Table 13 Distribution of Health Professionals in Solomon Islands (WHO 2014)

Health Professional Group/Cadre	Total	NRH		HQ		Donor		Provinces	
		N	%	N	%	N	%	N	%
Medical practitioners	107	72	67.3	10	9.3	1	0.9	24	22.4
Nursing personnel	890	240	27.0	115	12.9	0	0.0	535	60.1
Nurse aides/nurse assistants	108	82	75.9	0	0.0	0	0.0	26	24.1
Dentists	27	13	48.1	0	0.0	0	0.0	14	51.9
Dental technicians and assistants	31	15	48.4	0	0.0	0	0.0	16	51.6
Pharmaceutical health workers	75	12	16.0	27	36.0	0	0.0	36	48.0
Medical imaging and therapeutic equipment technicians	21	11	52.4	0	0.0	0	0.0	10	47.6
Medical and pathology laboratory technicians	42	26	61.9	0	0.0	0	0.0	16	38.1
Physiotherapy personnel	25	7	28.0	4	16.0	0	0.0	14	56.0
Environmental health and hygiene professionals	180	0	0.0	42	23.3	49	27.2	89	49.4
Public health and health promotion	88	0	0.0	38	43.2	0	0.0	50	56.8
Social work and counselling professionals	13	0	0.0	7	53.8	0	0.0	6	46.2
Non-health professionals not elsewhere classified	148	98	66.2	31	20.9	2	1.4	17	11.5
Clerical support workers	58	12	20.7	36	62.1	4	6.9	6	10.3
Domestic and ancillary support workers	14	14	100.0	0	0.0	0	0.0	0	0.0
Total	**1827**	**602**	**33.0**	**310**	**17.0**	**56**	**3.1**	**859**	**47.0**

REHABILITATION

The Orthopedic department of the NRH supported by physiologists and occupational therapists leads rehabilitation and long-term care for those injured in road crashes. Currently, the rehabilitation ward in the NRH is not operational.

3.5.2. **RECOMMENDED NEW PRACTICES**

PRE-HOSPITAL

As roads are being developed and subsequently more crashes occur, ambulance coverage (including airplanes) should be expanded, particularly in Guadalcanal, Malaita and other islands. This is an essential service and its improvement would continue to be supported by SIG. The allocation of resources is essential so to provide further training of local health staff as paramedics.

HOSPITAL AND REHABILITATION

Dedicated attention to the strengthening of the health system is vital. Provincial hospitals should be equipped to attend to crash injuries so that post-crash care will be accessible in each province. Further, hospital-based surveillance of road crash injuries and subsequent follow up on disability will help estimate the long-term impact of road traffic crashes.

3.6 SAFE SPEEDS

3.6.1. REVIEW OF EXISTING PRACTICES

As noted in sections 3.2 and 3.4, there is a lack of speed limit signage on both urban and rural roads in the Solomon Islands. This means that speed limits are not known throughout the community, nor are they readily enforced. The observed vehicle operating speeds on the Solomon Islands road network are generally between 30-80 km/h for light vehicles, and between 20-60 km/h for heavy vehicles (SMEC, 2020).

The speed limit in Honiara city is 50 km/h, although this is unknown by most stakeholders. In general, this limit is aligned to the Safe Systems Approach, however no reduced speed limits are applied to highly pedestrianized areas such as outside schools, which represent good Safe System practice.

Speed limits are outlined in the *Traffic Act 1996 (First and Second Schedules)* (SIG 1996); however, these are not clearly defined and are provided in miles per hour.

3.6.2. RECOMMENDED NEW PRACTICES

It is critical that speed limits on both urban and rural roads are reviewed, agreed and clearly defined in legislation. This should be a priority task for the NRSC and should be supported by the establishment of a road hierarchy. A road hierarchy is a means of defining each roadway in terms of its function such that appropriate objectives for that roadway can be set and appropriate design criteria can be implemented. Basic road hierarchies consist of local roads (which have the lowest speed limit, carry low volumes of traffic and have a number of accesses of them), distributor roads (which have a slightly higher speed limit, collect traffic from local roads and distribute it to arterial roads), arterial roads (major through roads with higher speeds and higher volumes of traffic), and highways (which provide largely uninterrupted travel with high speeds and high traffic volumes). For instance, the function of a local road through a village is different to the function of a major road such as the Kukum Highway and as such, they will have differing objectives and design criteria, such as speed. However, it is critically important that functional classification of each road recognizes the actual function of a road (abutting development, presence of pedestrians and bicycles, facilities present to enable safe pedestrian movement across the road and the safety of intersection treatments for vehicles), and the safe travel speed determined should reflect the application of safe system principles about infrastructure safety in combination with the safety features of vehicles using that section of road to avoid fatal crash outcomes in the event of a crash.

The theoretical function that may be desired for a road section must not outweigh what a safe speed, based on safe system principles, should be. Following the agreement of speeds for the road network, it is essential that speed limit signage is installed, the public are educated in its meaning, and it is enforced. As noted previously, efforts are being made to introduce signage throughout the Solomon Islands through existing ADB, JICA and World Bank-funded projects. Additionally, there are existing proposals for speed limit reductions through SIRAP (in the Malaita roads component). These are reflective of good safety practice, in line with the safe speeds pillar. The proposed reductions are for a 40 km/h island-wide speed limit and 20 km/h at the following locations:

- One km away from intersections;
- High-risk areas (schools, villages, churches, marketplaces, hospitals, urban ribbon development and so on); and
- Key pedestrian interface areas (schools, villages, churches, marketplaces, hospitals and so on).

It is recommended that these efforts be expanded to the entirety of the Solomon Islands.

In the longer term, MID will require resources within their maintenance budget to also install pavement platforms where lower speeds are required in higher activity pedestrian areas.

Public bus speed limit compliance would need to be actively monitored and enforced, with continued operation to be subject to no more than three speed infringements per bus per year, and altered incentives to be identified to avoid systemic encouragement of speeding and unsafe overtaking

REFERENCES

Carsten, O, D Sherborne and J Rothengatter. 1998. "Intelligent traffic signals for pedestrians: an evaluation of trials in three countries." *Transportation Research* 6: 213-229. https://www.researchgate.net/publication/222269485_Intelligent_traffic_signals_for_pedestrians_Evaluation_of_trials_in_three_countries.

Hodge, N, B Slayter, L Skiller. 2015. "Solomon Island Health System Review." *Health Systems in Transition* 5 (1): 72-81. https://apps.who.int/iris/bitstream/handle/10665/208212/9789290616931_eng.pdf;jsessionid=DB23A6229AFA107B52F8CE609E39D934?sequence=1.

JICA (Japan International Cooperation Agency). 2020. Greater Honiara Transport Master Plan Study (GHTMPS), Progress Report. Japan: JICA.

MID (Ministry of Infrastructure Development). 2013, *Specification for Road and Bridge Works, Edition 1, February 2013.*

Minter, T, G Orirana, D Boso and J van der Ploeg. 2018. From happy hour to hungry hour: Logging, fisheries and food security in Malaita, Solomon Islands. Penang Malaysia: WorldFish Program. Report.

SIG (Solomon Islands Government). 1978. "Criminal Law in Solomon Islands" *Liquor Act*. http://www.paclii.org/sb/criminal-law/ch50-liquor-act.htm.

SIG (Solomon Islands Government). 1996. *Traffic Act 1996*. http://www.paclii.org/cgi-bin/sinodisp/sb/legis/consol_act/ta77/ta77.html?stem=&synonyms=&query=traffic%20act.

SIG (Solomon Islands Government). *Police and Transport Legislation (Amendment) (Alcohol Testing) Act 2016*. http://www.paclii.org/sb/legis/num_act/patlta2016561/.

Stewart, MJ, J Negin, P Farrell, P Houasia, AB Munamua and A Martiniuk. 2015. "Extent, causes, and impact of road traffic crashes in the Solomon Islands 1993-2012: data from the orthopedic department at the National Referral Hospital, Honiara." *Rural and Remote Health* 15: 29-45. http://www.rrh.org.au.

Sustainable Mobility for All. 2019. *Global Roadmap of Action Toward Sustainable Mobility*. World Bank. Washington DC

Transport for NSW. 2018. *Future Transport Strategy 2056*. Transport for NSW. https://future.transport.nsw.gov.au/sites/default/files/media/documents/2018/Future_Transport_2056_Strategy.pdf.

WHO (World Health Organization). 2014. Human Resources for Health Country Profiles: Solomon Islands. WHO. https://iris.wpro.who.int/handle/10665.1/10917.

WHO (World Health Organization). 2017. *Save LIVES - A road safety technical package*. Geneva: World Health Organization. http://www.towardszerofoundation.org/wp-content/uploads/2017/05/SaveLIVES.pdf.

[18] Also see "RSIPF concerned about deaths from road accidents involving logging operations". https://www.facebook.com/RSIPF/posts/2393454304081277/

4. NEXT STEPS

The following sections outline suggested next steps in terms of setting a national road safety vision and strategic direction, and priority activities for the Solomon Islands relating to road safety. The activities plan should demonstrate the Solomon Islands Government's (SIG) commitment to improving road safety outcomes and embrace the Safe System Approach. It will set out the practical steps, strategic interventions and commitment to a road safety management system that will build towards the realization of the road safety vision and strategic direction to be set by SIG.

4.1 VISION FOR ROAD SAFETY

The development of a national vision for road safety in the Solomon Islands is critical so to ground the planning and delivery of required management and interventions. The vision sets the goal for road safety aspiration in the Solomon Islands.

The recommended road safety vision for the Solomon Islands is for the elimination of road crash fatalities and serious injuries by 2050, with progressive reduction targets to be set and achieved in the intervening years. This vision will guide any road safety strategy developed and implemented in the Solomon Islands. The strategic direction recommended for the Solomon Islands should be to:

- Improve road safety and Safe System awareness within government and the community by 2030 by:
    - Implementing road safety governance and lead agency mechanisms;
    - Identifying performance through measuring and reporting on outcomes and intermediate outcome indicators; and
    - Developing a strengthened road crash data system and associated analysis and distribution of findings from 2021.
- Progressively implement priority actions across the Safe System pillars based on local and international evidence of effectiveness and on crash and other road safety indicator data.

4.2 TARGETS

Applying targets to the road safety effort in the Solomon Islands will help to maintain casualty reduction as a policy priority, show the commitment to road safety of SIG to the community, encourage community understanding of the road safety challenge and promote necessary behavior change, motivate SIG to deliver road safety improvements, and generate demand for data collection for forecasting and monitoring purposes. All of these elements will ultimately lead to better road safety outcomes in the Solomon Islands.

Road safety targets should be both vision-based, as well as empirically derived from crash data. The United Nations General Assembly adopted a resolution on road safety in September 2020 that endorsed the forward-looking Stockholm Declaration, calling for a new global target to reduce road traffic deaths and injuries by 50 percent by 2030 on the way to Vision Zero by 2050. It invites strengthened efforts on activities in all pillars of the Global Plan for the Decade of Action and an accelerated shift to safe, affordable, accessible and sustainable modes of transport like walking, cycling and public transit.

The recommended targets for the Solomon Islands are therefore:

- The elimination of fatalities and serious injuries by 2050, with progressive reduction targets in the intervening years (Vision Zero)

- A 50 percent reduction in fatalities and serious injuries from 2020 to 2030 in line with the United Nations Global targets adopted at the Stockholm Ministers meeting
- Incorporate road safety policy and targets into the Ministry of Infrastructure Development (MID) Corporate Plan.

4.3 PRIORITY ACTIVITIES AND DEVELOPMENT OF A STRATEGY

For the immediate term (2021 to 2023) it is recommended that priority activities are identified, agreed and implemented. From 2024, a strategy and an action plan can be developed and agreed based on a level of road safety literacy achieved by that time across the key ministries. A subsequent action plan could be developed and implemented (after review in 2026) from 2027 to 2030.

The activities proposed for Period A (2021 – 2023) are not considered as an action plan, as acquisition of experience and development of organizational and management arrangements will be necessary before this can meaningfully occur.
For Period B (short-term, 2024 – 2026 years) a strategy and action plan could be prepared based on knowledge acquired in the first few years of road safety establishment and implementation.

For Period C (medium term, 2027 – 2030 years) a revised action plan could be implemented.

The priority activities recommended for attention in the immediate period (2021 to 2023) are limited in recognition of the substantial knowledge development period ahead for all ministries. The training and knowledge development program for SIG road safety related personnel needs to be substantial and adequately resourced to ensure it takes place and achieves critical mass in terms of spreading technical knowledge. Without the development of an informed group of SIG officers in key ministries who are focused on strengthening institutional functions, enabling actions and final interventions, achievement of meaningful and sustainable road safety progress will be unlikely.

A list of specific priority activities is included in the tables below with three recommended implementation period timings:

- Period A: 2021 – 2023
- Period B: 2024 – 2026
- Period C: 2027 – 2030.

The financing needs column represents the approximate total financing needs for each action and is categorized as Low (< US$50,000), Medium (US$50,000-US$150,000) and High (> US$150,000).

4.3.1. **PRIORITY ACTIVITIES FOR PERIOD A: 2021-2023**

During 2021-2023, it is proposed to commence and implement 14 institutional management priority activities, and 15 Safe System intervention priority activities. These are outlined in tables 14 and 15.

Table 14 Institutional management priority activities for implementation period 2021-2023

#	**Institutional management function**	**Activity**	**Proposed Responsible Organization(s)**	**Financing Needs**
A1	Results focus and coordination	Form a National Road Safety Committee (NRSC) (Executive Group) that reports to a Ministerial Group and is supported by a Working Group. See Figure 15 for the recommended governance arrangements.	MID	Low
A2		Adopt an ambitious but realistic road safety vision to 2050 and medium-term road safety targets (from 2020 to 2030).	NRSC	Low
A3		Adopt a road safety activity plan 2021- 2023.	NRSC	Medium
A4		Nominate MID as lead agency for road safety in Solomon Islands.	NRSC	Low
A5		Document the road safety roles and responsibilities of the relevant ministries	NRSC	Low
A6		Develop, resource and implement an initial program for comprehensive training (knowledge and skills) and briefing of road safety and other staff in all relevant ministries, including training of private sector engineering consultants.[19]	NRSC	High
A7		Establish a road safety unit in MID to guide knowledge development and application, plus provision of a road safety secretariat with a policy function to support NRSC and the Working Group.	MID	Medium
A8	Legislation	Further develop a well-coordinated policy development and legislative drafting processes for consideration of initiatives by Cabinet through the NRSC.	MJLA. AGD	Medium
A9	Funding and resource allocation	Develop awareness within ministries and at Cabinet level that: • Selected measures do exist which if implemented will reduce fatalities and serious injuries and deliver net economic benefits to Solomon Islands; • Capacity to identify investment opportunities and policy advice requires recurrent resourcing for road safety positions within ministries; Investment programs require both an ongoing capital program (for example for infrastructure safety) and recurrent funding for ongoing operating programs (for example, enforcement of road laws and rules); and • Strong business cases for relevant investments, based on estimates of the effects of evidence-based measures on road fatalities and serious	NRSC	High

#	Institutional management function	Activity	Proposed Responsible Organization(s)	Financing Needs
		injuries, compared to implementation costs are required for NRSC, Ministerial Council and Cabinet consideration.		
A10		Develop annual budgets and funding agreements for programs for enhanced enforcement and infrastructure safety investment for expanded maintenance (signs and line marking) from 2022, mass action treatments (including pedestrian safety treatments) to apply from 2023, and blackspot programs to apply from 2024.[20]	MID, HCC, MoFT	High
A11		Examine options to build a road safety fund to support targeted investment to support infrastructure safety and enhanced enforcement including an annual injury insurance policy levy and net (of costs) road safety fines	NRSC, MID, MPNSCS, MoFT	Low
A12	Monitoring and evaluation	Maximize collation and mapping of all available police road crash data over the last five years	MID, MPNSCS	Low
A13		Conduct an in-depth data assessment to identify gaps in road safety data collection and developi technical and institutional recommendations to achieve better data	MID, MPNSCS	Low
A14	Research and development and knowledge transfer	Implement a road crash investigation training program for Royal Solomon Islands Police Force (RSIPF).	MPNSCS	Low

Table 15 Safe System interventions priority activities for implementation period 2021-2023

#	Safe System intervention pillar	Activity	Proposed Responsible Organization(s)	Financing Needs
A15	Safe roads and mobility	Identify a suitable set of infrastructure safety improvements with high cost effectiveness as part of externally funded projects, including: • Pedestrian infrastructure (crossings, footpaths including stream crossing provision, shoulder sealing for 50m either side of schools); and • Other lower cost mass action safety treatments, such as small roundabouts, gateway treatments at villages, bridge end-post protection barrier treatments, treating poor visibility rural intersections, traffic calming near schools and other highly pedestrianized areas, and off through carriageway bus stops and signage.	MID, MoFT	High
A16		Train MID and Honiara City Council (HCC) staff (and private consultants) in assessing and designing road safety treatments. Implement progressively in externally funded projects and as local maintenance funds permit.	NRSC	High
A17		Encourage all design consultants to include road safety principles within their designs. (See also earlier training recommendation to involve local design consultants)	MID	Low

#	Safe System intervention pillar	Activity	Proposed Responsible Organization(s)	Financing Needs
A18		Support the MID road maintenance programs to progressively embrace auxiliary road safety measures, including statutory signs and line marking, in day to day maintenance whenever feasible, based on adopted Solomon Islands guidelines.	MoFT	Low
A19		Agree on and adopt established applicable road design standards such as Austroads, which reflect good road safety practice.	MID, HCC	Medium
A20	Safe road users	Legislate to enable use of speed guns for speed enforcement by Police and procure adequate speed guns to alter non-compliant behaviors.	NRSC, MPNSCS, MJLA, AGD	Medium
A21		Expand traffic police enforcement efforts to improve road rules and drink driving compliance and to achieve seatbelt, helmet and child restraint use when legislated is in place and increase police resourcing to achieve this.	MPNSCS	Medium
A22		Provide police with additional evidentiary standard breathalyzer devices so that drink driving enforcement can be expanded to 30,000 random breath tests (RBTs) per year.	MPNSCS	Medium
A23		Expand traffic police enforcement efforts to improve speed limit compliance, particularly in higher pedestrian activity areas and by public bus operators.	MPNSCS	Medium
A24		Train RSIPF in the use of enforcement equipment and tactical operational planning and programming.	MPNSCS	Medium
A25		Review the unsafe carriage of passengers in unprotected load areas of light trucks and identify measures to reduce this crash risk.	MID, MPNSCS, MJLA	Low
A26		Develop a set of road rules for Solomon Islands, linked to signage and line marking guidelines	MID	Medium
A27	Safe speeds	Review, agree and clearly define speed limits for the entire road network based on the establishment of a road hierarchy. which reflects application of safe system principles	MID	Low
A28		Install speed limit signage in accordance with legislation on both urban and rural roads.	MID	Medium
A29		Resource the progressive installation of pavement platforms where lower speeds are required in higher pedestrian areas.	MoFT, MID	Medium

4.3.2. **PRIORITY ACTIVITIES FOR PERIOD B: 2024-2026**

During 2024-2026, it is proposed to commence and implement seven institutional management priority activities, and 18 Safe System intervention priority activities. During this period, some relatively complex intervention priority activities are implemented, utilizing the increased institutional management capacity developed in the period 202-2023. This is outlined in table 16 and 17 below.

Table 16 Implementation period 2024-2026 priority activities for institutional management functions

#	Institutional management function	Action	Proposed Responsible Organization(s)	Financing Needs
B1	Results focus and coordination	Adopt a road safety strategy to 2030, incorporating learnings from activities implemented in 2021-2023	NRSC	Low, but outcomes likely to be high costs
B2		Adopt a three-year action plan from 2024 to 2026 to reflect adopted strategy	NRSC	Low
B3		Set up an Advisory Group of nongovernmental organizations, commercial associations and research organizations, to provide input to the Working Group and Executive Group. See Figure 15for the recommended governance arrangements.	NRSC	Low
B4	Funding and resource allocation	Implement a road safety fund	NRSC, MoFT	Low
B5	Promotion	Promote improved road safety management arrangements and those interventions with a high benefit to cost impact to ministers and cabinet.	NRSC	Low
B6	Monitoring and evaluation	Commence use of a comprehensive, reliable and accessible road crash data system, with data available in a timely manner for competent continuous analysis of crash risk by type and location.	NRSC, MPNSCS, MID, MHMS, IRD	Medium
B7		Establish and resource ongoing monitoring and measurement of important intermediate outcome measures as well as final road safety outcomes and report widely on these levels and trends.	NRSC	Medium

Table 17 Implementation period 2024-2026 priority activities for Safe System interventions

#	Safe System intervention pillar	Action	Proposed Responsible Organization(s)	Financing Needs
B8	Safe roads and mobility	Train MID in skills to develop a costed evidence-based blackspot treatment program.	NRSC	Medium
B9		Implement an annual blackspot treatment program, reflecting safe system principles and including: • Roundabouts at higher risk intersections; • Intersection safety treatments; • Barrier installation to shield particularly hazardous lengths of roadside objects where higher	MID	Medium

#	Safe System intervention pillar	Action	Proposed Responsible Organization(s)	Financing Needs
		numbers of run off road fatal and serious injury crashes have occurred; and • More substantial pedestrian safety facilities.		
B10		Continue to implement mass action treatments including installation of small roundabouts, gateway treatments at villages, other speed management treatments, bridge-end protection barrier treatments, poor visibility at rural intersection treatments, off through road carriageway bus stops and signage and pedestrian protection facilities, and more.	MID	Medium
B11		Work with the occupational health and safety authority for the Solomon Islands to improve workplace roads provision and safety requirements for off-road industries such as mining and logging.	MID, SICCI	Low
B12		Apply movement and place thinking to urban and peri urban road (and speed limit) settings.	MID	Medium
B13	Safe vehicles	Legislate to limit the maximum age of used vehicles imported to Solomon Islands to no more than eight years and support with appropriate vehicle inspection processes for imports.	MID, MJLA, AGD	Low
B14		Legislate to introduce regulations to require all imported vehicles to meet United Nations Economic Commission for Europe (UNECE) vehicle safety regulations including: • 94, 95 – for frontal and side impacts; • 78 – for motorcycle antilock braking systems; • 127 – for pedestrian protection standards; • 140 – for electronic stability control; and • 14 and 16 – for seat belts and anchorages for all seats.	MID, MJLA, AGD	Low
B15		Introduce safety regulations for heavy vehicles and buses.	MID, MJLA, AGD	Low
B16	Safe road users	Include road safety education programs in the schooling curriculum, focused on five key school children related road safety 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 so on. SIG could work with other Pacific Island Countries, such as Fiji, to develop a basic school road safety education program for the Solomon Islands.	MEHRD	Medium
B17		Conduct community behavior change campaigns using radio, billboards and promotion at public gatherings, as agreed through the NRSC, featuring the RSIPF and should aim to provide information about: • The risks and consequences of unsafe road behavior; • The road rules and how all user types should safely use the road; • The benefits of using seatbelts, child restraints and helmets, and seek to deter:	RSIPF, MID	Medium

#	Safe System intervention pillar	Action	Proposed Responsible Organization(s)	Financing Needs
		• Drink driving through reporting on numbers of drivers screened through RBT and offences detected; and • Speeding through reporting on numbers of offences detected.		
B18		Introduce seat belt wearing legislation where belts are fitted in vehicles.	MID, MJLA, AGD	Low
B19		Legislate to require the health system to implement taking of blood samples and testing to detect alcohol levels above legal limits for drivers in all fatal and serious injury crashes, supported by adequate resourcing.	MID, MJLA, AGD	Medium
B20		Enhance speed, drink driving and general road rules enforcement by: • Introducing an automated infringements processing system for lower level infringements, not requiring court appearances to include speeding, low level first drink driving offences, failure to use a seat belt, helmet or child restraint and other road rule offences to take the pressure off police and courts resources and to improve deterrence of illegal behaviors; • Ensuring adequate back office processing and follow up of payment for the infringements issued for the above offences are established; • Reviewing the first 12 months of implementation of automated infringements processing system; • Running campaigns to warn the public of the risks of speeding and drink driving to deter these offences; • Reporting on levels of vehicles screened and offences detected; and • Increasing checking for unlicensed drivers (could be carried out in association with a much-expanded RBT regime).	RSIPF, MJLA, AGD	High
B21		Mandate public bus speed compliance, with continued operation to be subject to no more than three speed infringements incurred by an operator per year. Review bus operations to identify measures to reduce economic incentives to speed and unsafe overtaking.	MID	Low
B22		Reduce the legal blood alcohol concentration (BAC) limit for heavy vehicle (those > 4.5-ton GVM) drivers and public transport vehicle drivers from 0.05% to 0.02%.	MPNSCS, MJLA, AGD	Low
B23		Introduce legislation requiring child restraint use for young children.	MID, MJLA, AGD	Low
B24	Post-crash care	Expand emergency ambulance care to reduce retrieval times on Guadalcanal, Malaita and other islands where traffic crashes occur. This includes increasing the number of trained paramedics.	MHMS	Medium

#	Safe System intervention pillar	Action	Proposed Responsible Organization(s)	Financing Needs
B25	Safe speeds	Plan and prepare for the introduction of automated speed cameras (legislative, procurement and operational procedures)	RSIPF, MJLA	Low

4.3.3. PRIORITY ACTIVITIES FOR PERIOD C: 2027-2030

During 2027-2030, it is proposed to commence and implement one institutional management priority activity, and four Safe System intervention priority activities. The number of activities proposed are small, in part because it is expected that by this period SIG will have prepared a robust road safety strategy, which would have generated a detailed list of priority actions to implement in this period. This is outlined in table 18 and 19 below.

Table 18 Implementation period 2027-2030 priority activities for institutional management functions

#	Institutional management function	Action	Proposed Responsible Organization(s)	Financing Needs
C1	Results focus and coordination	Adopt a three-year action plan from 2027 to 2030, incorporating learnings from the previous period.	NRSC	Low

Table 19 Implementation period 2027-2030 priority activities for Safe System interventions

#	Safe System intervention pillar	Action	Proposed Responsible Organization(s)	Financing Needs
C2	Safe roads and mobility	Maximize donor and government funded new road sealing projects that properly include safety measures.	MID	High
C3	Safe road users	Introduce a graduated licensing system (GLS) over time which seeks to progressively match increased risk on the roads to the increased driving experience young drivers have achieved. This should involve: • Learner drivers from 16 years should complete 60 hours of supervised driving practice under the supervision of a fully licensed driver (not a novice driver)., filling out a logbook which is countersigned by the supervisor after each practice session and has to be presented to the testing officer at Mechanical Works and Services Department (MWSD) before sitting for the practical driving test from age 17. This learner driver approach would be part of a potential GLS, which seeks to progressively match increased risk on the roads to the increased driving experience young drivers have achieved • Introduce limitations for drivers for a three-year period after achieving solo licensing to include a	RTB	Medium

#	Safe System intervention pillar	Action	Proposed Responsible Organization(s)	Financing Needs
		passenger restriction (one peer aged passenger with all other passengers either immediate family or fully licensed drivers) and a zero BAC limit.		
C4		Plan for introduction of alcohol interlocks as a mandated sentencing requirement for repeat offenders in the first instance.	MID	Medium
C5	Safe speeds	Implement automated speed cameras	RSIPF, MJLA	Medium

4.4 THE ROAD AHEAD

There is a significant journey ahead for the relevant SIG ministries as they embark on road safety knowledge acquisition and training programs and begin to organize themselves into an effective working team, within their ministries and across government. The development of capability to recommend priority changes to ministers and effectively implement these crucial first steps is essential.

Establishing a lead agency capability within MID and making the working group and executive groups operational and effective with support through senior executive commitment will be early priorities alongside the knowledge acquisition activities.

Understanding the road safety challenges faced in the Solomon Islands, developing good awareness of effective road safety interventions to address these challenges and then implementing these interventions to reduce road crash fatality and serious injury risk are key elements of the task ahead.

The World Bank is a committed partner for the SIG and will continue to provide support and guidance in the years ahead, together with other major development partners such as Asian Development Bank (ADB) and Japan International Cooperation Agency (JICA).

Adoption of a suitable vision for road safety in the Solomon Islands together with a long-term target of elimination of fatalities and serious injuries and a 50 percent reduction in fatalities and serious injuries to be targeted by 2030 (starting from 2020), is strongly recommended

Programs for the training of government and selected consulting professions, on the development of enforcement, infrastructure safety improvements, emergency health improvement, safer public transport and pedestrian activity, safer vehicles in the Solomon Islands fleet and creating behavior change within the community, will be required.

The 29 priority activities identified in section 4.3.1 for the years 2021 to 2023 are focused on setting the scene for substantial progress from 2024, when an informed strategic direction can be assembled and adopted and a detailed action plan agreed and implemented to 2027, and a further action plan adopted to 2030.

These programs will need to be developed with estimated costings and priorities for funded implementation, which will need to be agreed by SIG. Some will require early support, while others will require support beyond 2023.

Sources of funding for these needs will require careful consideration. Options to establish and build a road safety fund to support these targeted investments into the future need to be considered.

[19] Commencing in period 2021-2023 but continuing through until 2030.
[20] Commencing in period 2021-2023 but continuing through until 2030.

APPENDIX A: Methodology

The Road Safety Management Capacity Assessment (RSMCA) meetings were carried out in accordance with the World Bank Global Road Safety Facility (GRSF) guidelines and country capacity checklists, and the methodology for review applied the Safe System Approach. 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, as shown in Figure 22. The intervention level is informed by the United Nations Safe System pillars. Significant results warrant reforms in both institutional management functions and interventions.

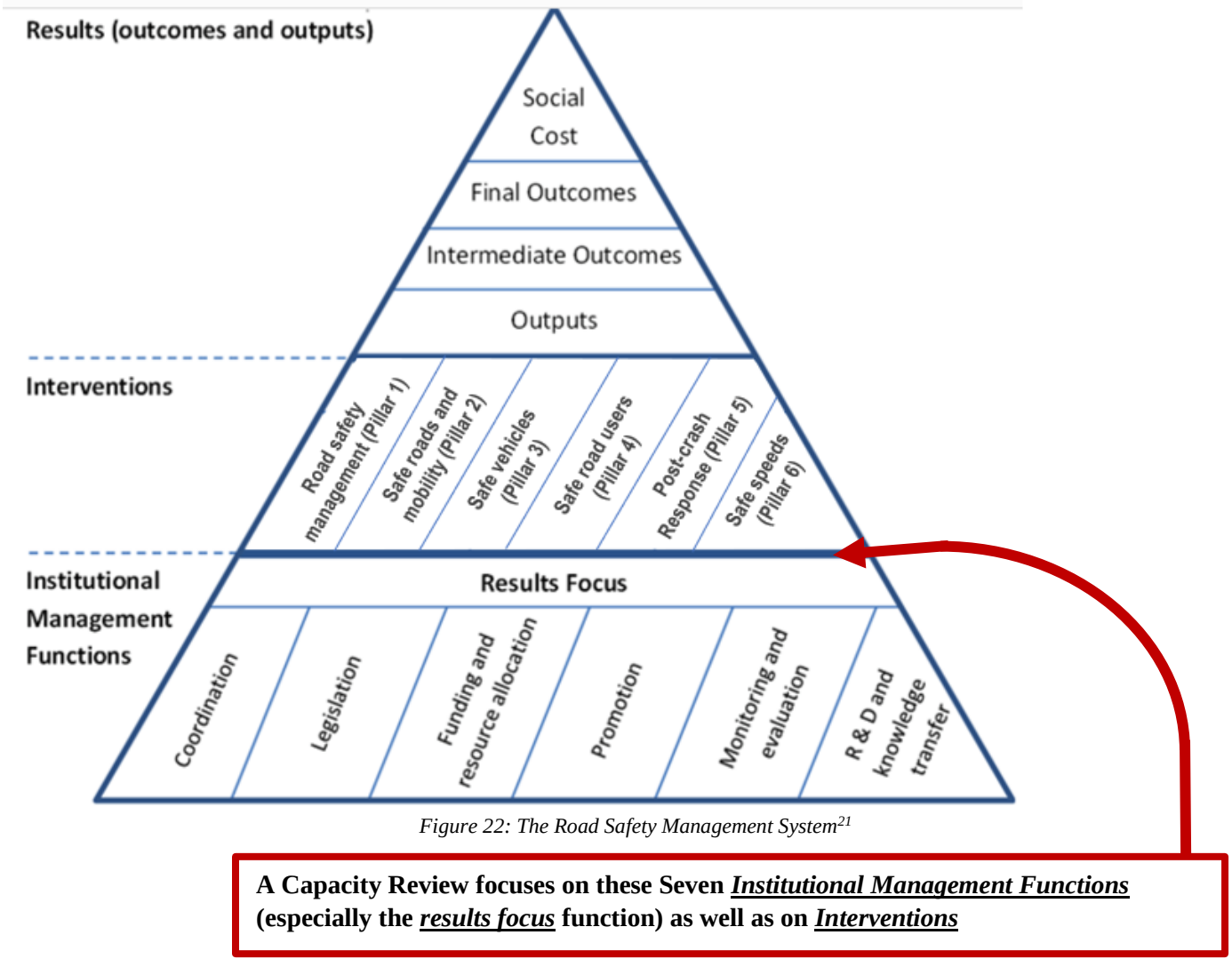


Figure 22: The Road Safety Management System[21]

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.

Table 20 lists the RSMCA activities with the associated GRSF checklist(s) used to guide the assessment, as well as the relevant Safe System pillar, where applicable.

Table 20: Road Safety Management Capacity Assessment activities and guiding Global Road Safety Facility checklists/Safe System pillars

Activity	GRSF Checklist	Safe System Pillar
One on one interviews with road safety stakeholders.	All checklists	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; and 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.	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; and Checklist 5: Recovery and rehabilitation of crash victims from the road network	Safe Roads, Safe Speeds and Safe Road Users Safe vehicles Safe Road Users (Drivers/ riders) Post-Crash Care
Provide recommendations to improve the required road safety management capacity.	All checklists and pillars	All pillars

A.1 GLOBAL ROAD SAFETY FACILITY GUIDELINES FOR ROAD SAFETY MANAGEMENT REVIEWS AND SAFE SYSTEM PROJECTS

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 improvement or development required to attain a suitable level of capacity to deliver improved road safety performance can then be identified.

These concepts are summarized below in box 1. 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.

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

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.

The GRSF Capacity Review Guidelines contain several detailed checklists (numbered 1 to 12), which are to be applied in any country review of road safety management capacity. These are listed in some detail in appendix E.

The guidelines promote the Safe System Approach (described further below) 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.

A.2 SAFE SYSTEM APPROACH

In addition, this RSMCA is aligned with the Safe System Approach (OECD/ITF 2008) to road safety, which has been adopted by the United Nations 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. A Safe System is based on the premise that road crashes are both predictable and preventable, and that it is possible to move towards zero road deaths and serious injuries. This, however, requires a fundamental rethink of the governance and implementation of road safety policy. A Safe System is a holistic and proactive approach to road safety, managed so the elements of the road system combine and interact to guide users to act safely and to prevent crashes, and when crashes occur, ensure that impact forces do not exceed the limits that result in serious injury or death. If one part of the system fails, the other components act to prevent serious harm (ITF 2016). 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. Human error is inevitable, but traffic fatalities and serious injuries are not.

The Safe System can be considered at three levels[22]: it is a vision, a set of principles and a group of elements that interact to determine severity of crash outcomes.

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

2. The key principles underpinning Safe System are:

    - Human beings are fallible and make mistakes;
    - Humans are fragile and there is a limit to the forces the human body can withstand in any crash; and
    - Road safety is a shared responsibility of all those involved in the road system, including those who design, build, manage and use roads and vehicles and provide post-crash care.

3. Safe system elements. There are six Safe System elements or pillars (road safety management; safe roads and mobility; safe vehicles; safe road users; post-crash care; and safe speeds), as shown in Figure 23.

The Organization for Economic Cooperation and Development (OECD) and the International Transport Forum (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 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 serious injuries 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, public, and private organizations regarding the ultimate safety ambition of eliminating fatal and serious injury;
- Aiming to develop a road traffic system better able to accommodate human error, so that no individual road user is exposed to crash forces likely to result in death or serious injury;

- 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 air quality, greenhouse gas reduction, poverty reduction and social inclusiveness; and
- Necessitating the strengthening of all elements of the road safety management system, especially institutional management functions, to achieve sustainable success.

Figure 23: Safe System pillars[23]

Additional information on the evolution of results focus to the Safe System approach is provided below.

A.3 EVOLUTION OF RESULTS FOCUS TO SAFE SYSTEM

Successive shifts in road safety management thinking and practices in high-income countries have been evident over the last fifty years (Bliss and Breen 2009). Rapid motorization and escalating road deaths and injuries began in many 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 et al, 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 (such as 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 et al., 2006; Trinca et al., 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 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 (Wegman et al., 1997) and Swedish Vision Zero (Tingvall, 1995) strategies set a goal to make the road system intrinsically safe.

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 serious injuries (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/ITF Report, *Towards Zero*, (OECD/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. And 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.

REFERENCES

Bliss, Tony and Jeanne Breen. 2000. *Building on the Frameworks of Land Transport Safety Authority*. World Bank.

Bliss, Tony and Jeanne. Breen. 2009. *Country Guidelines for the Conduct of Road Safety Management Capacity Reviews and the Specification of Lead Agency Reforms, Investment Strategies and Safe System Projects*. World Bank.

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.

Haddon, William. 1968. *The changing approach to the epidemiology, prevention, and amelioration of trauma: the transition to approaches etiologically rather than descriptively based*. American Journal of Public Health, 58, 1431-1438.

ITF (International Transport Forum). 2016. *Zero Road Deaths and Serious Injuries: Leading a Paradigm Shift to a Safe System*. Paris: OECD.

OECD (Organization for Economic Cooperation and Development) and ITF (International Transport Forum). *Towards Zero: Ambitious Road Safety Targets and the Safe System Approach*. Paris: OECD.

Rumar, Kare. 1999. Transport safety visions, targets and strategies; beyond 2000. 1st European Transport Safety Lecture. European Transport Safety Council, Brussels

Tingvall, Claes. 1995. *The Zero Vision. In: van Holst H, Nygren A, Thord R, eds. Transportation, traffic safety and health: the new mobility*. Proceedings of the 1st International Conference Gothenburg, Sweden

Trinca G et al. 1988. *Reducing traffic injury: the global challenge*. Melbourne, Royal Australasian College of Surgeons

Wegman, Fred and Elsenaar, Peter. 1997. *Sustainable solutions to improve road safety in the Netherlands*. Leidschendam, Institute for Road Safety Research

[21] Bliss and Breen, building on the frameworks of Land Transport Safety Authority, 2000; Wegman, 2001; Koornstra et al, 2002; Bliss, 2004.
[22] Drawn from the *Safe System Session* by Eric Howard for the Monash University Accident Research Centre *Road Safety Management Leadership Program*, Melbourne 2017 - 2019
[23] *Drawn from the* Safe System Session *by Eric Howard for the Monash University Accident Research Centre* Road Safety Management Leadership Program, *Melbourne 2017 - 2019*

APPENDIX B: Government Organizational Structures

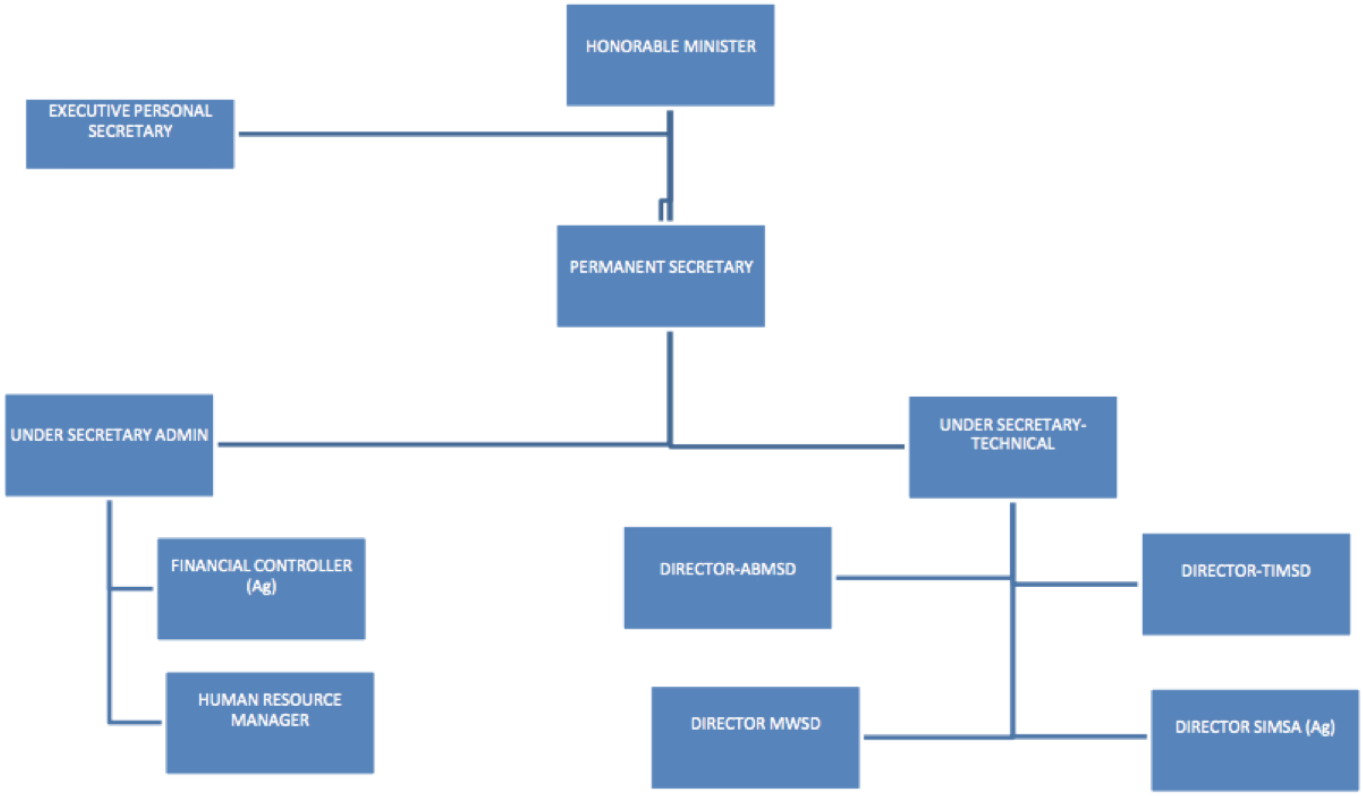
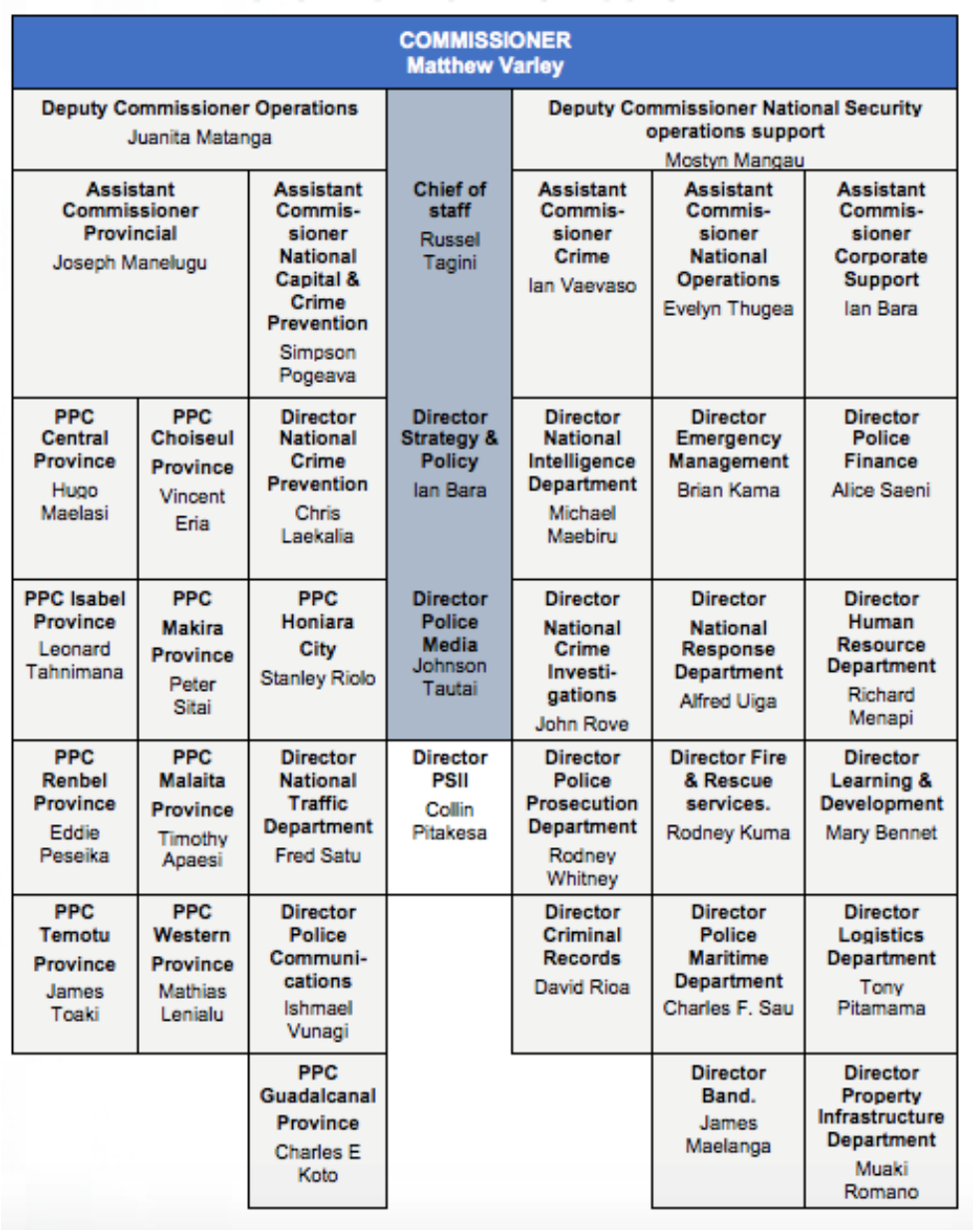


Figure 24 Ministry of Infrastructure Development Organizational Structure (MID 2016)



COMMISSIONER Matthew Varley						
Deputy Commissioner Operations Juanita Matanga				Deputy Commissioner National Security operations support Mostyn Mangau		
Assistant Commissioner Provincial Joseph Manelugu		Assistant Commis-sioner National Capital & Crime Prevention Simpson Pogeava	Chief of staff Russel Tagini	Assistant Commis-sioner Crime Ian Vaevaso	Assistant Commis-sioner National Operations Evelyn Thugea	Assistant Commis-sioner Corporate Support Ian Bara
PPC Central Province Hugo Maelasi	PPC Choiseul Province Vincent Eria	Director National Crime Prevention Chris Laekalia	Director Strategy & Policy Ian Bara	Director National Intelligence Department Michael Maebiru	Director Emergency Management Brian Kama	Director Police Finance Alice Saeni
PPC Isabel Province Leonard Tahnimana	PPC Makira Province Peter Sitai	PPC Honiara City Stanley Riolo	Director Police Media Johnson Tautai	Director National Crime Investi-gations John Rove	Director National Response Department Alfred Uiga	Director Human Resource Department Richard Menapi
PPC Renbel Province Eddie Peseika	PPC Malaita Province Timothy Apaesi	Director National Traffic Department Fred Satu	Director PSII Collin Pitakesa	Director Police Prosecution Department Rodney Whitney	Director Fire & Rescue services. Rodney Kuma	Director Learning & Development Mary Bennet
PPC Temotu Province James Toaki	PPC Western Province Mathias Lenialu	Director Police Communi-cations Ishmael Vunagi		Director Criminal Records David Rioa	Director Police Maritime Department Charles F. Sau	Director Logistics Department Tony Pitamama
		PPC Guadalcanal Province Charles E Koto			Director Band. James Maelanga	Director Property Infrastructure Department Muaki Romano

Figure 25 Royal Solomon Islands Police Force Organizational Structure (RSIPF 2020)

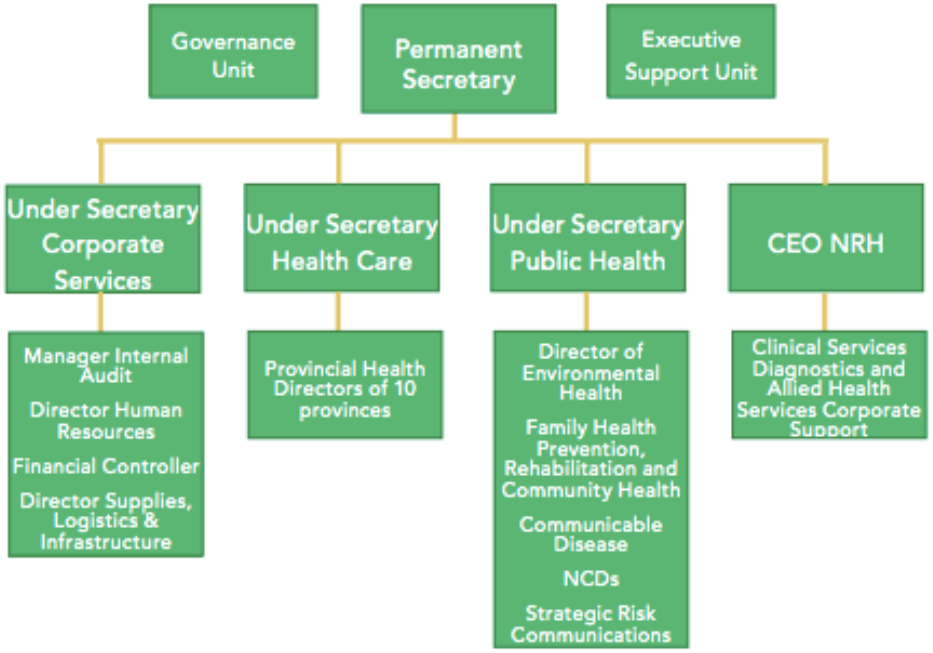


Figure 26 Ministry of Health and Medical Services Organizational Structure (MHMS 2016)

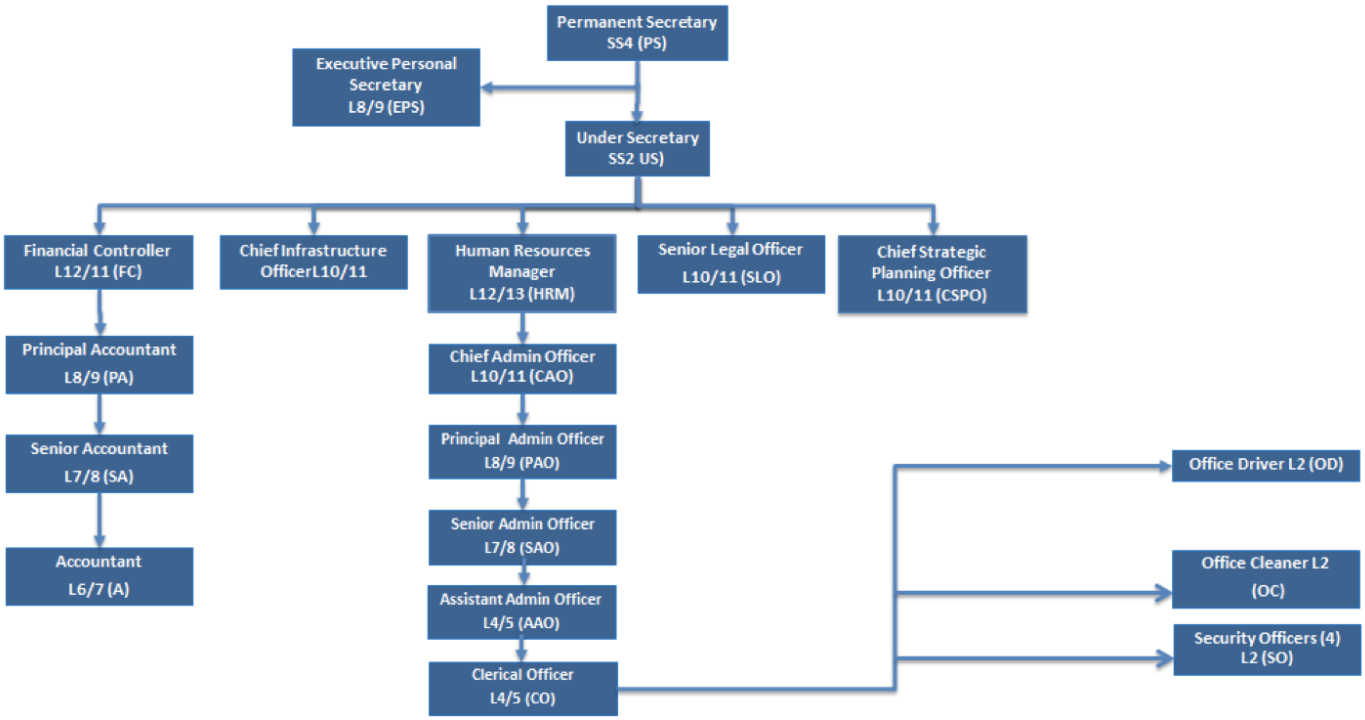


Figure 27 Ministry of Justice and Legal Affairs Organizational Structure (SIG n.d.)

REFERENCES

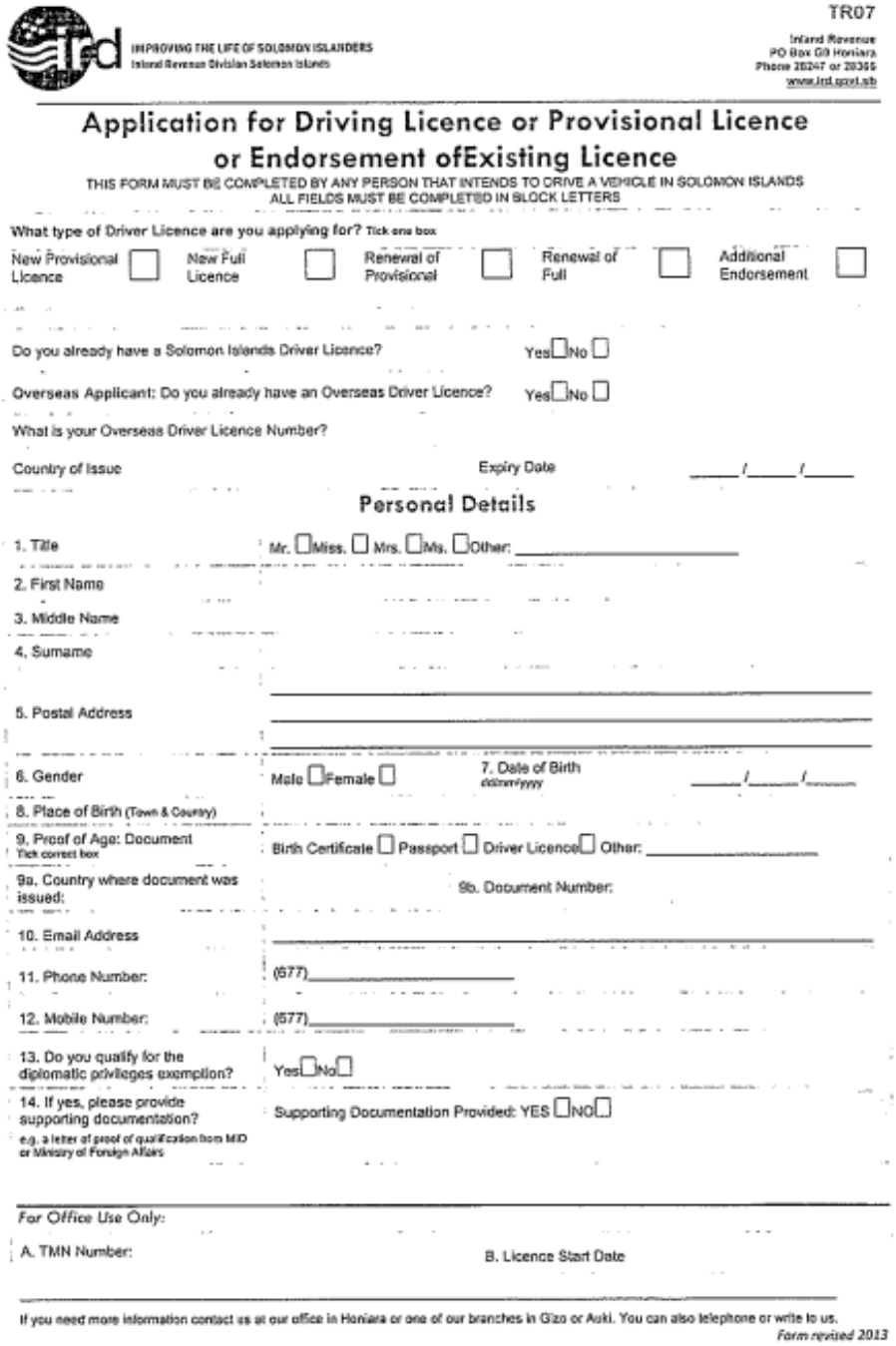
MHMS (Ministry of Health and Medical Services). 2016. *National Health Strategic Plan 2016-2020*. MHMS. https://daisi.com.au/wp-content/uploads/2016/09/Strategic-Plan-for-Solomon-Islands-2016-2010.pdf.

MID (Ministry of Infrastructure Development. 2016. *MID Corporate Plan 2016-2020*. MID. https://solomons.gov.sb/wp-content/uploads/2020/02/MID-CorpPlan-final20160125_PS_15Feb2016.pdf.

RSIPF (Royal Solomon Islands Police Force). 2020. *RSIPF Annual Report*. RSIPF. Report.

SIG (Solomon Islands Government). n.d. *Ministry of Justice and Legal Affairs*. SIG. https://solomons.gov.sb/ministry-of-justice-and-legal-affairs/.

APPENDIX C: Driver and Vehicle Licensing Forms



TR07

IMPROVING THE LIFE OF SOLOMON ISLANDERS
Inland Revenue Division Solomon Islands

Inland Revenue
PO Box G9 Honiara
Phone 28247 or 28355
www.ird.gov.sb

Application for Driving Licence or Provisional Licence or Endorsement ofExisting Licence

THIS FORM MUST BE COMPLETED BY ANY PERSON THAT INTENDS TO DRIVE A VEHICLE IN SOLOMON ISLANDS
ALL FIELDS MUST BE COMPLETED IN BLOCK LETTERS

What type of Driver Licence are you applying for? Tick one box

New Provisional Licence ☐ New Full Licence ☐ Renewal of Provisional ☐ Renewal of Full ☐ Additional Endorsement ☐

Do you already have a Solomon Islands Driver Licence? Yes☐ No☐

Overseas Applicant: Do you already have an Overseas Driver Licence? Yes☐ No☐

What is your Overseas Driver Licence Number?

Country of Issue Expiry Date ____/____/____

Personal Details

1. Title — Mr.☐ Miss.☐ Mrs.☐ Ms.☐ Other: _____
2. First Name
3. Middle Name
4. Surname
5. Postal Address
6. Gender — Male☐ Female☐ — 7. Date of Birth dd/mm/yyyy ____/____/____
8. Place of Birth (Town & Country)
9. Proof of Age: Document Tick correct box — Birth Certificate☐ Passport☐ Driver Licence☐ Other: _____
9a. Country where document was issued: — 9b. Document Number:
10. Email Address
11. Phone Number: (677)_____
12. Mobile Number: (677)_____
13. Do you qualify for the diplomatic privileges exemption? Yes☐ No☐
14. If yes, please provide supporting documentation? e.g. a letter of proof of qualification from MID or Ministry of Foreign Affairs — Supporting Documentation Provided: YES☐ NO☐

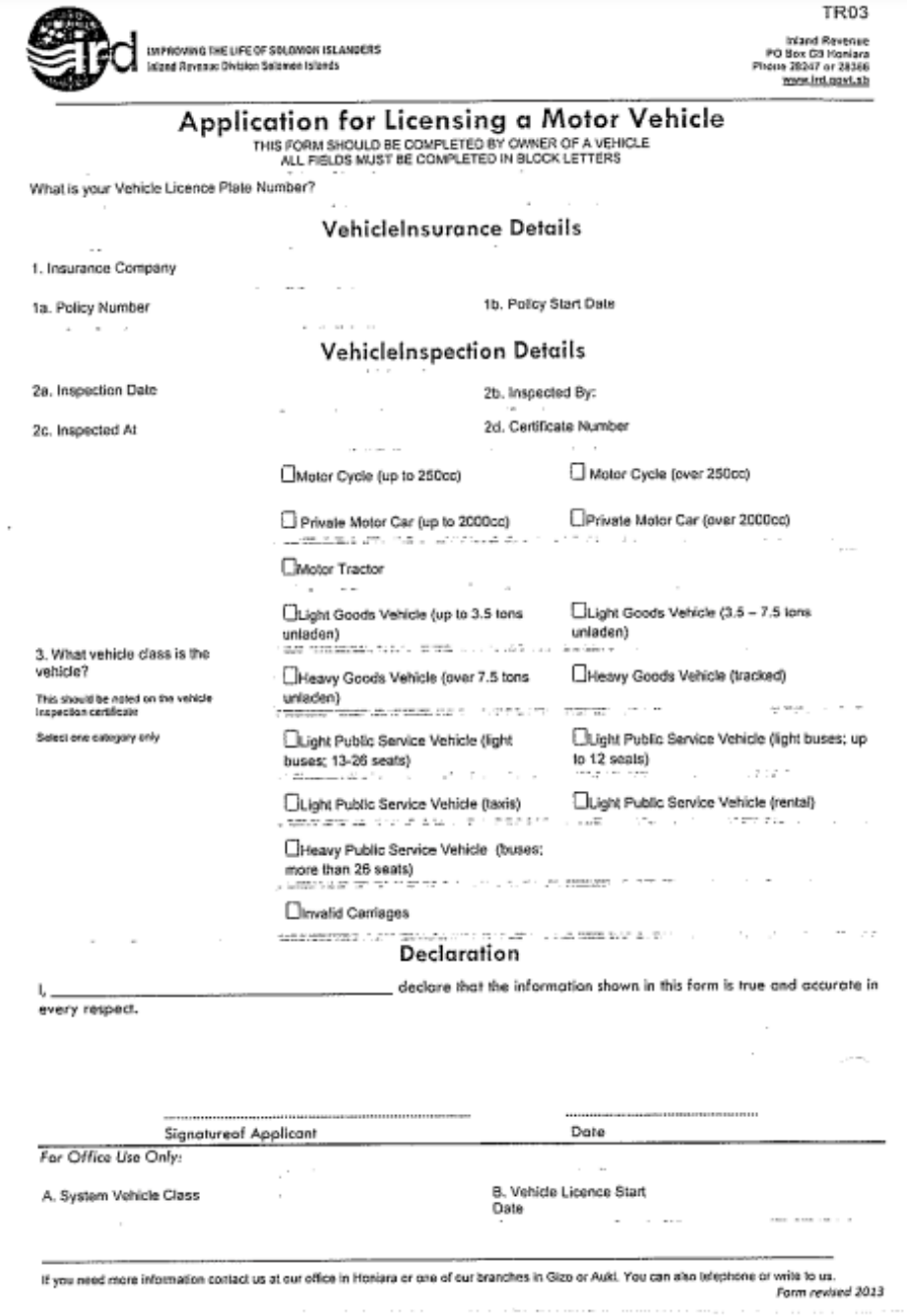
For Office Use Only:

A. TMN Number: B. Licence Start Date

If you need more information contact us at our office in Honiara or one of our branches in Gizo or Auki. You can also telephone or write to us.

Form revised 2013

Figure 28 Driving license form



IMPROVING THE LIFE OF SOLOMON ISLANDERS
Inland Revenue Division Solomon Islands

TR03

Inland Revenue
PO Box G9 Honiara
Phone 28247 or 28366
www.ird.gov.sb

Application for Licensing a Motor Vehicle

THIS FORM SHOULD BE COMPLETED BY OWNER OF A VEHICLE
ALL FIELDS MUST BE COMPLETED IN BLOCK LETTERS

What is your Vehicle Licence Plate Number?

VehicleInsurance Details

1. Insurance Company

1a. Policy Number

1b. Policy Start Date

VehicleInspection Details

2a. Inspection Date

2b. Inspected By:

2c. Inspected At

2d. Certificate Number

3. What vehicle class is the vehicle?

This should be noted on the vehicle inspection certificate

Select one category only

- ☐ Motor Cycle (up to 250cc)
- ☐ Motor Cycle (over 250cc)
- ☐ Private Motor Car (up to 2000cc)
- ☐ Private Motor Car (over 2000cc)
- ☐ Motor Tractor
- ☐ Light Goods Vehicle (up to 3.5 tons unladen)
- ☐ Light Goods Vehicle (3.5 – 7.5 tons unladen)
- ☐ Heavy Goods Vehicle (over 7.5 tons unladen)
- ☐ Heavy Goods Vehicle (tracked)
- ☐ Light Public Service Vehicle (light buses; 13-26 seats)
- ☐ Light Public Service Vehicle (light buses; up to 12 seats)
- ☐ Light Public Service Vehicle (taxis)
- ☐ Light Public Service Vehicle (rental)
- ☐ Heavy Public Service Vehicle (buses; more than 26 seats)
- ☐ Invalid Carriages

Declaration

I, _____ declare that the information shown in this form is true and accurate in every respect.

Signatureof Applicant

Date

For Office Use Only:

A. System Vehicle Class

B. Vehicle Licence Start Date

If you need more information contact us at our office in Honiara or one of our branches in Gizo or Auki. You can also telephone or write to us.

Form revised 2013

Figure 29 Vehicle license form

APPENDIX D: Persons Consulted

Name	Ministry/Organization	Title
Jimmy Nuake	Ministry of Infrastructure Development	Deputy Secretary
Mike Qaqara	Ministry of Infrastructure Development	Director – Technical
Tony Telford	SIRAP Project Support Team	SIRAP Project Manager
Karen Galokale	Ministry of Police, National Security and Correctional Services (MPNSCS)	Permanent Secretary
Mostyn Mangau	Royal Solomon Islands Police Force	Commissioner
Simpson Pogeava	Royal Solomon Islands Police Force	Assistant Commissioner
Fred Satu	Royal Solomon Islands Police Force	Director National Traffic Department
Sir Bruce Saunders	MPNSCS	Working Committee
Toata Molea	MPNSCS	Working Committee
Anthony Kivolyn	MPNSCS	Director Policy and Planning
Darren Boyd-Skinner	Australian Federal Police	Coordinator International Operations
Dhiren Singh	SMEC	General Manager – Highways, Ports and Airports
Rence Sore	Honiara City Council	City Clerk
Freddie Jones	Honiara City Council	Deputy City Clerk
Barnabas Vote	Ministry of Finance and Treasury	Chief Economic Officer
Christina Kimitora	Ministry of Finance and Treasury	Senior Development Officer
Elmar Ebling	Asian Development Bank	Unit Head - ADB Solomon Islands
Elma Morsheda	Asian Development Bank	Infrastructure Specialist
Dalcy Tozaka	Asian Development Bank	Senior Country Coordinator Officer
James Bosamata	Ministry of Education and Human Resources Development	Deputy Secretary
Andrew Houlia	Ministry of Justice and Legal Affairs	Deputy Director
Kyla Venokana	Ministry of Justice and Legal Affairs	Head of Legal Policy Unit
Daniel Damilea	Attorney General's Department	Deputy Solicitor General
John Kanai Ta'amora	Solomon Islands Chamber of Commerce and Industry	Advocacy Officer
Ian Gooden	Solomon Islands Chamber of Commerce and Industry	CEO - Solomon Water
Daniel Tucker	Solomon Islands Chamber of Commerce and Industry	Chairman of Building and Construction Working Group (BCWG) and Kramer Auscenco Country Manager
Flori Gatu	Solomon Islands Chamber of Commerce and Industry	BCWG subcommittee
Ruth Liloqula	Transparency Solomon Islands	Executive Officer
Phillip Jordan	Ministry of Infrastructure Development	Road Safety Adviser
Hiroki Tazawa	Japan International Cooperation Agency	Assistant Representative
Andra Mijares	Katahira and Engineers International	Public Transport Specialist for Greater Honiara Transport Master Plan Study
Kunimasa Yoshiro	Katahira and Engineers International	Team Leader/Transport Planner for Greater Honiara Transport Master Plan Study
Makoto Nozawa	Katahira and Engineers International	Traffic Management/Traffic Safety Specialist for Greater Honiara Transport Master Plan Study
Douglas Kerson	St John Ambulance	Chief Commander
Patrick Houasia	National Referral Hospital	Doctor

APPENDIX E: GRSF Capacity Assessment Guidelines - Checklists

Checklist 1: Results focus at system level[24]

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[25]

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? management? • Alcohol · 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[26]

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? • Motorcycle helmets? · Commercial vehicles? • Cycle helmets? · Public transport vehicles?		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 & helmet certification)			X (vehicle 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[27]

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? ' Motorcycles • 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[28]

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[29]

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[30]

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[31]

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
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

[24] 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.

[25] 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

[26] 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 (e.g. electronic stability control, lighting and conspicuity) and passive safety features (e.g. side and frontal impact protection; pedestrian, cyclist and motorcyclist protection; and safety belts). Standards promulgated by the world's leading vehicle safety jurisdictions – USA, 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

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

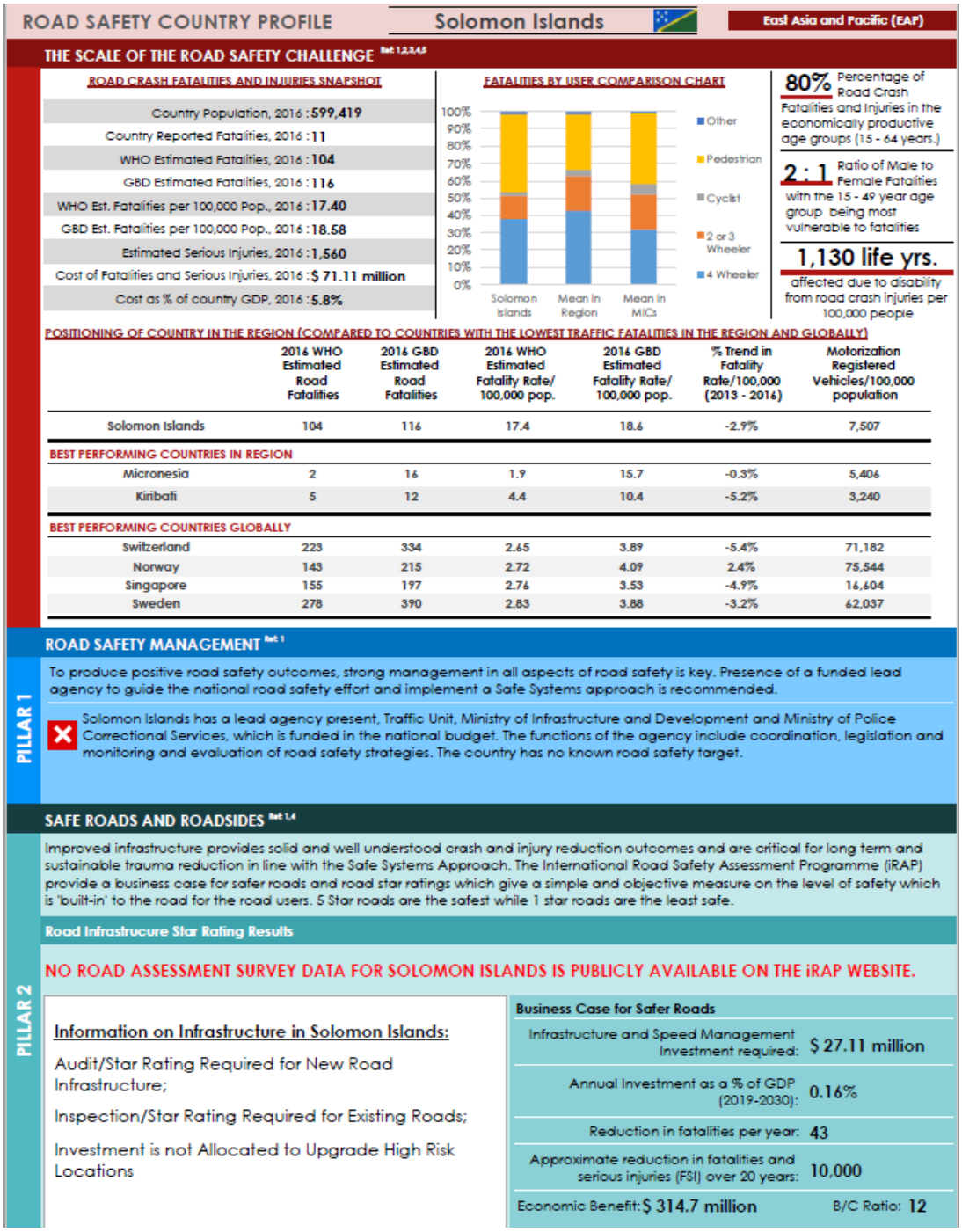
[28] Post-crash services merit close attention, especially in low and middle-income countries where safety performance is poor and high benefit-cost returns can be anticipated from improved emergency and rehabilitation services.

[29] 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.

[30] 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.

[31] 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 F: Additional Information on Road Safety in the Solomon Islands



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

THE SCALE OF THE ROAD SAFETY CHALLENGE [Ref 1,2,3,4,5]

ROAD CRASH FATALITIES AND INJURIES SNAPSHOT

Country Population, 2016	599,419
Country Reported Fatalities, 2016	11
WHO Estimated Fatalities, 2016	104
GBD Estimated Fatalities, 2016	116
WHO Est. Fatalities per 100,000 Pop., 2016	17.40
GBD Est. Fatalities per 100,000 Pop., 2016	18.58
Estimated Serious Injuries, 2016	1,560
Cost of Fatalities and Serious Injuries, 2016	$ 71.11 million
Cost as % of country GDP, 2016	5.8%

FATALITIES BY USER COMPARISON CHART

80% 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

1,130 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
Solomon Islands	104	116	17.4	18.6	-2.9%	7,507
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 [Ref 1]

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.

✗ Solomon Islands has a lead agency present, Traffic Unit, Ministry of Infrastructure and Development and Ministry of Police Correctional Services, which is funded in the national budget. The functions of the agency include coordination, legislation and monitoring and evaluation of road safety strategies. The country has no known road safety target.

SAFE ROADS AND ROADSIDES [Ref 1,4]

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 SOLOMON ISLANDS IS PUBLICLY AVAILABLE ON THE iRAP WEBSITE.

Information on Infrastructure in Solomon Islands:

Audit/Star Rating Required for New Road Infrastructure;

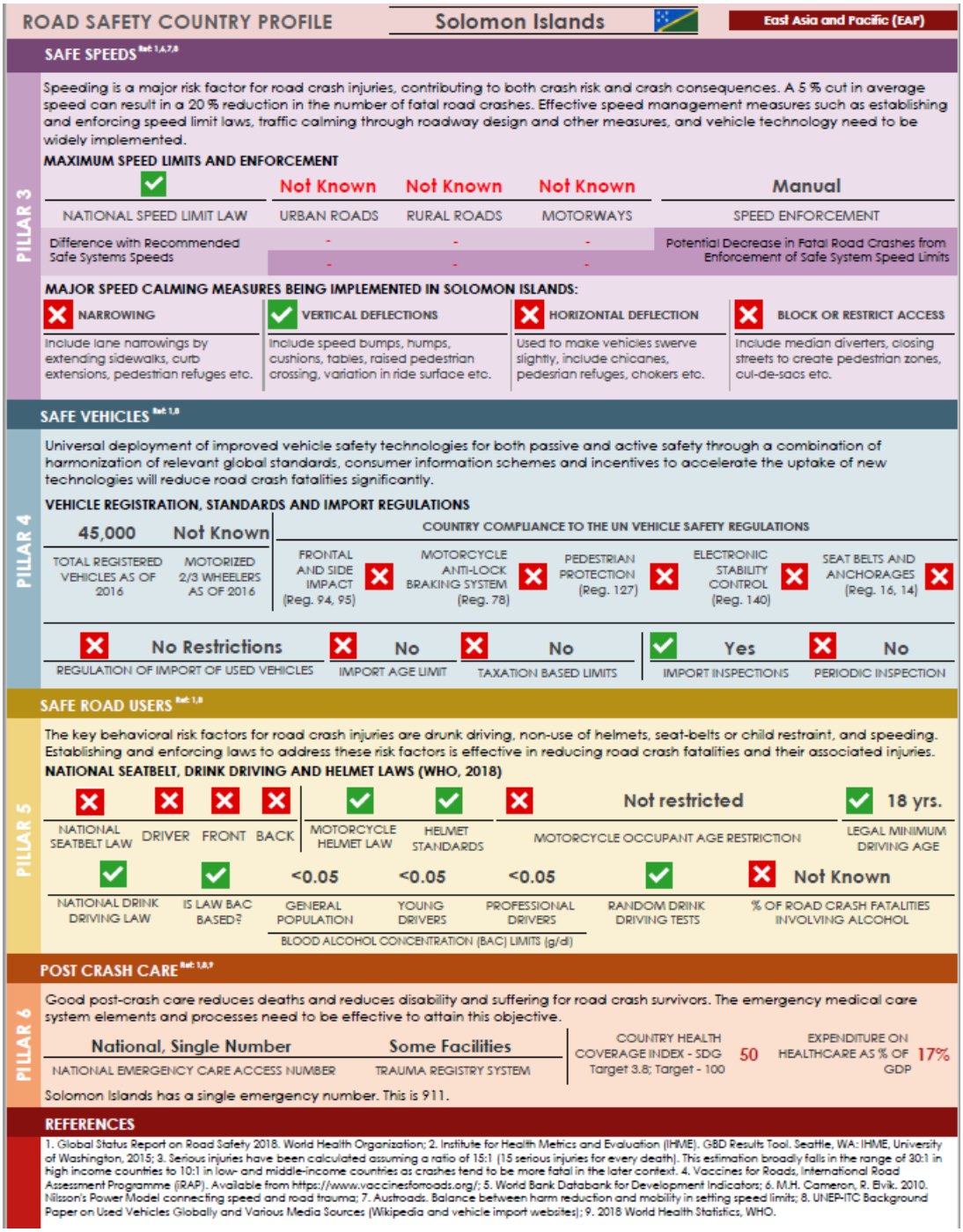
Inspection/Star Rating Required for Existing Roads;

Investment is not Allocated to Upgrade High Risk Locations

Business Case for Safer Roads

Infrastructure and Speed Management Investment required:	$ 27.11 million
Annual Investment as a % of GDP (2019-2030):	0.16%
Reduction in fatalities per year:	43
Approximate reduction in fatalities and serious injuries (FSI) over 20 years:	10,000
Economic Benefit: $ 314.7 million	B/C Ratio: 12

Figure 30 World Bank Road Safety Country Profile – Solomon Islands (World Bank 2020)



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

SAFE SPEEDS [Ref: 1,4,7,8]

PILLAR 3

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
✓	Not Known	Not Known	Not Known	Manual
Difference with Recommended Safe Systems Speeds	-	-	-	Potential Decrease in Fatal Road Crashes from Enforcement of Safe System Speed Limits
	-	-	-	

MAJOR SPEED CALMING MEASURES BEING IMPLEMENTED IN SOLOMON ISLANDS:

✗ 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.

SAFE VEHICLES [Ref: 1,8]

PILLAR 4

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
45,000	Not Known

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
✗ No Restrictions	✗ No	✗ No	✓ Yes	✗ No

SAFE ROAD USERS [Ref: 1,8]

PILLAR 5

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	✓ 18 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
✓	✓	<0.05	<0.05	<0.05	✓	✗ Not Known

POST CRASH CARE [Ref: 1,8,9]

PILLAR 6

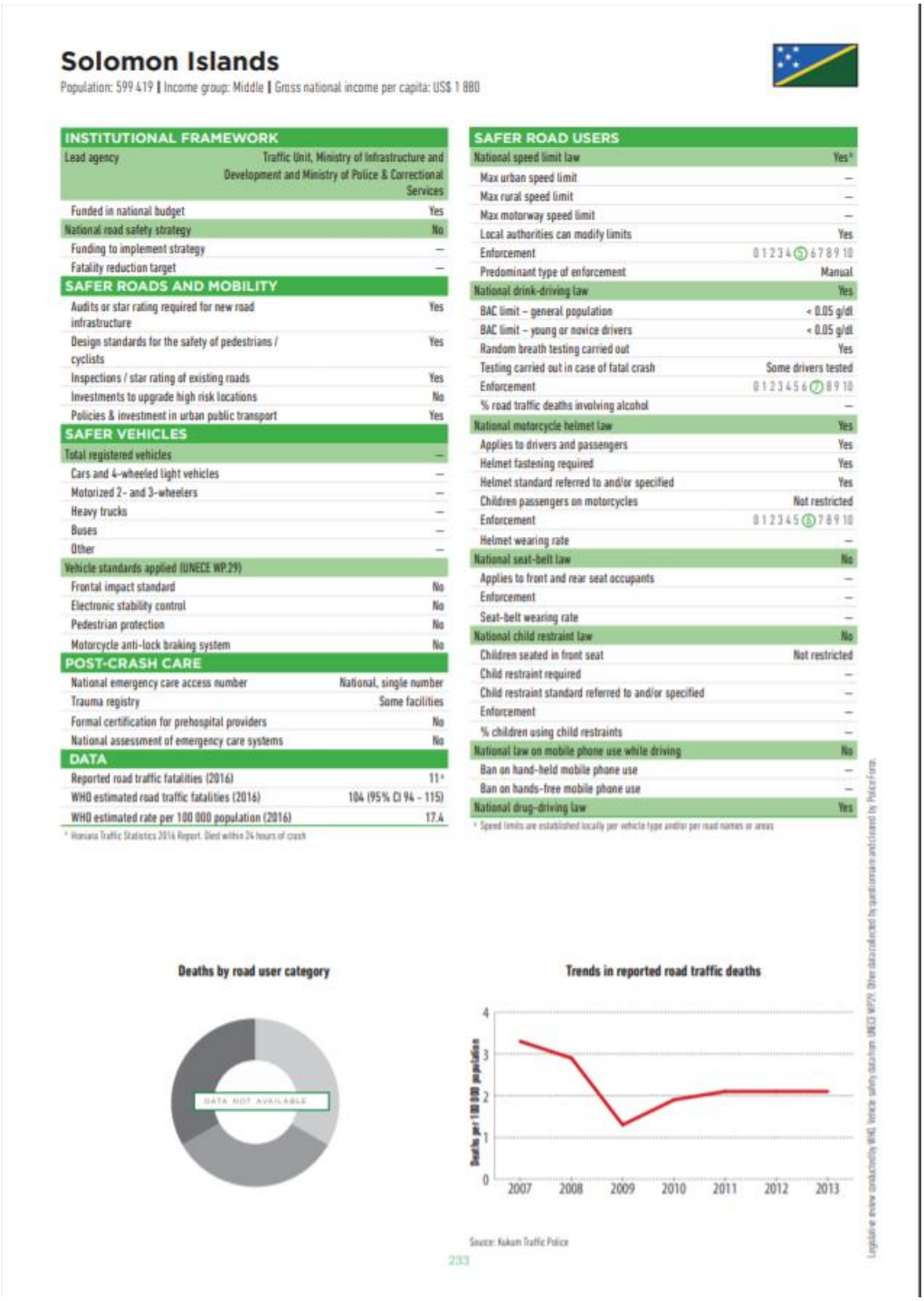
Good post-crash care reduces deaths and reduces disability and suffering for road crash survivors. The emergency medical care system elements and processes need to be effective to attain this objective.

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, Single Number	Some Facilities	50	17%

Solomon Islands has a single emergency number. This is 911.

REFERENCES

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.



Solomon Islands

Population: 599 419 | Income group: Middle | Gross national income per capita: US$ 1 880

INSTITUTIONAL FRAMEWORK	
Lead agency	Traffic Unit, Ministry of Infrastructure and Development and Ministry of Police & Correctional Services
Funded in national budget	Yes
National road safety strategy	No
Funding to implement strategy	–
Fatality reduction target	–
SAFER ROADS AND MOBILITY	
Audits or star rating required for new road infrastructure	Yes
Design standards for the safety of pedestrians / cyclists	Yes
Inspections / star rating of existing roads	Yes
Investments to upgrade high risk locations	No
Policies & investment in urban public transport	Yes
SAFER VEHICLES	
Total registered vehicles	–
Cars and 4-wheeled light vehicles	–
Motorized 2- and 3-wheelers	–
Heavy trucks	–
Buses	–
Other	–
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, single number
Trauma registry	Some facilities
Formal certification for prehospital providers	No
National assessment of emergency care systems	No
DATA	
Reported road traffic fatalities (2016)	11*
WHO estimated road traffic fatalities (2016)	104 (95% CI 94 - 115)
WHO estimated rate per 100 000 population (2016)	17.4

* Honiara Traffic Statistics 2016 Report. Died within 24 hours of crash

SAFER ROAD USERS	
National speed limit law	Yes[a]
Max urban speed limit	–
Max rural speed limit	–
Max motorway speed limit	–
Local authorities can modify limits	Yes
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	< 0.05 g/dl
BAC limit – young or novice drivers	< 0.05 g/dl
Random breath testing carried out	Yes
Testing carried out in case of fatal crash	Some drivers tested
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	Yes
Children passengers on motorcycles	Not restricted
Enforcement	0 1 2 3 4 5 (6) 7 8 9 10
Helmet wearing rate	–
National seat-belt law	No
Applies to front and rear seat occupants	–
Enforcement	–
Seat-belt wearing rate	–
National child restraint law	No
Children seated in front seat	Not restricted
Child restraint required	–
Child restraint standard referred to and/or specified	–
Enforcement	–
% children using child restraints	–
National law on mobile phone use while driving	No
Ban on hand-held mobile phone use	–
Ban on hands-free mobile phone use	–
National drug-driving law	Yes

[a] Speed limits are established locally per vehicle type and/or per road names or areas

Deaths by road user category

Trends in reported road traffic deaths

Source: Honiara Traffic Police

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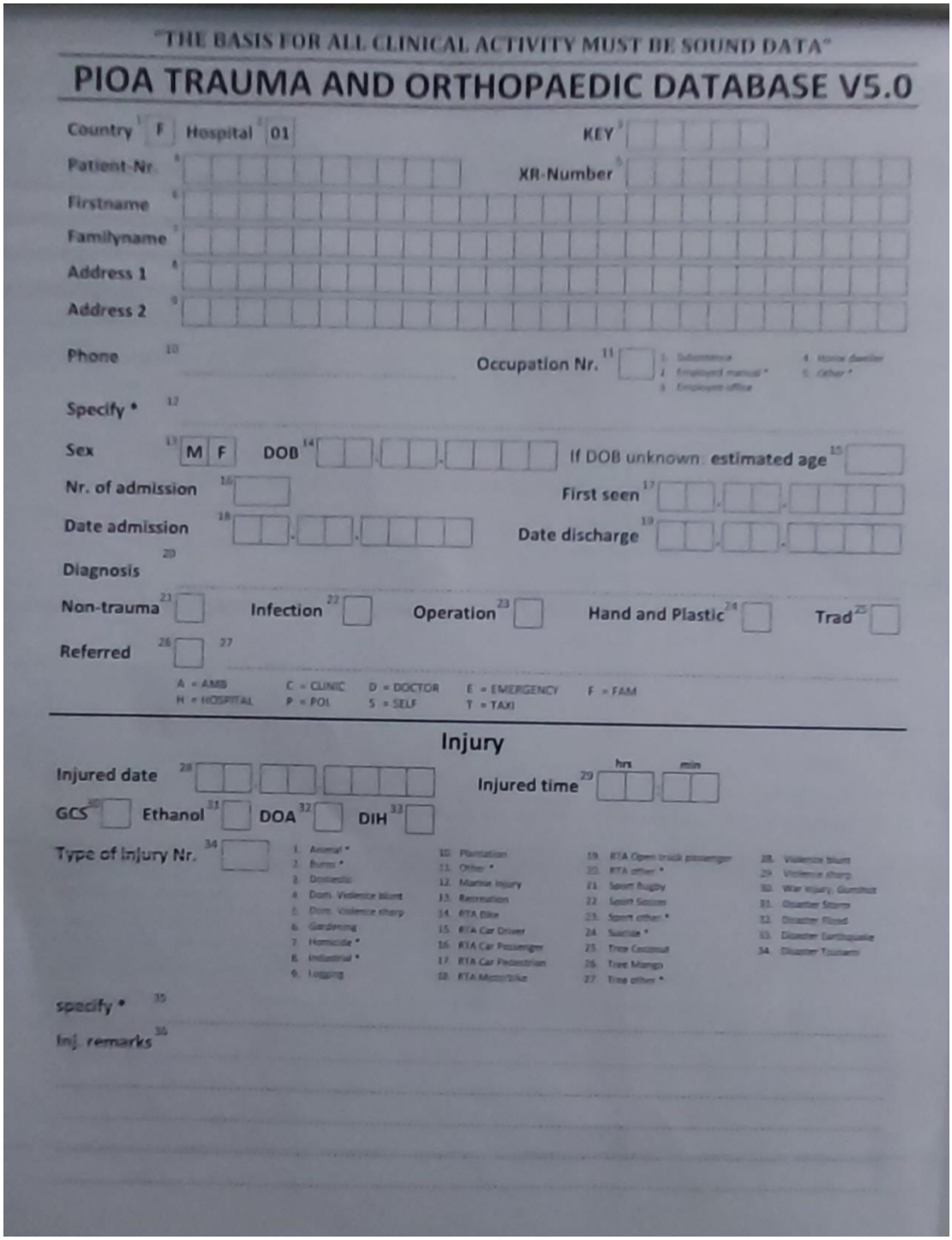
Figure 31 Extract for 'Solomon Islands - Road Safety Performance 2016', World Health Organization Global Status Report on Road Safety (WHO 2018)

REFERENCES

World Bank. 2020. *Country Profiles, Samoa*. https://data.worldbank.org/country/SB.

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

APPENDIX G: NRH Injury Data Form



"THE BASIS FOR ALL CLINICAL ACTIVITY MUST BE SOUND DATA"

PIOA TRAUMA AND ORTHOPAEDIC DATABASE V5.0

Country 1 F Hospital 2 01 KEY 3

Patient-Nr. 4 XR-Number 5

Firstname 6

Familyname 7

Address 1 8

Address 2 9

Phone 10 Occupation Nr. 11

Specify * 12

Sex 13 M F DOB 14 If DOB unknown estimated age 15

Nr. of admission 16 First seen 17

Date admission 18 Date discharge 19

Diagnosis 20

Non-trauma 21 Infection 22 Operation 23 Hand and Plastic 24 Trad 25

Referred 26 27

A = AMB C = CLINIC D = DOCTOR E = EMERGENCY F = FAM
H = HOSPITAL P = POL S = SELF T = TAXI

Injury

Injured date 28 Injured time 29 hrs min

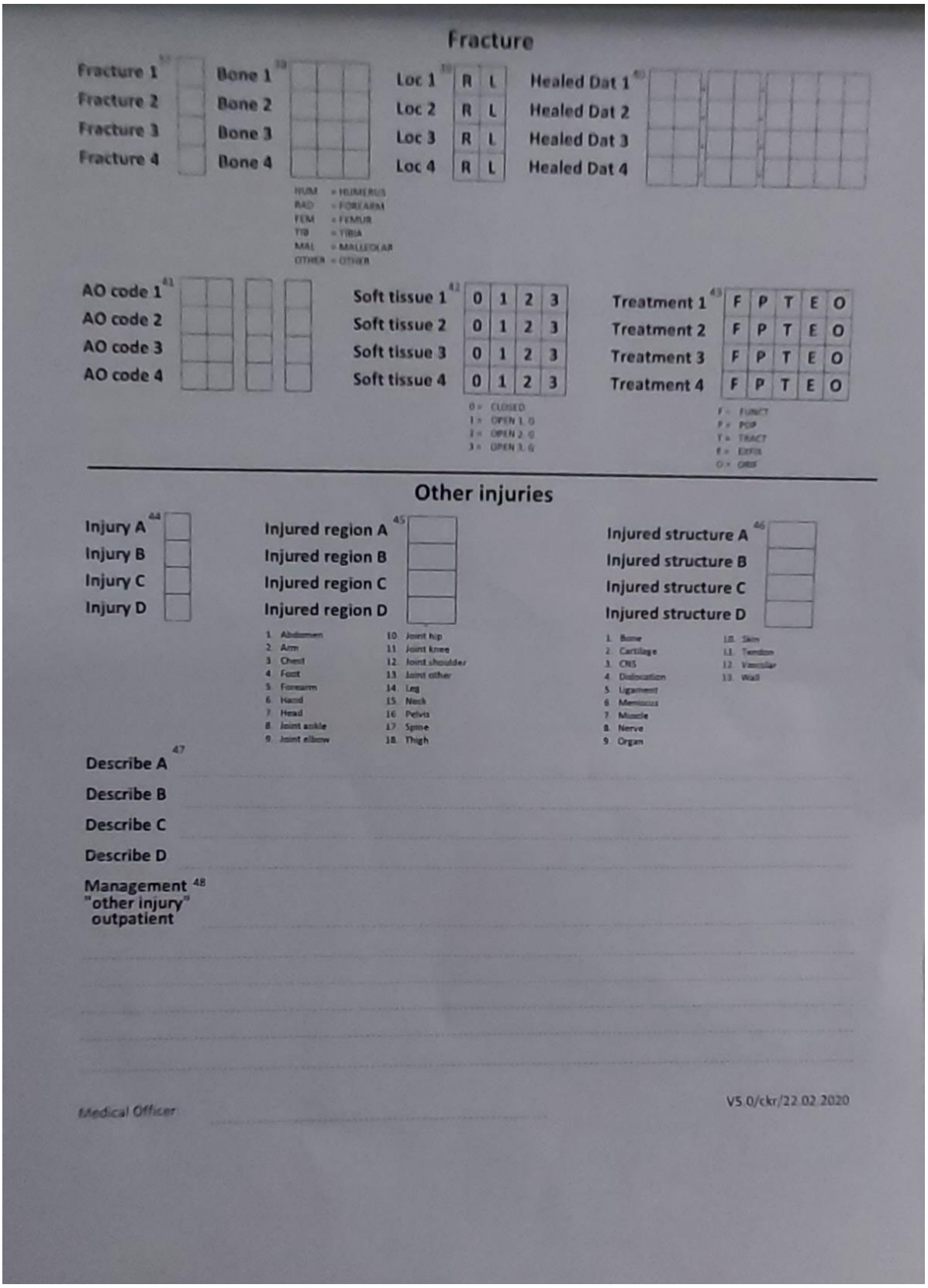
GCS 30 Ethanol 31 DOA 32 DIH 33

Type of injury Nr. 34

specify * 35

Inj. remarks 36

Figure 32 National Referral Hospital Injury Data form (page 1)



Fracture

Fracture 1		Bone 1		Loc 1	R L	Healed Dat 1	
Fracture 2		Bone 2		Loc 2	R L	Healed Dat 2	
Fracture 3		Bone 3		Loc 3	R L	Healed Dat 3	
Fracture 4		Bone 4		Loc 4	R L	Healed Dat 4	

HUM = HUMERUS
RAD = FOREARM
FEM = FEMUR
TIB = TIBIA
MAL = MALLEOLAR
OTHER = OTHER

AO code 1			Soft tissue 1	0	1	2	3	Treatment 1	F P T E O
AO code 2			Soft tissue 2	0	1	2	3	Treatment 2	F P T E O
AO code 3			Soft tissue 3	0	1	2	3	Treatment 3	F P T E O
AO code 4			Soft tissue 4	0	1	2	3	Treatment 4	F P T E O

0 = CLOSED
1 = OPEN 1. G
2 = OPEN 2. G
3 = OPEN 3. G

F = FUNCT
P = POP
T = TRACT
E = EXTR
O = ORIF

Other injuries

Injury A		Injured region A		Injured structure A	
Injury B		Injured region B		Injured structure B	
Injury C		Injured region C		Injured structure C	
Injury D		Injured region D		Injured structure D	

1. Abdomen
2. Arm
3. Chest
4. Foot
5. Forearm
6. Hand
7. Head
8. Joint ankle
9. Joint elbow
10. Joint hip
11. Joint knee
12. Joint shoulder
13. Joint other
14. Leg
15. Neck
16. Pelvis
17. Spine
18. Thigh

1. Bone
2. Cartilage
3. CNS
4. Dislocation
5. Ligament
6. Meniscus
7. Muscle
8. Nerve
9. Organ
10. Skin
11. Tendon
12. Vascular
13. Wall

Describe A
Describe B
Describe C
Describe D
Management "other injury" outpatient

Medical Officer

V5 0/ckr/22.02.2020

Figure 33 National Referral Hospital Injury Data form (page 2)

APPENDIX H: Data for Road Incident Visualization Evaluation and Reporting

H.1 BACKGROUND

Road crash deaths and injuries produce major human, social, and economic losses, especially in low- and middle-income countries, which suffer 90 percent of the deaths. These losses contribute to poverty at the national level by limiting economic growth, and at the individual level by driving families into poverty through the death or disability of the breadwinner.

Most World Bank counterparts, especially in low- and middle-income countries, do not have centralized, geospatial crash reporting systems, which prevents governments from conducting the most basic level of analysis for blackspot identification and prioritization. Sound data are generally lacking, not just in terms of geocoding of crash location, but also in omissions of serious injury data. For example, for some countries with the greatest challenges in crash data the estimated numbers of road crash deaths according to the WHO are up to 10 times higher than the official national figures. In other countries, in addition to missing crashes and deaths, crash locations are only recorded within road sections that may be several kilometres long, making effective location of crashes for remedial treatment purposes impossible.

Originally in response to the substantial road safety losses occurring in the Philippines each year and the absence of sound crash data, the World Bank, working with the Government of the Philippines, developed and is well underway in the deployment of a web-based and open-source system for geo-spatially recording and analysing road crashes – the Data for Road Incident Visualization Evaluation and Reporting (DRIVER) system.

DRIVER can link multiple agencies involved in recording road crash data (that is, local government units, the police, and the health system), standardizes terms and definitions for reporting, as well as provides analytical tools to support data-driven investments and policies and monitoring the impact of interventions. Thus, DRIVER can be used to support advocacy for road safety, improve the ownership of the road crash problem by governments by linking relevant agencies and supporting their roles in addressing the problem, as well as help to evaluate early wins and celebrate successes aimed at improving the sustainability of road safety actions through a public interface that is customizable by the entity responsible for reporting.

H.2 KEY FEATURES OF DRIVER

- Web-based and open-source system
- Allows geo-spatial recording and analysis of road crash data
- Readily applicable to many countries, states, or cities (wherever Open Street Map is available)
- The code is available for free on the World Bank GitHub open source code repository: https://github.com/WorldBank-Transport/DRIVER
- Fields/variables to be collected and entered are readily modified (at small cost – much less than the cost of proprietary systems)
- To date, the platform is available in English, French, Spanish, Portuguese, Russian, Chinese, Arabic, Bangali, Thai, Laotian, and Vietnamese – Philippines link: roadsafety.gov.ph; Sample demo links: roadsafety.io (Hanoi); brazil.roadsafety.io (Fortaleza); bangladesh.roadsafety.io (Dhaka).

H.3 OPPORTUNITIES AND BENEFITS

The DRIVER platform can be used by municipal, state/provincial, and national agencies involved in the collection, collation and management, analysis, reporting, as well as use of road crash data to improve policy and budget allocation decision making, planning and engineering solutions, deployment of enforcement, as well as other road safety interventions. The system benefits agents tasked with collecting incident data by easing the entry of necessary fields such as simple drop-down menus and linkage with web-based services, such as a weather database, reduce the time necessary to enter information in the field. As previously discussed, perhaps the most crucial piece of data—geo-referencing—allow users to greatly improve the accuracy of location data by dropping a pin onto a cached map in the field or adjusting it as necessary away from the scene of the incident. DRIVER also significantly reduces the burden of collating and managing paper records, which is the norm for many Traffic Police stations around the world. With electronic files, substantial opportunities are presented to the relevant authorities tasked with analysing crash data, which otherwise may not be possible. The platform is also conveniently designed to support inter-agency sharing of data, namely between the Traffic Police and the health sector and has a mechanism to check and reconcile potential duplication of entries. Government agencies responsible with reporting data both within their agency, between agencies, and to the public can customize controls for data sharing as well as providing a public interface to share information on hazardous areas and successes of road safety interventions. Finally, DRIVER can play a significant role in the planning and engineering solutions related to the design of road safety infrastructure. In the medium- to long-term, road safety engineers can also use DRIVER to evaluate the effectiveness of the implementation of their proposed countermeasures.

H.4 EXPERIENCES IMPLEMENTING DRIVER – A BRIEF OVERVIEW

The World Bank has been supporting knowledge sharing of DRIVER in several countries and cities, including the Philippines, Vietnam, Bangladesh, Laos, Thailand and Saudi Arabia as well as Fortaleza, Sao Paulo, and Accra. In these countries and cities, half-day workshops to educate stakeholders on the opportunities that exist through DRIVER and full dedicated support from the Bank on operationalization has been delivered in the previous two years.

Figure 34 Screenshot of Data for Road Incident Visualization Evaluation and Reporting system map in the Philippines (https://roadsafety.gov.ph/)

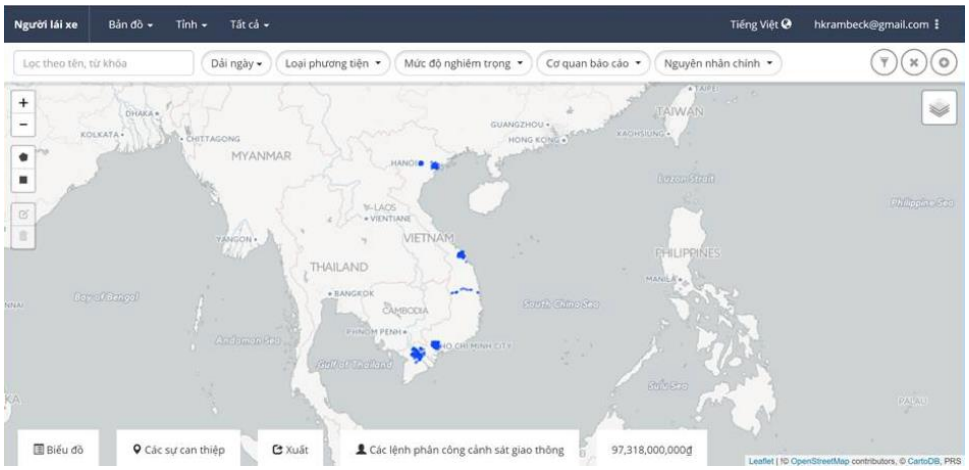


Figure 35 Screenshot of Data for Road Incident Visualization Evaluation and Reporting map from a demo in Vietnam (https://vietnam.roadsafety.io/)

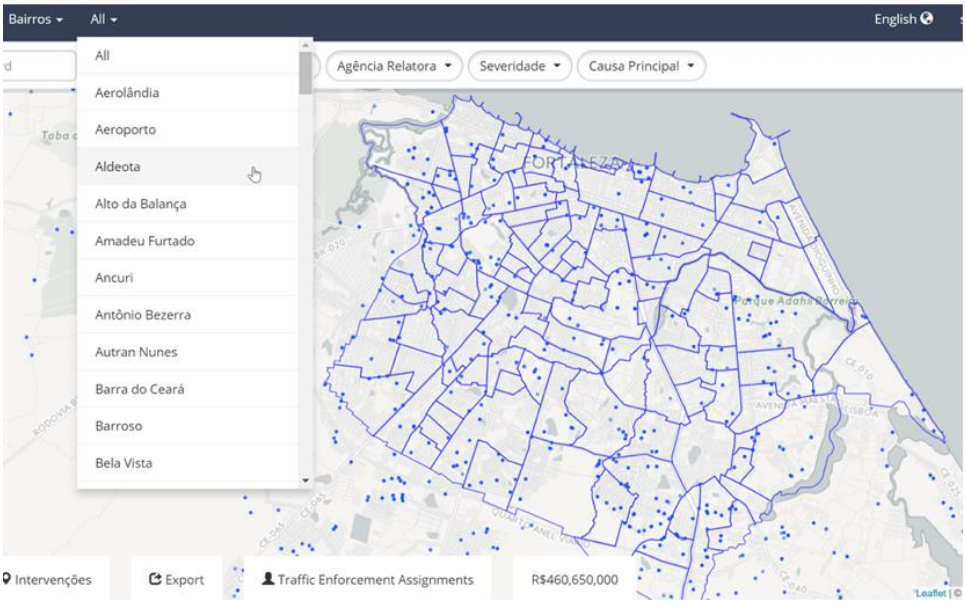


Figure 36 Screenshot of Data for Road Incident Visualization Evaluation and Reporting R map from a demo in Fortaleza, Brazil (https://brazil.roadsafety.io/)