ROAD SAFETYWORKSHOP REPORT

NO. RS01-2019

ROAD SAFETY WORKSHOP COINCIDED WITH 5th UN GLOBAL ROAD SAFETY WEEK, MAY 2019

Theme: LEADERSHIP ON ROAD SAFETY

"EVERYONE IS A LEADER IN ROAD SAFETY, SPEAK UP FOR ROAD SAFETY AND SAVE LIVES"

Hosted by

Department of Works, Head Quarters

Road Safety Committee

Workshop Period:

6th to 9th May 2019

Prepared by: ANGELHOFF LOMBU
Road Safety Engineer

May 2019

Department of Works Road Safety Committee (RSC)

Road Safety Workshop coincided with the 5th UN Global Road Safety Week, May 2019

Hosted by Department of Works
Road Safety Committee, Head Quarters

Workshop Dates and Venue:

Bird of Paradise Hotel, 6th May 2019

DJ Garden Lodge 9th May 2019

Report No. RS01-2019

May 2019

Road Safety Committee members:

Mr Penias Paison	- First Assistant Secretary, Design Services Division
Mr Gilbert Kapi	- First Assistant Secretary, Donor Projects
Mr Wilfred Peko	- Assistant Secretary, Roads and Bridges Design
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Mr Angelhoff Lombu	- Road Safety Engineer, R&B
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Committee Observers:

Mr Steven Pup	- Director Contracts, Procurement & Standards
Mr Vitus Koian	- Project Coordinator, Ausaid
Mr Laim Moses	- Project Coordinator, World Bank
Mr Siune Umba	- Project Coordinator r, JICA/EU Projects

Advisors:

Mr John Hughes	- RNPA TSSP
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Mr Matthew Wenborn	- REA, TSSP
Miss Leilani Winchcombe	- Communications, TSSP
Miss Amanda Donigi	- Communications, TSSP

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WORKSHOP ACKNOWLEDGEMENT

On behalf of the DOW Road Safety Committee (RSC), I would like to thank everyone for their attendance, participation and contributions towards the successful workshops. This shows our undivided concerns for the subject initiated in the 5th UN Global Road Safety week; its main emphasis on this year's road safety week is about LEADERSHIP on ROAD SAFETY and how we all can be leaders in the field of road safety by speaking up and taking the initiative as a leader to mitigate and minimise road accidents in Papua New Guinea.

We thank the Secretary Mr David Wereh and his Directors in the Regional Roads & Infrastructure and Contracts, Procurement & Standards (Mr Steven Pup & Mr Gabriel Tomtai) for supporting the Road Safety program. The RS Committee also acknowledges the TSSP and Australian Government for providing financial support to run the two workshops. The involvement and participation of the advisors has made these workshops successful. This also includes the two (2) Regional Works Managers (Northern and NGI), Provincial Works Managers for financing their logistics for their staff to attend the workshops.

All Departments of Works field staff, consisting of the Provincial Works Managers and their engineers who have shown their support during the workshop and looking forward to implement the topics which were presented by the presenters in the two (2) workshops.

The Road Safety Committee will continue to roll out its future plans, more on Road Safety workshops and awareness and also involve in Road Safety audits. This means that your support will be still required to address the road safety issues in the Country.

Thank you all

Penias Paison
First Assistant Secretary (Design Services)

……
Chairman – Road Safety Committee

Department of Works Road Safety Committee (RSC)

SUMMARY

The workshop participants in Goroka were over 90 people which were initially predicted, mostly contractors, private sectors and other stakeholders. The numbers attended in Arawa was about 63 people, included the Department of Works Staff, contractors and other stakeholders.

The workshop contents covered mostly on road safety overview, occupational health & safety and design issues. Road safety is a multidisciplinary and required to be addressed between parties of concern by cooperating, coordination and collaboration (3Cs). This would only possible by merging the 3Es to make it effective in Papua New Guinea. The 3Es involves Engineering, Education and Enforcement. Road Safety could be vetted by these three disciplines, respectively.

Participants listening to the presenter in the Goroka Workshop

Participants listening to the presenter in the Arawa Workshop

Mathew Wenborn – REA, TSSP
Explaining to the participants on how to do a Traffic Management Plan

The Department of Works (DoW), Road Traffic Authority (RTA) and Traffic Police are the premier agencies working together with internal and external stakeholders to address the Road Traffic Accidents, relating to speeds and other factors. Many professions have a direct responsibility for road safety. One of these is the road and traffic engineering profession. Studies has shown that about 1.5 million people die every year in traffic crashes globally, over 3,500 die per day, a further 50 million injured. And Papua New Guinea is said to have the highest rate of road accidents in the world. **Road Safety is multi-disciplinary**, The following are imperatives regarding road safety:

- Road Safety Funding;
- Road Accident Data systems;
- Coordination and Management of Road Safety ;
- Accident Costing;
- Corporation and Collaboration;
- Road Safety Research;
- Emergency Assistance to Traffic Victims;
- Traffic Police and Law Enforcement;
- Traffic Legislation;
- Vehicle Road Worthiness and Safety Standards;
- Road Safety Publicity Campaigns;
- Driver Training and Testing;
- Road Safety Education of Children and young Adults;
- Improvement of Hazardous Locations;
- Safe Planning and Design of Roads;

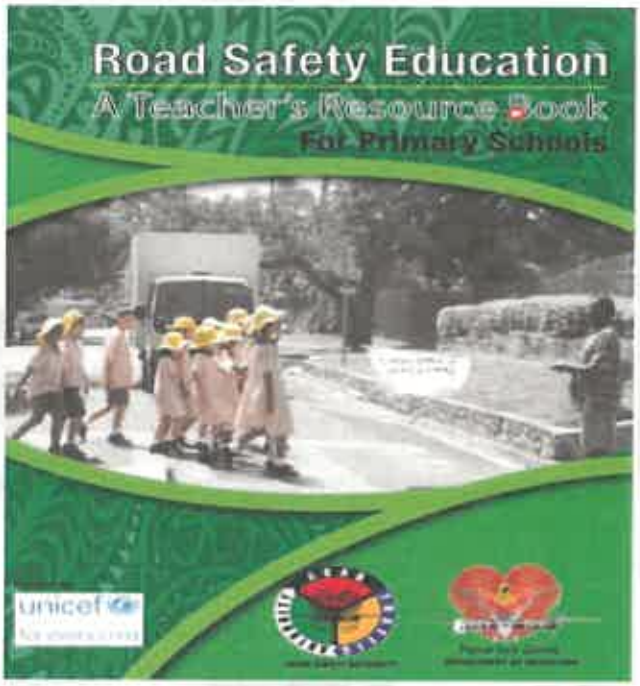
"Studies has shown that about 1.5 million people die every year in traffic crashes globally, over 3,500 die per day and further 50 million injured "

Speed contributes to around half of all fatal road traffic crashes in low and middle-income Countries. Countries reducing road traffic deaths have done so by prioritising safety when managing speed. Safe Systems focussed on fatal and serious injuries; therefore we want a reduction in deaths and injuries as our final outcome. Property

such as damaged vehicles can be replaced whilst people can't. Interesting to note that serious injuries far exceed minor injuries consistently year after year. This differs from more developed countries and perhaps reflects the way we transport and move people.

In terms of designing safer roads, safe roads are designed and built to be more forgiving and account for human error and vulnerability. Engineering treatments and safety improvements such as new road signs, surfaces, markings and barriers, help reduce the severity of crashes, as well as those vulnerable road users.

The Department of Works will continue to prioritise road safety in road designs, bridge designs and on various construction sites, and to ensure there is reduction in the number of road traffic accidents in Papua New Guinea. While, Department of Transport, Road Traffic Authority (RTA) and Traffic Police will ensure to enforce the road designs for road users to understand the road safety features on the roads. Department of Education would also implement the Curriculum developed by RTA and include them in the schools as a teaching material.



RTA will assist advice and work cooperatively with the Monitor road safety performance and develop/implement a PNG Road Safety Strategy and Action Plan for improvements.

RTA's presentation was presented by the RTA's Road Safety Manager, MR Wilson Wariaka in the Goroka workshop, whilst the same presentation was presented by DOW's FAS DP- Mr Gilbert Kapi in Arawa involving RTA's Establishment & Legislation. Their focus was on Causalities of accidents in PNG, legislation, functions, responsibilities and their future plans concerning road safety in Papua New Guinea. RTA manages and maintains a national road accident/casualty database based on reported crashes by the Police.

Data includes severity, location, road environment details, road user and vehicle details etc. As mentioned in their presentation, by law all crashes should be reported to the police. However under-reporting of crashes exists for various reasons with different levels of reporting by year and by province. Accidents/causality data's from 2002 to 2013 are fully entered into the data base and RTA is now working on 2014 data onwards.

INTRODUCTION

This report is about the two road safety workshops that were held in Goroka on the 6th of May and Arawa on the 9th of May 2019 respectively. The content of the report is based on the presentations, discussion and outcomes from workshops. Generally, the workshop presentation showcased the essence of Road Safety and effective measures discussed by the participants, whereas the topics were in line with this year's road safety theme ***"Leadership for Road Safety"***. Presentations were based on showing significant amount of information about road safety globally and in Papua New Guinea.

The purpose of the report is to record and have on reference, important outcomes and recommendations from the Workshops to be considered in future planning and decision making concerning Road Safety in road and bridge designs as well as construction sites for making our roads safer for all road users.

BACKGROUND

The Department of Works Road Safety Workshop was organized as an initiative by the DoW Road Safety Committee, which is in participation with United Nations Global Road Safety Week in the month of May 2019. The Road Safety Workshop was conducted in two different locations; in Goroka (Eastern Highlands Province) and Arawa (Autonomous Region of Bougainville) respectively. The Goroka workshop targeted participants from Highlands and Northern Region involving Department of Works, contractors and other stakeholders, which included Road Traffic Authority (RTA), Traffic Police and Provincial Administrators (technical division works units). The Arawa workshop targeted participants from the New Guinea Islands Region involving Department of Works, contractors and other stakeholders.

The main focus of the UN Global Road Safety Week was based on this year's road safety theme which is *Leadership on Road Safety*. Leadership is the ability to influence and inspire people to achieve a certain goal. **Stronger leadership for road safety** is needed at national and local levels to attain road safety targets. The most effective leaders who hail from all sectors of society are those who speak up for road safety and take action. It's important to recognize that all of us as individuals are leaders for road safety in Papua New Guinea.

Whether we travel as pedestrians, cyclists, users of private motor vehicle or public transport, as individuals we can all speak up for road safety. We can behave safely on the road; serve as role models for others, especially young people; advocate for better laws and law enforcement and support those who have been affected by road crashes.

To mark the Fifth UN Global Road Safety Week, we can assess our journeys; record our demands and prompt decision-makers to make a pledge to make our roads safe. It takes effective leadership to mobilize action for the implementation of road safety policies and strategies. Therefore as a leader in road safety we should:

- Create an agency to spearhead road safety in Papua New Guinea
- Develop and fund a road safety strategic plan
- Evaluate the impact of road safety strategies
- Harmonize and improve road traffic injury data
- Raise awareness and public support

The most significant finding of the report, *Designing Safer Roads, educating road users and enforcing the designs: getting concerned government and statutory organizations to cooperate, coordinate and collaborate to address the Road Safety issues.* The core functions of different organizations were identified to address the Road Safety issues in Papua New Guinea, in terms of engineering, education and enforcement.

- Engineering is the sole function of the Department of Works (DOW) and also agencies such as National Capital District Commission (NCDC) Engineering Division. Engineering and designing safer roads involve collaborative professional efforts to design safer roads for all roads within the city and entire road network in Papua New Guinea. Papua New Guinea is yet to have standardised road safety systems.

- Education would be the role of RTA working in partnership with Department of Education (DoE). Educating all road users and students in various schools in Papua New Guinea. RTA has developed Road Safety Curriculum and DoE to endorse and approve to be taught in schools in Papua New Guinea as a syllabus for all schools.

- Enforcement would be a responsibility for RTA working in partnership with Traffic Police to ensure road users comply with the traffic regulations especially in complying with the regulatory, warning and guide signs of the roads. Not only that but also to enforce the 'Protection of Transport Infrastructure Act, 2010.

The 3E concept complements the 3C principle, when all concerned agencies including development partners' involvement to eradicate the many Road Safety issues leading to loss of lives in Papua New Guinea.

OBJECTIVES

The objectives of the Road Safety Workshops conducted in the two main cities, are primarily focused on the DOW Road Safety Committee's objective "to improve the safety environment, health and wellbeing of workers, motorists and pedestrians" and also corresponding with the UN Global Road Safety week objectives, but narrowed down to focus on the following:

1. *To join the United Nations (UN), World Health Organization (WHO) and rest of the world to publicly emphasise Road Safety issues were affecting the nations and factors that contribute to accidents and fatalities relating to speeding.*

2. *To present and inform sector agencies, stakeholders and development partners to understand the Road Safety issues and factors affecting road designs*

3. *To promote Road Safety awareness , road design standards and best practices on road construction sites*

4. *To invite our agency partners such as RTA, Traffic Police to present initiatives developed towards ensuring safer roads for all road users, including drivers, pedestrians and general commuters.*

5. *To interact and involve in discussing to formulate resolutions and recommendations for each agency to consider in contributing towards designing, constructing and maintaining our roads and minimising the safety issues.*

WORKSHOP

The Road Safety Workshops were held in Goroka Eastern Highlands Province and Arawa in the Autonomous Region of Bougainville. The road safety committee planned to host the workshops in the two regions, Northern and Islands where several major projects are being constructed and the workshop would bring awareness and reminder to use road safety systems on designs and construction of these projects.

Vision, Mission and Goals

The vision, mission and goals of the DoW Road Safety Committee are not clearly indicated, but importantly in line with the UN's road safety week theme "Leadership for Road Safety". The goal is to improve the safety environment, health and wellbeing of workers, motorists and pedestrians in Papua New Guinea. This goal is targeted to be implemented by designing, constructing safer roads and maintaining these roads to prevent unnecessary accidents

Workshop Expenditure

The total cost for the two locations is PGK **17,318.50.** Below is a breakdown of the total cost for the Two workshop venues paid by TSSP

Goroka - Bird of Paradise Hotel (1-Day Conference Room Hire + Catering) = **PGK 12,165.00,** for Arawa DJ Garden Lodge - (1-Day Conference Room Hire + Catering) = **PGK 5,153.50** and **PGK K2, 915.00** for all the posters.

Workshop Agenda and program

The Road Safety Workshop agenda below for two different locations.

* ***Goroka, Eastern Highlands Province, Bird of Paradise Hotel Conference Room***

Time	Description	Presenter
8.00am	Delegation registration and sign-in	Marjorie Nimagole/Angelhoff Lombu
9.00am	Official Opening and Welcome	Kingsford Kasson (RWM- Northern) - Master of Ceremony
9:05am	Workshop opening, introduction and 1 (one) minute silence to those who have died in road accidents	FAS Design Services (Penias Paison)
9.10am	Road Safety Overview	John Hughes – SREA TSSP
9.50am	iRAP PNG Star Rating Overview	Waruta Abu (RAM's Engineer)
10:20am	Morning Tea	TSSP Rep's
10.35am	Establishments and Legislation- RTA's presentation	Wilson Wariaka (RTA- Manager Road Safety),
11.05am	Speed and Enforcements	Traffic Police (Not Attended)
11.30am	Road Safety for People with	John Hughes – SREA TSSP
12:00pm	Disabilities Traffic Calming	Eric Stensness (Manager Component 1-TSSP)
12.30pm	Lunch	TSSP Rep's
1.20pm	Designing Safer Roads	Penias Paison – FAS(DS)
1.50pm	i) Awareness on Safe Traffic Control at Road Works (group activity), do up a TMP outline (video session) ii) Making Road Safer – Interactive Session (TMP for Safe Traffic Control)	John Hughes – SREA, TSSP/ Mathew Wenborn - REA, TSSP
3.20pm	Afternoon Tea	TSSP Rep's
3.35pm	Occupational Health and Safety at Project sites	Naomi Parker (Occupational Health & Safety Officer)
3.45pm	Questions, discussions and closing	Panel Discussion
4:15 pm	remarks End of Workshop	**********

- *Arawa, Autonomous Region of Bougainville , DJ Garden Lodge*

Time	Description	Presenter
8.00am	Delegation registration and sign-in	Angelhoff Lombu
9.00am	Official Opening and Welcome	John Sitapai (RWM- NGI) - Master of Ceremony
9:05am	Workshop opening, introduction and 1 (one) minute silence to those who have died in road accidents	FAS Design Services (Penias Paison)
9.10am	Road Safety Overview	John Hughes – SREA TSSP
9.50am	iRAP PNG Star Rating Overview	Waruta Abu (RAM's Engineer)
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3.45pm	Questions, discussions and closing remarks	Panel Discussion
4:15 pm	End of Workshop	**********

Workshop Presentations

The workshop presentations were aimed to address the participants concerning rising issues on Road Safety. The contents of the presentations covered were so comprehensive and informative coinciding with the UN's road safety week theme "Leadership for Road Safety". Every year an estimated 1.25 million people die because of road traffic crashes and millions more are injured. The World Health Organization has synthesized evidence-based measures that can significantly reduce road traffic fatalities and injuries.

Countries reducing road traffic deaths have done so by prioritising safety when managing speed, proven strategies addressed;

- Building roads to include features that calm traffic.
- Establishing speed limits to the function of each road.
- Enforcing speed limits.
- Installing in-vehicle technologies.
- Raising awareness about the dangers of speeding.

Leaders on road safety can trigger action and mobilize stakeholders for the development of a strong governance foundation, allocation of financial and human resources and effective coordination of road safety policies.

Workshop Participants

The Workshop participants involved the Provincial Works Managers and their engineers from the two regions, sector agency representatives, and other stakeholders.

The total attendants and participants for the two workshops were about 162, about 100 attendees in Goroka and 62 in Arawa. The lists of the attendees for the two regions are shown below;

DEPARTMENT OF WORKS

Papua New Guinea-Road Safety Workshops

Goroka - 6 th May 2019

Theme: LEADERSHIP FOR ROAD SAFETY

"Everyone is a leader for road safety. #Speak Up for Road Safety and Save Lives."

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Department of Works Road Safety Committee (RSC)

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DEPARTMENT OF WORKS

Papua New Guinea-Road Safety Workshops

Arawa – 9 th May 2019

Theme: LEADERSHIP FOR ROAD SAFETY

"Everyone is a leader for road safety. #Speak Up for Road Safety and Save Lives."

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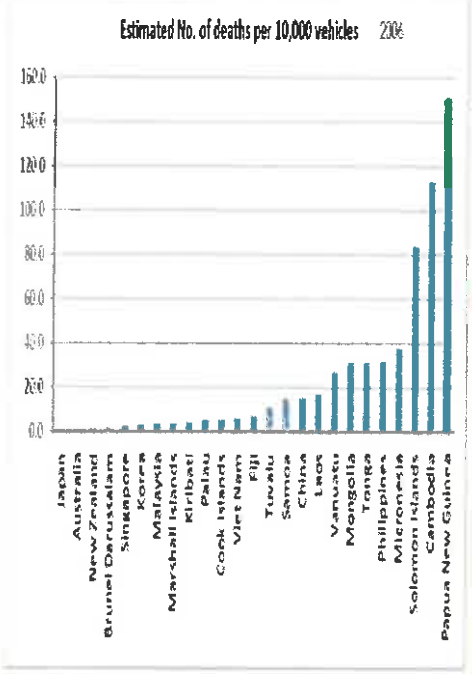
Workshop Highlights

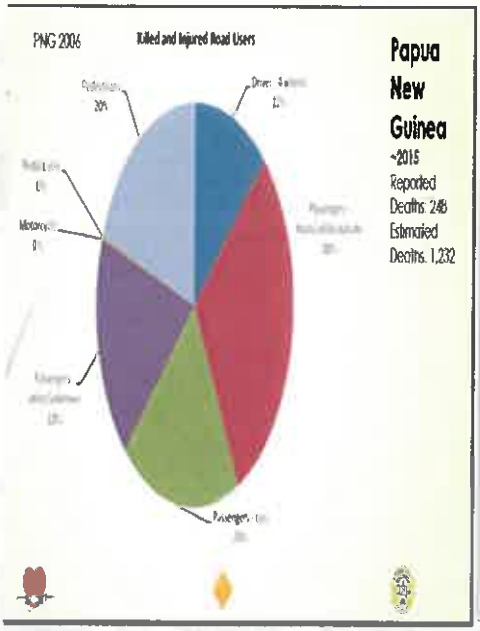
The main highlights of the workshops were basically on the presentations and workshop activities involving all attendees participating in the group activities to do up a TMP outline for different sets of drawings. The brief highlights of the workshop presentations are discussed below;

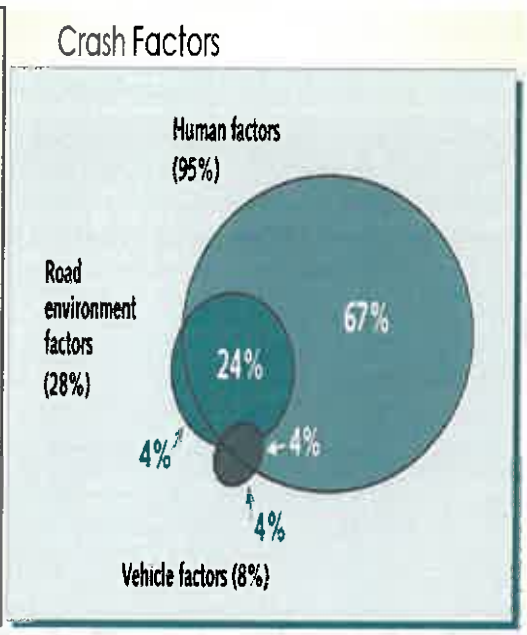
(a) Road Safety Overview

The Overview of Road Safety was presented by John Hughes Senior Road Engineering Advisor (TSSP), highlighting some important points about road safety and how they could be achieved. The sub topics discussed;

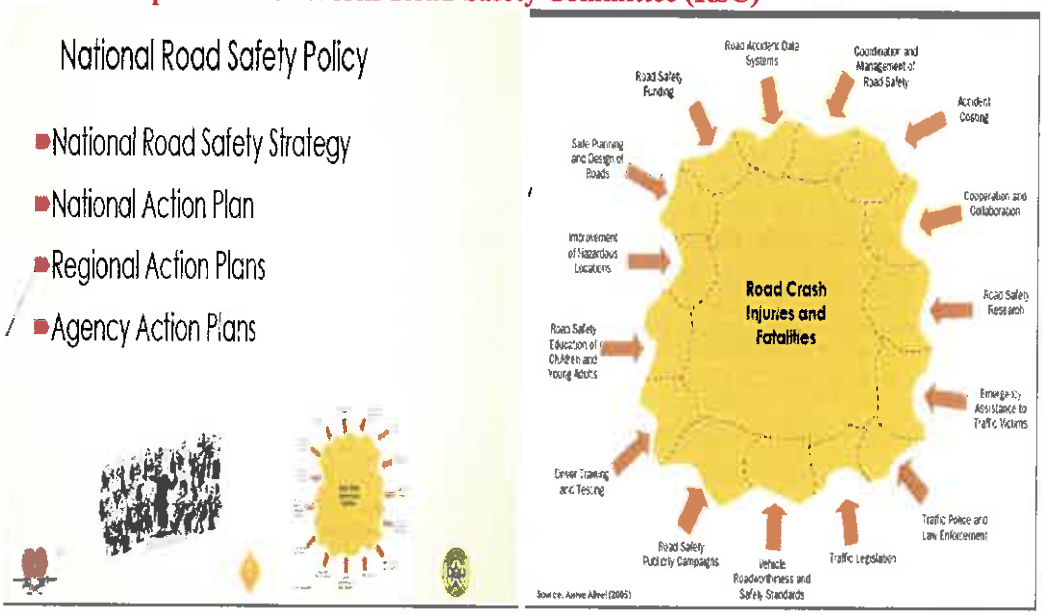
- Does Road Safety Matter; About 1.5 million people die every year globally, 3500 die per day and 50 million injured and 90 % of these figures are from low and middle income countries. Taking these figures into considerations, we know that road safety matters to everyone living in a society where road infrastructure plays vital role in mobility. The safety of the road users is paramount thus designing safer roads is a prime concern.
- Road Safety – The Big Picture; Indicating the accident statistics of different countries in the world and Papua New Guinea being in the top ten lists of countries with higher death figures caused by road crashes. Graphs below indicating death figures in Papua New Guinea and other countries as well.







- Conducting the Orchestra; Road Safety is multi-disciplinary, conducting the orchestra is the illustration of agencies working together to address road safety issues. Since road safety is a global safety issue, the engineers, educators, enforcers and relevant stakeholders should cooperate to address this issue in Papua New Guinea. So we as one of the leading organization in terms of road safety should work closely with other organization like RTA, Department of Transport, etc. to develop our road safety strategic plan.



- Engineering Safer Roads; engineering safer roads covers number of important recommendations for consideration in engineering, educating and enforcing. The main areas highlighted were road designs and road safety audits.

Road safety matters to us all; it's a global and national epidemic that requires multidisciplinary, whole-of government response to help address this issue. And Department of Works as the leading organization in terms of engineering will continue to play its part by engineering safer roads.

John Hughes Road Network Planning Advisor (TSSP), presenting on the 'road safety over view 'in the Goroka and Arawa workshops.

(b) iRAP Papua New Guinea

iRAP is a simple and objective measure of the level of safety provided by road infrastructure. It was developed by world leading road safety agencies with the ability to set minimum safety levels for each road user type. With a common vision of a world free of high risk roads.

Waruta Abu presented overview of the iRAP PNG, focusing basically on Star Rating Model and Star Rating for roads in PNG.

Star Ratings are determined by assigning Star Rating Score (SRS) to the bands as shown in the table below. Separate bands are used for motorised road users (vehicle occupants & motorcyclists), bicyclists

and pedestrians because their scores are calculated using different equations. That is, motorised road user scores are based on head-on runoff and intersection crashes: pedestrian scores are based on walking along and across the road crashes; and bicyclists' scores are based riding along the road and intersections crashes.

Star Rating bands and colours

Star Rating	Star Rating Score		
	Vehicle occupants and motorcyclists	Pedestrians	Bicyclists
5	0 to < 2.5	0 to < 5.0	0 to < 5.0
4	2.5 to < 5.0	5.0 to < 15	5.0 to < 10
3	5.0 to < 12.5	15 to < 40	10 to < 30
2	12.5 to < 22.5	40 to < 100	30 to < 60
1	22.5 +	100 +	60 +

The iRAP is used for policy making, network planning, feasibility studies, detail design and evaluation.

Studies on most of PNG Highways were completed and are kept in the RAMS. Waruta will be disseminating the maps and star rating to each province for planning and improvement. **Generally, most PNG roads have a Star Rating of 2, which means all road users have high risk and are vulnerable to road accidents.**

RAMU Highway Example

iRAP PNG has been established in 2015 in DOW HQ and welcomes stakeholders like Provincial Governments, District Authorities, and State authorities to employ the recommendations or conduct road safety assessment on their roads to make them safer for the society to live in, eg: Strategic Plans, Agency Plans, and Regional Plans.

Waruta Abu presented overview of the iRAP PNG in the Goroka and Arawa workshops

(c) Road Traffic Authority Establishment and Legislation (www.rta.gov.pg,)

The presentation was presented by Wilson Wariaka (Manager Road Safety-RTA) in Goroka and Gilbert Kapi (DOW' FAS-DP) in Arawa. The purpose of the presentation is three-fold;

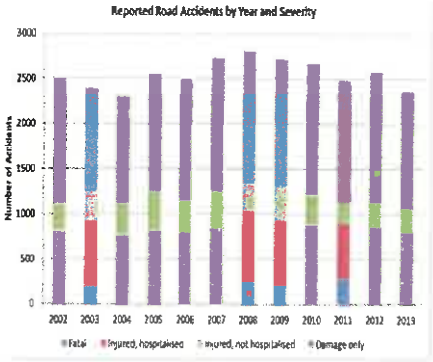
- Nature and functions of the RTA
- Current status and activities in progress, and
- Road Safety from RTA perspective

Since 2010, RTA has been entering crash and casualty records into a purpose built database to allow us to understand crash and casualty numbers as well as to understand what the main contributory factors to crashes are. If data's are not recorded, RTA can't accurately define the problem and what it costs us both from an economic perspective and from an ethical/social perspective.

If the politicians are not informed about the scale of the problem with facts, then nothing will be done. Even with facts it is hard enough, but without them, RTA won't have any chance of getting the funds to fix the problem and that's what it boils down to. If we ask a politician to invest (not spend, but invest) K1million, he/she will want to know what the benefit will be. The crash database goes a long way to help RTA with the first part of the equation.

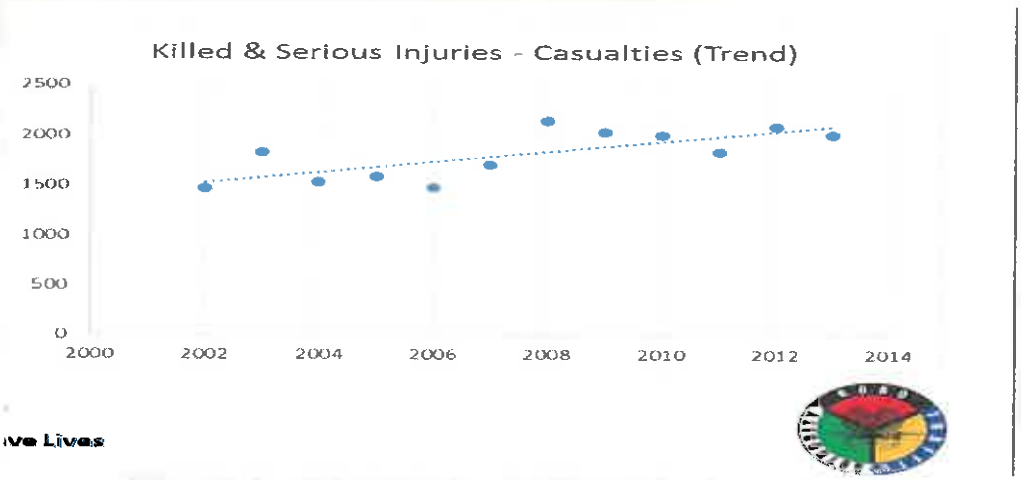
As part of this data, the RTA also has a long term plan to geo-plot crash locations on maps to allow black spots to be more easily identified as well as to link the police report images to individual crashes so that black spot investigations as to why the crash occurred can be more easily carried out.

PNG Crash Data – road safety in context



Total crashes by severity, crashes are important but not as much as casualties, the ultimate outcome is about reducing deaths and injuries on our roads crashes are simply how they occur. In the grand scheme of things, damage only crashes are not as important as those crashes that result in fatalities and injuries.

Upwards trend in the number of road users killed and seriously injured over the past 12 years. Increasing numbers of people and vehicles on our road will continue to make this worse for the foreseeable future without meaning interventions.



ive Lives

Who and what is the RTA? The RTA was formed from a combination of the bodies and responsibilities of the National Road Safety Council, the Land Transport Board and the Land Transport Division of the Department of Transport. It was establish by a 2014 Act of Parliament and effectively commenced operation in 2017. It has a mission and responsibility to manage and administer the regulation, safety and efficient use of land transport in PNG. In essence, it has a responsibility to organize and manage the licensing and registration of vehicles and drivers as well as certain road safety functions and some enforcement of Rules. As part of the Act was a series of Regulations and Rules that has effectively brought together and updated previous legislation such as the Motor Traffic Act 1950 and Motor Traffic Regulations 1967.

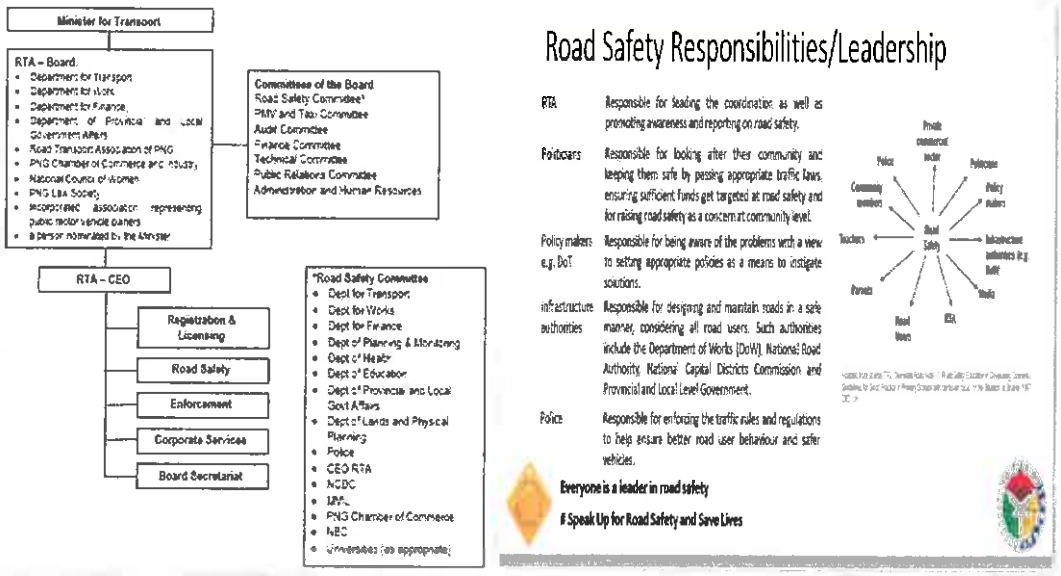
Specific Road Safety Functions

Specifically for road safety, the RTA has a range of functions. The licensing and registration element is important and has an impact on road safety effectively, the RTA has a responsibility to coordinate road safety activities amongst its partners, it can't nor should it be an implementing agency for all aspects of road safety, but it does need to coordinate activities, as well as to monitor and report on road safety). It also needs to assist with enforcement and undertake education and awareness campaigns to the best of its capability within the funding constraints that it has.

Coordination

A key function and role of the RTA is to take responsibility and leadership for the coordination of road safety activities both across the sector in terms of liaising and supporting our key partners as shown in the Road Safety Committee as part of the RTA structure as well as between central government, provincial government and local level government.

As part of that coordination role will be the subsequent development of a national Road Safety Strategy. RTA will be responsible for developing and monitoring the Strategy, but key stakeholders will be accountable for their part in addressing their defined roles and functions.



Future Activities

- Coordinate activities; Assist, advise and work cooperatively with the Police Force, Provinces and other organizations – the RTA cannot work in isolation (we need to work with our key stakeholders)

- Collect and analyze data to develop a Strategic way forward; Monitor road safety performance and develop/implement a PNG Road Safety Strategy and Action Plan for improvements

- Working with our partners; localized awareness campaigns, road safety teaching curriculum and on-going enforcement work with Police.

RTA's Mr. Wilson Wariaka and DoW's FAS-DP Mr. Gilbert Kapi presenting in Goroka & Arawa

(d) Road Safety for People with Disabilities (PWDs)

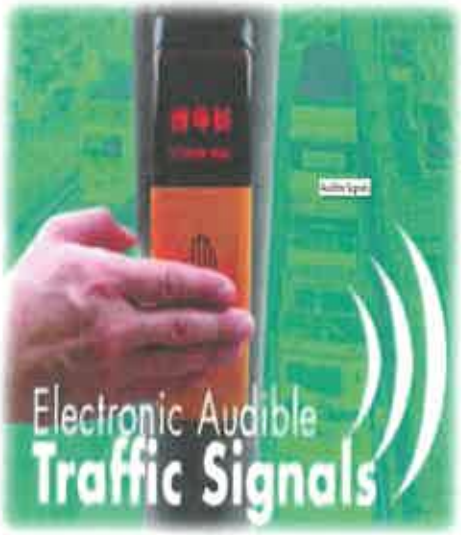
Is defined as the Impairment (physical/mental) that limits life activities. Studies have shown that about 10%-15% of PNG are PWDs. Like most developed countries PWDs have the right to equal access to facilities like roads, buildings, transportations, etc.

So what can us as leaders in road safety do to help people with disabilities and enhance safety of interactions between PWDs and:

- Vehicles/other road users, and
- The infrastructure itself

Some possible options that we can do to help people with disabilities are;

- Placing signs
- Wheelchair accessibility
- Tactile surfacing
- Audible/Braille warnings & systems



(e) Traffic Calming

Traffic Calming was presented by Eric Stensness, TSSP Component 1 Manager. Speed contributes to around half of all fatal road traffic crashes in low and middle-income Countries. Countries reducing road traffic deaths have done so by prioritising safety when managing speed.

The presentation highlighted the following;

- Objectives; the objectives of traffic calming are to ensure traffic features or devices are placed on the roads to calm traffic in reducing speeds to reasonable limits.
- Measures; the common measures of traffic calming are involving speed humps, speed limits, roundabouts, pavement markings, road width narrowing, pedestrian crossings, etc.

- Project Options;

1. Choose Appropriate Design Speed
2. Choose Measures and Spacing to Achieve Desired Speed
3. Provide Ample Pre-Warning
4. Emphasize Street Edge Treatments
5. Combine with Pedestrian Improvements

- Engineering & Aesthetics; when designing traffic calming measures the designer needs to take in consideration the following:

1. Horizontal alignments, taking into consideration long vehicles
2. Vertical alignments, change in gradient i.e. speed humps
3. Types and locations of warning signs and appropriate line marking
4. Does it fit in with the environment, urban verses rural
5. Consistency

- Impacts;

Impacts

Measure	Speed Reduction	Volume Reduction
Humps	20%	20%
Circles	10%	5%
Narrowing	5%	10%

REDUCED SPEED = LESS ACCIDENTS
SAVING LIVES

Traffic calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behaviour and improve conditions for pedestrians.

Eric Stengness, TSSP Component 1 Manager, presenting in Goroka and Arawa

(f) Designing Safer Roads

Designing Safer Roads was presented by the First Assistant Secretary Penias Paison highlighting the importance of designing safer roads and adapting best safer systems. The FAS was adamant and appealed on the internal and external stakeholders to apply the 3Cs principle; cooperation, coordinate and collaborate to address road safety issues in road designs. His presentation has outlined the key factors in road designs in the country. The outlines of his presentations are;

A. Introduction
B. Safer Road Characteristics
C. Road safety Engineering
D. Designing safer roads
E. Tools for safer road design
F. Design speed considerations
G. Low-cost practises for safe roads

Road traffic injuries are the 1st cause of death among children and young adults aged 5-29 years.

How do we define safer Roads?

- Have all safety features in placed
- Designs are compliant to minimum standards
- Understanding all road signs and pavement markings
- Road users are qualified to use the roads
- Have minimum number of accidents
- Traffic Police in operation

In general, safe roads are designed and built to be more forgiving and account for human error and vulnerability. Engineering treatments and safety improvements such as new road signs, surfaces, markings and barriers, help reduce the severity of crashes, as well as those that vulnerable road users.

B. Safer Road Characteristics

Aim to develop & maintain a safe road environment, which should:

- Warn the driver of any substandard or unusual features
- Inform the driver of conditions ahead
- Guide the driver
- Control the driver's passage through conflict points, sections, and
- Forgive the road-users' errant or inappropriate behaviour

C. Road safety Engineering

Road Safety Engineering activities can be classified into two major groups:

- Improvement of hazardous location on the existing road network
- Road Safety Audits to prevent crashes in new or rehabilitated road projects.

Four categories used for hazardous locations:

1. Single Site (Black Spot)

2. Route Study (Black Length)
3. Mass action Plan
4. Area wide (Black Area)

D. Designing safer roads

A Road design affects how safe a road is. People make mistakes, so it is important for the road design to take this into account and reduce risk of harm to people.
A safe road environment should provide:

- No surprises in design and traffic control devices
- A controlled release of relevant information
- Repeated information where pertinent to emphasise danger (e.g. advance information and warning regarding deep and unprotected drop-offs close to the road as a hazard).

E. Tools for safer road design

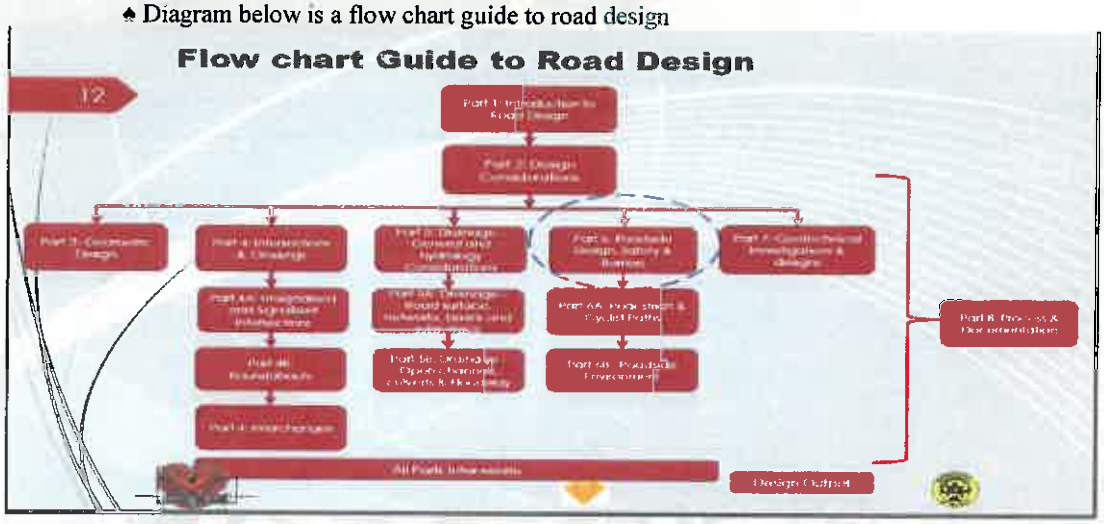
Two important design considerations for Road Safety designs and Safe traffic at Road Works. The Road Design Manual (RDM) becomes a guideline to designing safer roads and Safe Traffic Control at Road Works Manual and Field Guide becomes important guides to safe construction sites. The presentation was mainly on designing safe roads on the Road Design Manual.

The RDM has the following guidelines to design safe roads for urban and rural roads.

- Designs for horizontal and vertical alignments
- Design for super-elevations
- Design for junctions and roundabouts
- Design for traffic calming
- Design for Road Safety

E.g. DOW Road Design Manuals, April 2017

♠ Diagram below is a flow chart guide to road design



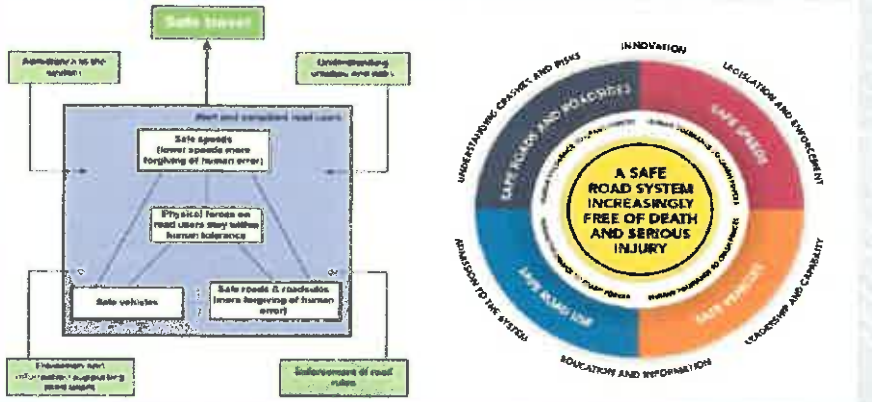
Part 6 of the Road Design Manual provides guidelines for safer road design. The provisions in this Part 6 are:

- Providing for a Safe System
  - **Safe roads** – that are predictable and forgiving of mistakes. They are self-explaining in that their design encourages safe travel speeds.
  - **Safe speeds** – travel speeds suit the function and level of safety of the road. People understand and comply with the speed limits and drive to the conditions.
  - **Safe vehicles** – that prevent crashes and protect road users, including pedestrians and cyclists, in the event of a crash.

- **Safe road use** – road users that are skilled and competent, alert and unimpaired. They comply with road rules, take steps to improve safety, and demand and expect safety improvements (Ministry of Transport 2010).

Providing for Safe System

Conceptual representations of the Safe System framework (Australia and New Zealand)



Source: Australian Transport Council (2009) and Ministry of Transport (2010).

Providing for Safe System

- Safe Roadside Design

♠ Road side Facilities and Infrastructure

♠ Road side Design, Safety and Barriers

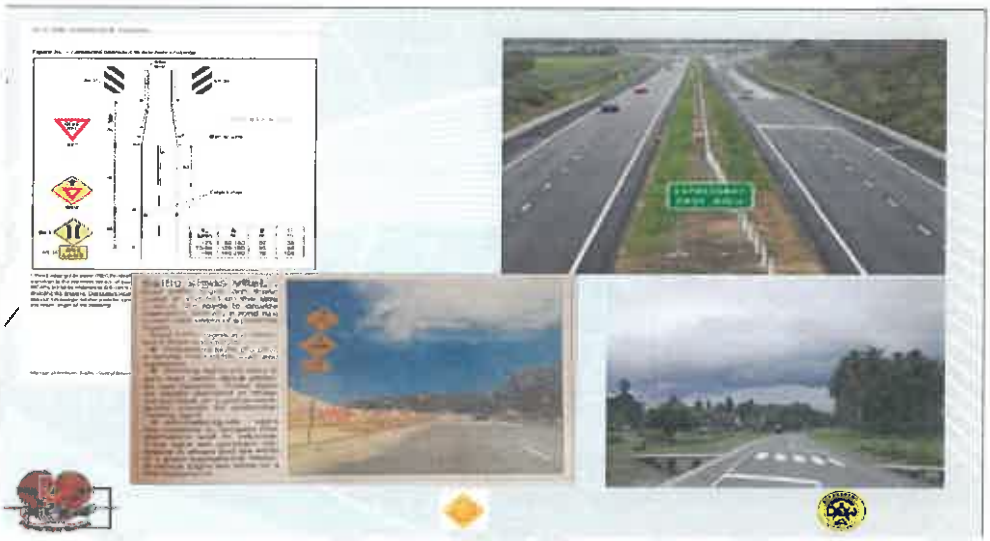
- Clear zone requirements for various traffic conditions and batter slopes (some information has been included in this Manual)
- Treatment and design of features and objects in the roadside to remove or mitigate a hazard
- The provision of road safety barriers to shield roadside hazards including the types, length and clearances required
- Design of other road safety related devices such as runaway vehicle ramps and heavy vehicle arrester beds,
- Pedestrian and Cyclist Paths
- Roadside Environment
- Environmental aspects such as stormwater run-off, fauna management and noise control
- landscaping
- Roadside amenity including visual amenity and rest facilities

- Roadside infrastructure such as road furniture, lighting, emergency/help telephones, off-street parking and utilities.

▪ Designing for Safety

In summary the following considerations are important:

- Combinations of design parameters – the adoption of lower order values for a number of design parameters in combination may create an unsafe design even though the individual design parameters are in compliance with guidelines.
- Consistent design environment – a safe road design is one that has on-road and roadside features that clearly show drivers the path that a road takes and helps them keep their vehicles in the running lane.
- Vehicle mix considerations – it is important to consider the impact and additional risk of a higher than normal percentage of heavy vehicles, particularly where steep grades are involved.
- Other specific design elements and features – (e.g. horizontal and vertical alignment, lane widths, drainage etc.).



▪ Design to mitigate hazards

Hazard mitigation process. The design process to mitigate hazards involves the identification and assessment of features and objects that may be hazardous to errant vehicles. Figure 6.2 illustrates a generic process that involves the following steps:

During identifying hazards, the following are types that may be encountered in the roadsides:

- embankments and cuttings
- roadside objects such as trees and poles
- culvert ends
- non-traversable open drains
- bodies of water
- road safety barriers
- oncoming traffic.

By carrying out Road Safety Audits

Road Safety Engineering activities can be classified into two major groups:
Improvement of hazardous location on the existing road network
Road Safety Audits – Prevent crashes in new or rehabilitated road projects

Road Safety Audits (RSAs)

For new roads & rehabilitation, RSAs (mandatory) are required at:

- Feasibility
- Preliminary design
- Detailed design, and
- Pre-opening

Road Safety Audits (RSA) must be carried out by independent auditors

For existing roads, RSAs of critical sections such as:

- Urban intersections
- Uncontrolled intersections on major roads
- School zones
- Bus stops/market areas on all major roads
- Other high volume pedestrian areas (paths/crossings) and traffic generators (e.g. Churches, clinics)
- Sub-Standard Curves and No-Overtaking Zones

Ideally, Road Safety Audit program for **ALL** roads, but need to prioritise by risk & exposure

F. Design speed considerations

Design Speed is a selected speed used to determine the various geometric features of the roadway. The assumed design speed should be a logical one with respect to the topography, anticipated operating speed, the adjacent land use and functional classification of the highway. *Design Speed* is a tool used to determine geometric features of new road during road design. *Design Speed* is not necessarily its maximum safe speed; it could be higher or lower.

Speed Limits

- The limit of the human body to forces is a key factor in survivability of crashes.
- Speed is the single greatest influence on the forces in a crash.
- Lower speed limits, with appropriate road design and enforcement, will lead to lower speeds and therefore reduced road trauma.
- Marginal reduction in the speed limit can result in a quantum drop in the casualty crashes.
- Appropriate speed limits and safer travel speeds form an integral part of the *Safe System*.

Achieving safer travel speeds

- Speed limits are just one tool
- Infrastructure: setting speed limits to match the roads and roadsides (i.e. based on road features and crash rates)
- Enforcement: compliance with speed limits, use of technology, targeting high risk times and locations
- Education: educating drivers about the speeding crash risks, effects on pedestrians, cyclists, dispelling myths and changing the culture
- Vehicle technology: top speed limiting devices and intelligent speed assist (ISA)

♠ Recommended Practices

Proven strategies for recommended practices are;

- Teamwork in designing safer roads
- Agencies corporate responsibilities
- Low-cost ways to safer roads

Teamwork in designing safer roads

All agencies to practice 3 'Cs'

- *Cooperation*; develop joint road safety priorities and inter-agency working arrangements
- *Coordination*; share information on traffic accidents, accident black spots and road safety issues
- *Collaboration*; develop solutions and plans to address specific road safety issues and monitor their effectiveness

Agencies corporate responsibilities

The three 'E's principle to achieving safer roads

- Engineering: Department of Works core business is focused on engineering and other stakeholders to work in collaboration
- Education: Road Traffic Authority or DoT with DoE to develop syllabus and educate schools and people
- Enforcement: Traffic Police and RTA using the 3Cs would enforce the road safety designs, ensuring road users understand different signs and symbols and markings on the road. In addition to enforce speed limits and arrest those who found guilty and imprison them.

Low-Cost Ways to Safer Roads

- Improve sight lines – CUT THE GRASS!
- Provide Centre, Lane, No-passing and Edge line markings with RRPMs or glass beads
- Provide footpaths (sidewalks)
- Provide safe crossing points and zebra-crossings with signs and markings
- Reduce traffic speeds in towns and villages, on sharp curves
- Provide extra-widening on sub-standard curves and advisory speed signs
- Discourage unsafe overtaking (Markings/RRPMs/Dividers/Flush Medians)
- Convert cross-roads to roundabouts (or signals)
- Provide channelization at junctions
- Remove, shield or sign roadside hazards
- Appropriate use of barriers/guardrails
- Provide bus bays e.g. W:3.5m, L:12-15m/bus with signs
- Bus lanes
- Waiting bays and jug handles

Peniag Paison FAS-DS, presenting in Goroka and Arawa

(g) Traffic Control

♠ Aim of Workshop

1. Quick review of SAFE TRAFFIC CONTROL.
2. Worked example.
3. Groups to produce Traffic Control Plans.
4. Traffic Control Plans are reviewed by the workshop

The "Safe Traffic Control at Road Works and Field Guide are the two useful booklets that highlight the safety issues on construction sites.

Detailed Information
(More Standard Traffic Management Plans & Risks to Consider)

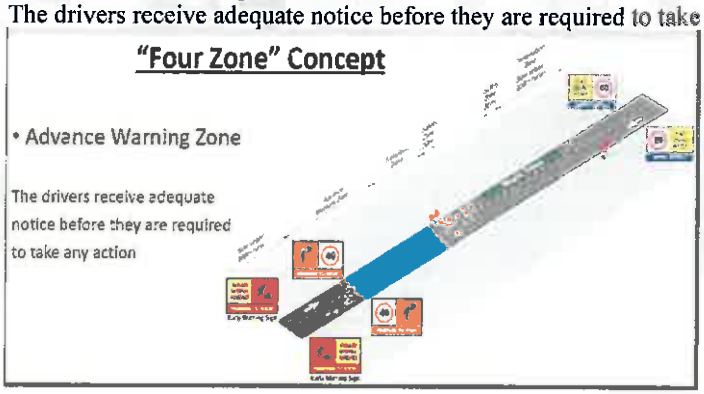
General Information
(Helpful Tips and Instructions for Traffic Controllers)

"Four Zone" Concept

A road work site is comprised of four individual but interrelated zones.
The four zones are:
•Advance Warning Zone
•Transition (Tapper) Zone
•Work Zone
•Safety (Buffer) Zone
•Termination Zone

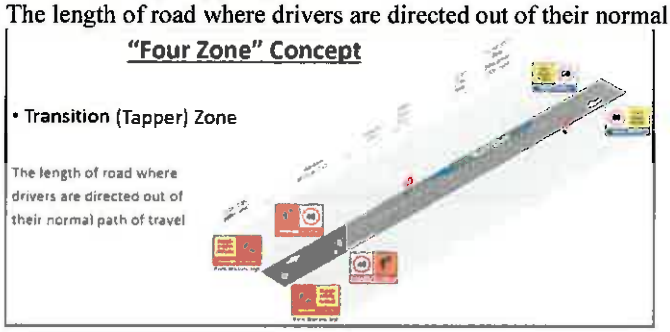
Advance Warning Zone

The drivers receive adequate notice before they are required to take any action



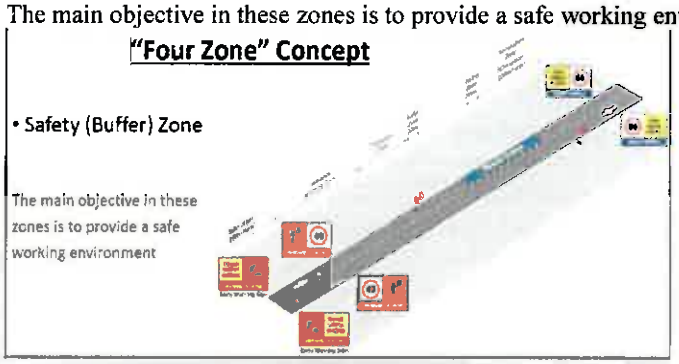
Transition (Tapper) Zone

The length of road where drivers are directed out of their normal path of travel



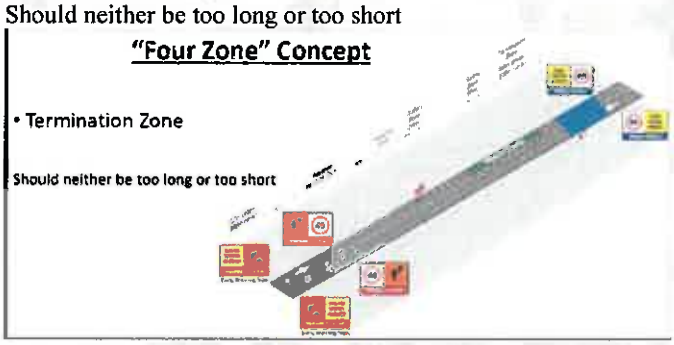
Safety (Buffer) Zone

The main objective in these zones is to provide a safe working environment



Termination Zone

Should neither be too long or too short



♠ What to do about when producing a TMP

1. Planning Phase
   - •Know the different types of work that you will be doing.
   - •Go to the Site
   - •How much room is required for your staff and equipment and the traffic
   - •Complete the Worksite Hazard Assessment – Checklist

2. Designing Phase
   - •Know the different types of work that you will be doing. – **is more than one TMP required?**
   - •How much room is required for your Staff and Equipment – **is there a satisfactory generic plan**
   - •Completed the Worksite Hazard Assessment – **apply this to the "Four Zone" Concept**

3. Implementation Phase
   - Have you got all the signs and cones needed – **Are any new signs required or damaged signs?**
   - Set out the site starting from the outside and work in – **Early Warning -> Cones**
   - Drive through the site to check that it is all working correctly – **don't just look at it but drive your site from both ways**

4. Operation Phase
   Daily inspection of the site, check what the signs and devices are "telling the motorists". No signs or delineators or barriers should surprise a driver.

5. Close out Phase
   - Is the site safe to be reopened to traffic. – **has the lose chip been swept of the road**
   - Remove the signs in reverse from setting up – **Start from the inside and work out**

Matthew Wenborn, TSSP Road Engineering Advisor presenting in Goroka & Arawa

(h) Occupational Health & Safety

The terms Occupational Health and Safety (OHS) and Workplace Health and Safety (WHS) are equivalent and generally either can be used in the workplace. Both terms will be used. Occupational Health and Safety (OHS), or Workplace Health and Safety (WHS), is a multidisciplinary field concerned with the safety, health, and welfare of people at work.

The office of the Occupational Health and Safety in office was given the opportunity to present the importance of employees to be healthy and safe in work place. To ensure employees and others are given highest level of protection from hazards and risks as is "Reasonably Practicable" (minimise risks as much as possible). Naomi Parker the officer in charge presented the overview of OHS in Goroka and Arawa highlighting the following;

- Objective of Occupational Health & Safety
- What is Occupational Health & Safety?
- Why Occupational Health & Safety important?
- Purpose of Occupational Health & Safety
- Benefits of OHS in your Business
- OHS Obligations for Business
- OHS Obligations for Workers
- Current Laws and Regulations in PNG
- OHS Legislations
- Types of possible hazards in the Workplace
- Common types of health hazards
- How health hazards enters the body
- Harm caused by health hazards
- Common types of safety hazards
- Factors that contributes to work place health and safety

- Managing risk in the workplace
- Hazard identification process
- The hierarchy of control measures

Occupational Health and Safety (OH&S) in the workplace requires co-operation from both employers and employees to ensure that the workplace is a healthy and safe environment. Both employees and employers are required to co-operate by the rights and responsibilities that are set for them.

It is the responsibility of employers, who are legally and morally obliged to provide a safe and healthy environment.

Employees must also understand OHS so they can ensure their own health & safety is not compromised in the workplace. When everyone is aware of OHS the workplace will be a safer place to work in with a healthier workforce who will be productive and efficient.

▪Analysis of the current OSH System in PNG reveals significant defects and shortcomings.

▪Papua New Guinea Government now understands and recognises the need for a single OSH Policy and Legislations that enables a conducive environment for OSH.

▪Measures to improve OSH in PNG has now completed with the OSH Policy and Bill now before Legislature and Government for enactment

Naomi Parker DoW's OHS officer presenting in Goroka and Arawa

A SUMMARY OF RECOMMENDATIONS FROM WORKSHOP PRESENTERS AND PARTICIPANTS

1. Designing safer roads depend on cooperation, coordination and collaboration (3Cs) of different parties to address frequent road accidents in the Papua New Guinea.
2. Road safety matters to everyone
3. Road Safety is multi-disciplinary
4. PWDs right to equal access to facilities (roads, transportation, buildings etc.)
5. iRAP PNG has been established in 2015 in DOW HQ and welcomes stakeholders like provincial governments, district authorities, state authorities to employ the recommendations or conduct road safety assessment on their roads to make them safer for the society to live in.
6. The safer road is a collaborative responsibility involving the 3Es; Engineering is the sole responsibility of Department of Works to work in partnership with internal and external stakeholders to design safer roads, Education is responsibility of RTA and DOE to develop a curriculum about road safety to be taught at schools in the country.
7. Traffic calming devices are encouraged in road safety designs and for all concerned agencies to consider in Road and bridge designs
8. RTA manages and maintains a national road accident/casualty database based on reported crashes from the Police
9. The "Clear Zone" is the area where a vehicle leaving the road can travel without conflict.
10. Occupational Health and Safety (OHS), or Workplace Health and Safety (WHS), is a multidisciplinary field concerned with the safety, health, and welfare of people at work.

WORKSHOP OUTCOMES

Designing & Constructing Safer Roads

Road safety is anybody's business; the road designer, the educator, the enforcer, the road user and the developer. Papua New Guinea must join with the rest of the world by using the best world practices to address the road safety issues. Papua New Guinea's road network must be safe for the citizens and all road users. The table below captured the resolutions of the two workshops conducted, respectively.

Ref No.	Workshop Outcomes	Target Agencies	Responsibilities
1	All agencies and stakeholders to adapt 3Cs; Cooperation, coordination and collaboration principle	DoW, RTA, DoE, Traffic Police, NCDC, Contractors, Development Partners	All the targeted agencies and stakeholders to cooperate and collaborate to coordinate road safety issues and activities in PNG
2	Develop Maintenance First Policy to ensure roads are free of obstruction which may cause accidents	DoW, NCDC	The two parties claim support from development partners to establish Maintenance First Policy (MFP)
3	Engineering for designing safer roads and constructing them	DoW, NCDC	The two agencies cooperate, coordinate and collaborate in road and bridge designs prioritising road safety design
4	Educating the features of safer roads in designs, traffic signs, and speed limits in schools	RTA & DoE	Road Safety must be educated in all the schools in Papua New Guinea, which the RTA to collaborate with DoE to develop a curriculum for teaching it as a subject.
5	Enforcing road traffic rules for road users who intentionally break them.	RTA, Traffic Police	RTA and Traffic Police to ensure road users are compliant to certain speed limits and road safety signs.
6	Appropriate road traffic signs designed and installed and protected	DoW & Traffic Police	To ensure vandalism of road signs and other safety features on the roads are prevented
7	Road Safety Audits to be regularly carried out for existing and new roads	DoW, NCDC	The two agencies role is designing and thus must establish road safety audit
8	Licencing for drivers to follow a comprehensive approach, introducing to the learners the detail traffic rules and to understand different road signs and must pass certain tests before issuing them their driving permits and licences.	RTA (MVIL)	To ensure driver licensing is coordinated transparently and all learners must go through several tests to pass all safety rules to be familiar with road safety signs and certain speed limits
9	Traffic calming design considerations are imperative	DoW, NCDC	The two agencies are responsible for designing roads that will calm traffic. This would be achieved through carrying out road safety audits for every road designs
10	Establish Papua New Guinea Road Safety Council (RSC) as watch dog to Road Safety	RTA	RTA to establish PNGRSC to be the key body to deal and spearhead with Road Safety issues in the PNG. To ensure all concerned agencies representatives formed the committee.
11	Update Road traffic accidental data and identification of blackspots,	DoW, RTA, Traffic Police	The agencies to cooperate and collaborate to collect and update Traffic related accidental data.
12	All provinces must know their Star Rating	RAMS, Asset Management – DOW	Produce maps and distribute the Star Rating for all provinces based on the iRAP study for PNG Roads

13	All employees, road users and citizens of PNG must be healthy and Safe	All	Must enforce Occupational Health & Safety (OH&S) at workplaces, homes and schools

REFERENCES

All references were based on the presentation of various topics during the workshops.

(1) Presenters' power point presentations

(2) Department of Works Road Design Manual, April 2017

(3) Safe Traffic Control at Road Works & Safe Traffic Control at Road Works Field Guide

(4) World Health Organization 2015