World Bank GRSF and Asian Development Bank (ADB), in partnership with APRSO, iRAP and GRSP

Helping save lives from road crashes in Asia-Pacific

Thank you for joining, we will start shortly

World Bank GRSF and Asian Development Bank (ADB), in partnership with APRSO, iRAP and GRSP

Helping save lives from road crashes in Asia-Pacific

5-part webinar series - 8, 10, 15, 17, 24 February 2022

This webinar series was developed in partnership between:

ASIA-PACIFIC ROAD SAFETY OBSERVATORY

ADB

THE WORLD BANK
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GRSF
Global Road Safety Facility

Bloomberg Philanthropies
INITIATIVE FOR GLOBAL ROAD SAFETY

iRAP

GLOBAL ROAD SAFETY PARTNERSHIP

MODERATOR

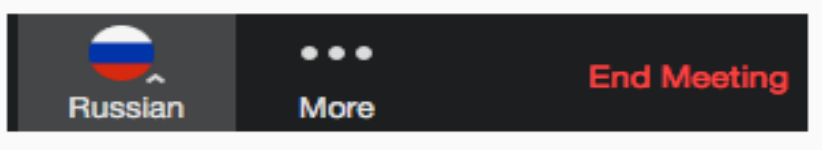
Blaise Murphet

Global Road Safety Partnership (GRSP)

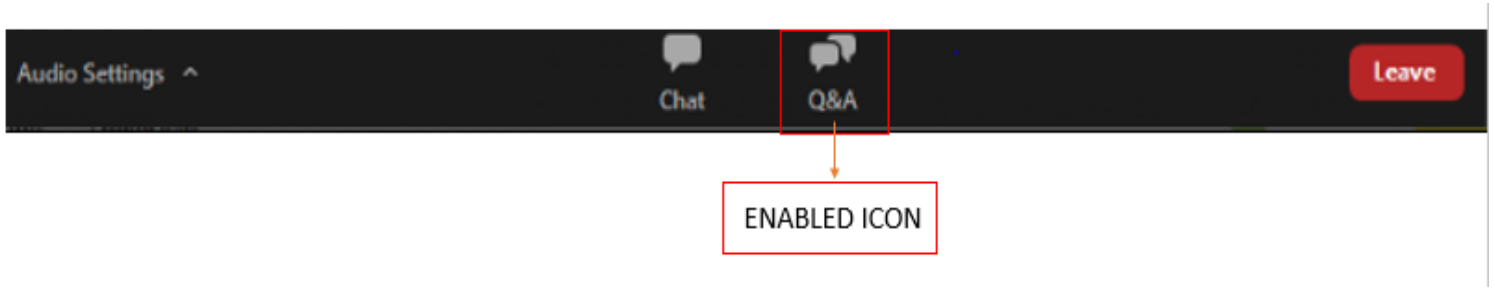
Blaise.MURPHET@ifrc.org

PARTICIPANTS GUIDE ON ZOOM

- Russian translation is available during the session. Please select your language preference (English or Russian) through the interpretation button.



- Sessions will have Q&A portion during the presentations and towards the end of each session. A Q&A icon is available for all participants. All questions will be managed by the moderator. Participants are strongly encouraged to submit questions and comments throughout each session in the Q&A icon function, and these will be raised, when possible, with facilitators.
- Zoom Webinar Icon meeting enabled for participants



HOUSEKEEPING

#HelpingSaveLives

Presentations and recordings available after the session

Please change your zoom name to your full name

COURSE EXPECTATIONS

- Certificate of Attendance will be issued to the participants who have completed all sessions.

- Homework assignment is optional, but highly recommended

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Ministry of public Works and housing, Indonesia

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Overview of the webinar session

Topic	Speaker
Open	Blaise Murphet, GRSP
Case studies: Road infrastructure safety initiatives in Asia and the Pacific	David Shelton, ADB
Case study: Strategy, design manual for motorcycles and using audits to achieve a star rating target in Viet Nam	Van Anh, World Bank and Edoardo Mazzia, FRED Engineering
Case study: National standards, capacity building and safe corridors in India	Krishnan Srinivasan, World Bank
Case study: Capacity building and network assessments in Georgia, Pakistan and Kazakhstan	Luke Rogers, iRAP
Case study: Road Safety capacity building and interventions in the Philippines	Fang Xu and Jigesh Bhavsar, World Bank
Case study: Safety Performance Indicators for Safer Roads in Indonesia	Mr. Handiyana, Directorate General of Highways, Indonesia
Introduction to the practical activity and examples of support materials	Greg Smith, iRAP
Summary and close	Blaise Murphet, GRSP

Case studies: Road infrastructure safety initiatives in Asia and the Pacific

David Shelton
Asian Development Bank

Case studies

ADB road infrastructure safety initiatives

Contents

- ✓ Sub-regional road safety capacity programs
- ✓ Country road safety projects
- ✓ Country road infrastructure projects
- ✓ Regional capacity building

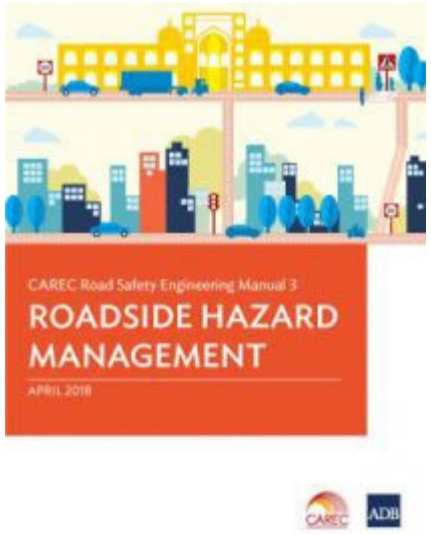
Enhancing road safety in CAREC countries

Sub-regional, multi-year program, safe infrastructure focus

- **Output 1: Road safety engineering capacity in road agencies**
- **Output 2: Cross-institutional road safety collaboration and data collection capacity improved**
- **Output 3: Intelligent road safety information systems developed and deployed**
- **Output 4: Knowledge products disseminated**

Enhancing road safety in CAREC countries

CAREC Road Safety Engineering Manuals



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SASEC road safety foundations

Commencement workshop of all SASEC member countries

Initial scope:

- Review of road safety in member countries to identify and set out priority actions at a national and regional level

- Develop a regional road safety strategy for SASEC

- Develop knowledge products to support improving road safety including strengthening capacity in member countries

Improving road safety in ASEAN nations

ASSOCIATION OF SOUTHEAST ASIAN NATIONS

Sub-regional, multi-sectoral (Completed 2017)

- ASEAN Multisector Road Safety Special Working Group (MRSSWG)
- ASEAN regional road safety strategy
- Strengthened capacity to monitor and analyze road accident data
- Extensive Safe System training

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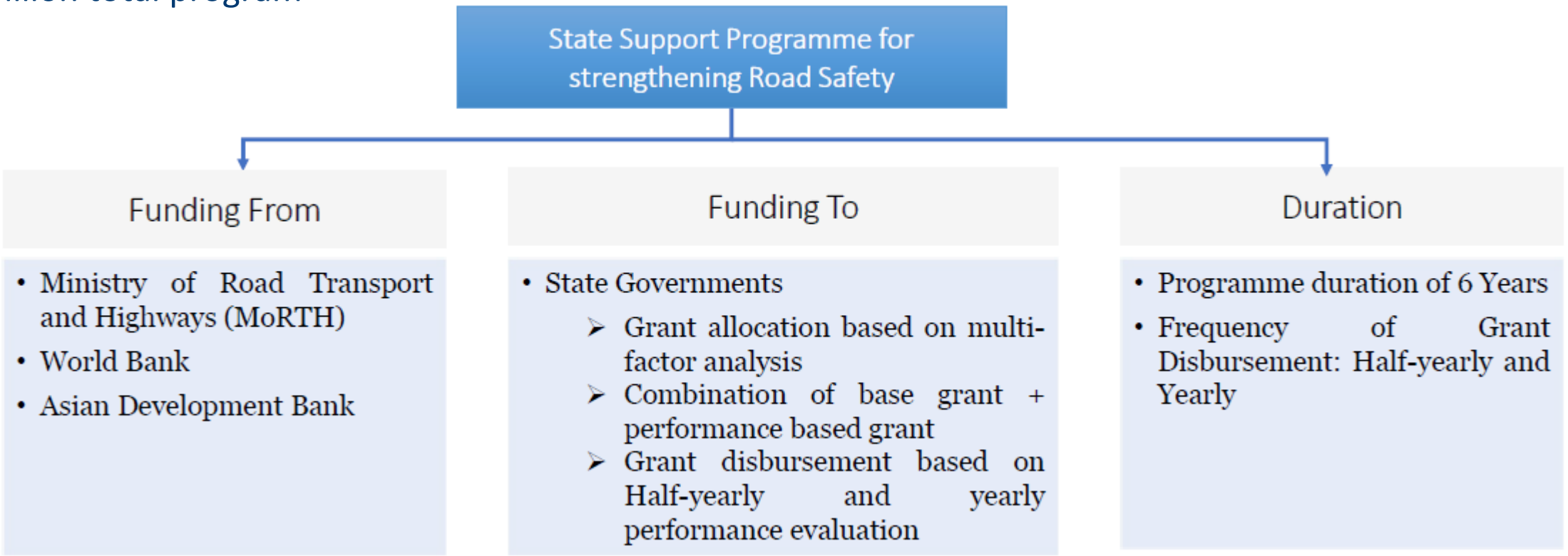
India State Road Safety Incentive Program

Results-based loan (proposed)

$1 billion total program



ADB road projects safety inclusions

Over 2010 to 2018 period of 173 road infrastructure projects

53.2% of all projects included a road safety component:

- a road safety target or indicator (55%)
- road safety audit (46%)
- community awareness road safety training (48%)
- road safety national plans
- establishment of road safety units or an oversight committee (2 projects)

ADB road projects safety outcomes (Examples)

Kazakhstan: CAREC Transport Corridor 1 (Zhambyl Oblast Section)
Upgraded 49 km section of highway
Fatalities/km reduced from 0.30 to 0.09 (2006–2016)

India: Karnataka State Highway Improvement Project
Upgraded 615 km of state highways
16% to 89% reduction in fatal and severe injury accidents (2010–2018)
Road Safety Unit created under PWD

India: Madhya Pradesh District Connectivity Sector Project
Upgraded 1,600 km of major district roads
Fatal crashes reduced to 20 per year compared to target of less than 25 (2013–2018)

Asia-Pacific Road Safety Observatory

ASIA-PACIFIC ROAD SAFETY OBSERVATORY

ADB

UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

FIA

International Transport Forum

THE WORLD BANK
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GRSF
Global Road Safety Facility

World Health Organization

UKaid
from the British people

INTERN

Questions?

Case study: Strategy, design manual for motorcycles and using audits to achieve a star rating target in Viet Nam

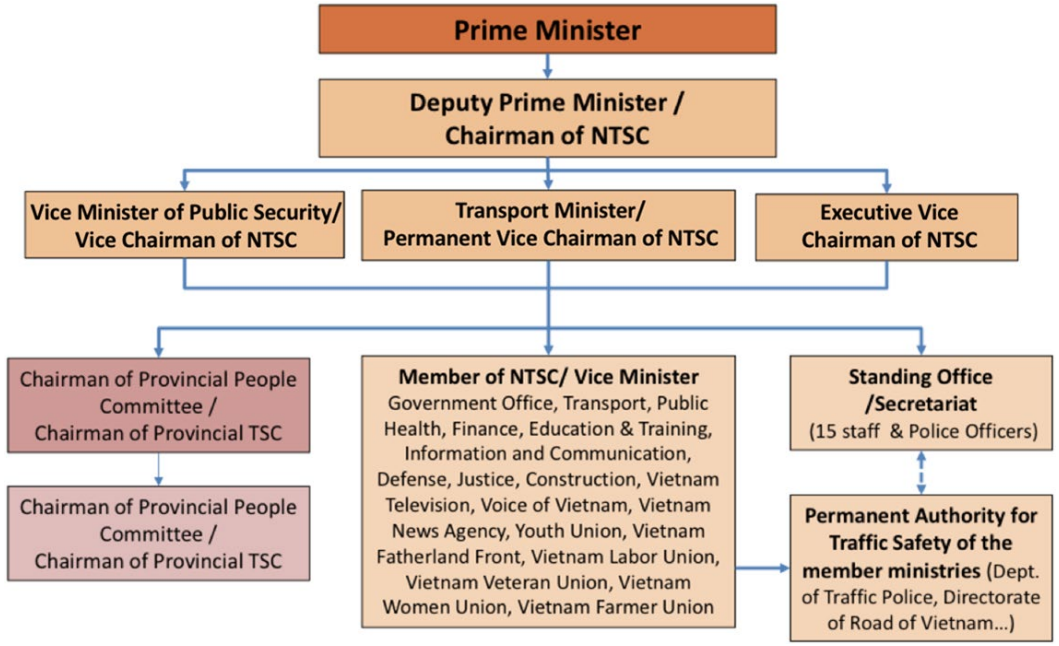
Van Anh Thi Tran
Senior Transport Specialist
World Bank, Vietnam

Edoardo Mazzia
FRED Engineering

Content

- Viet Nam Road Safety and World Bank engagements
- Viet Nam case study
- Conclusions

Viet Nam road safety



	Traffic Fatalities	Traffic Injuries
2019	7624	13624
2020	6700	10804
2021	5799	8018

Source: VN NTSC

PROS	Road Safety Audit (RSA) is integrated in the independent review of technical design (following Decree 11/2010/ND-CP on RSA)	Vietnam has ~60m motorcycles. The most common and cost-effective mode of road transport in Viet Nam
CONS	RSA has hardly been conducted for the roads before putting into operation and existing roads	85% road fatalities are related to motorcycles, especially due to a mix of traffic vehicles

World Bank engagements

Where The WB stands on road safety?

- Traffic safety is addressed in all Viet Nam transport related projects financed by the World Bank.
- The first stand-alone (2nd generation of RS) Road Safety project in Viet Nam completed in 2012 covering 4Es in one project (Engineering, Enforcement, Education, and Emergency).
- After completion of the first stand-alone Road Safety project in Viet Nam, the WB continue to provide supports though various activities and technical assistances (iRAP for 3500km of Vietnam national highway, RSA for HCMC BRT corridor and Central Highland Connectivity Improvement Project, Danang – Quang Ngai expressway, development of design standards for motorcycle lanes for the national highway systems, introduction of a web-based and open-source system for geo-spatially recording and analyzing road crashes - the Data for Road Incident Visualization Evaluation and Reporting (DRIVER) system), study on establishment of Road Safety Observatory.
- Our on-going activities will be presented now by Edoardo Mazzia

Viet Nam case study

- **Date:** Aug 2020 – May 2022
- **General objective**: to improve safe road connectivity along the NH19 (Trans-Asia Highway) (~250 km) and selected national highways to be upgraded under VRAMP (~50 km)

Specific objectives

- Conducting RSA of detailed design of roads to be upgraded and RSI for sections in operation
- Applying iRAP methodology to all phases of the assessment process
- Upgrading the draft Motorcycle Lanes Manual and Guidelines
- Capacity building

Approach consistent with **UN Global Plan** recommendations for safer roads

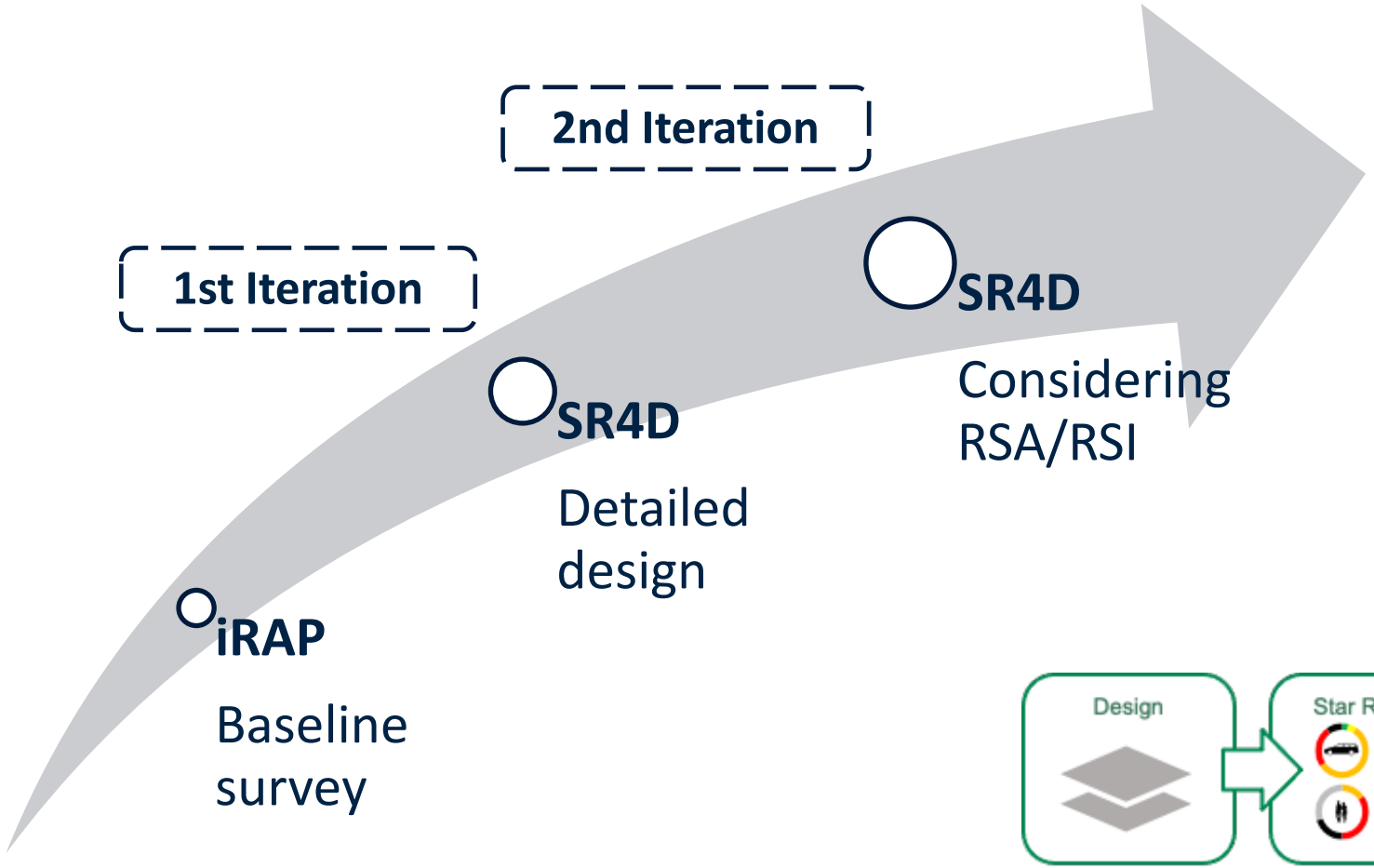
DECADE OF ACTION FOR ROAD SAFETY 2021 - 2030

1. *Develop functional classifications and desired safety performance standards for each road user group at the geographic land-use and road corridor level.*
2. *Review and update legislation and local design standards that consider road function and the needs of all road users, and for specific zones.*
3. *Specify a technical standard and star rating target for all designs linked to each road user, and the desired safety performance standard at that location.*
5. *Undertake road safety audits on all sections of new roads … to ensure a minimum standard of three stars or better for all road users.*

Road safety assessment tools

The safety assessment combines the Road Safety Audits/Inspections with the **iRAP assessment**, that strengthen the RSA/RSI process, **complementing it with a reliable, objective qualification of road user risk**

iRAP approach – iterative safety assessment



SR4D has been run twice:

- Before the RSA
- After the RSA/RSI

Goal: Achieve the minimum rating of 3 stars for all road users.

Road NH19

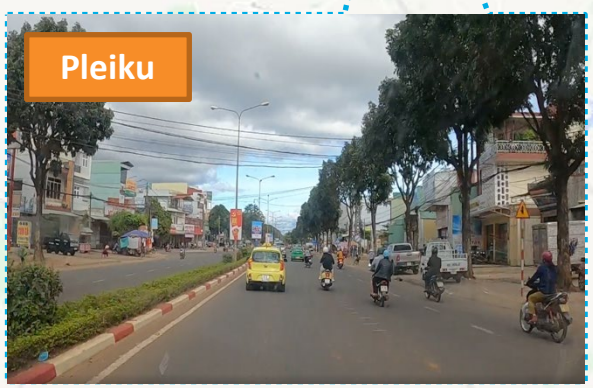
RSA
RSI

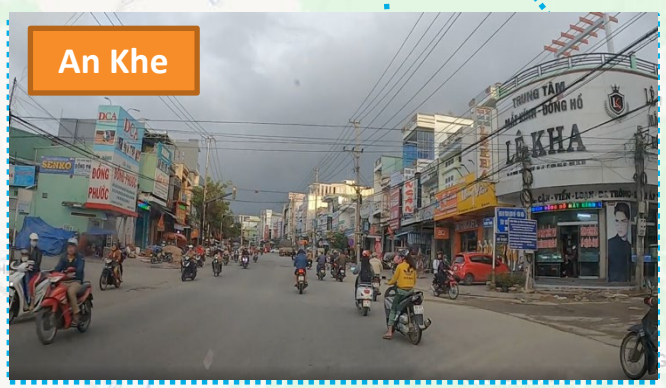
Total length 255 km

144 km to be rehabilitated under CHCIP project (-> RSA)

111 km partially already upgraded (-> RSI)

- ✓ 2 lanes undivided; divided in some major towns
- ✓ Predominantly in semi-built-up area
- ✓ Poor road conditions



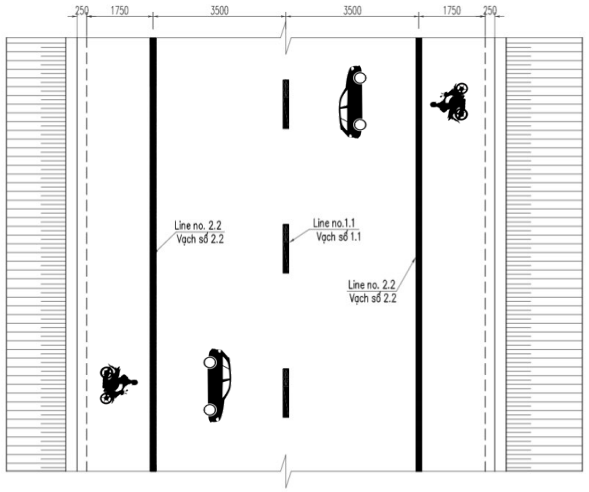


Detailed design - main features

EXISTING CONDITIONS

- High proportion of motorcycles (more than 70% of road traffic).
- High number of pedestrians and cyclists and lack of VRU safety facilities.
- Dangerous interactions between motorcycles and four-wheeled vehicles.
- Poor safety features and road conditions.

DESIGN



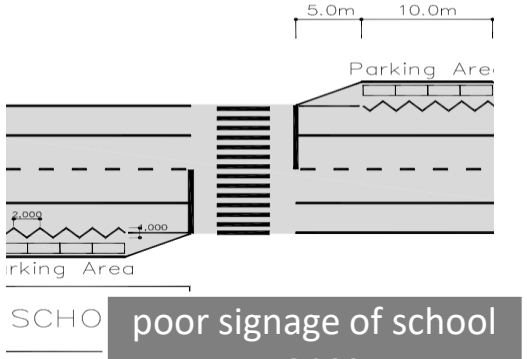
- Mixed lanes where only two-wheeled motorized vehicles and bicycles are permitted, separated from the vehicle lanes by longitudinal rumble strips.
- Widening of the cross-section.
- Pedestrian safety facilities at bus stops, school locations and in built-up areas.

Road Safety Audit / Inspection

Safety issues identified in the RSA of the design and RSI

Key issues

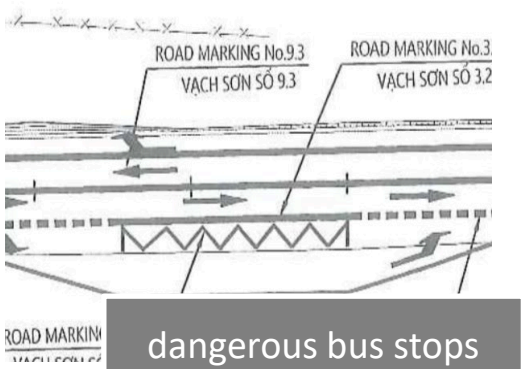
poor signage of built-up areas



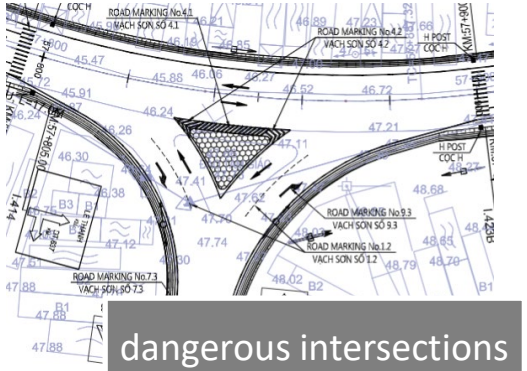
poor signage of school zones

roadside hazards

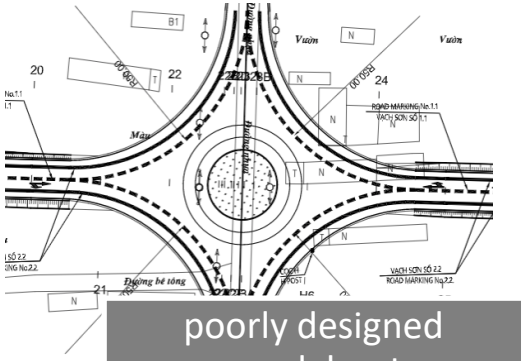
limited pedestrian facilities



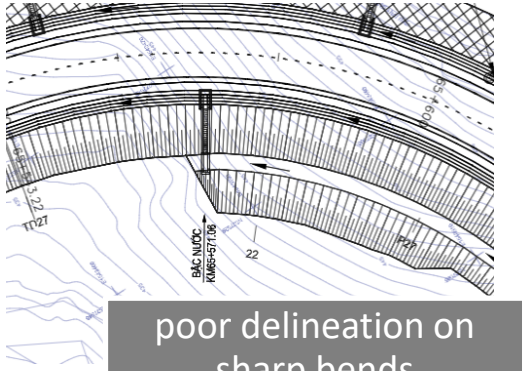
dangerous bus stops



dangerous intersections

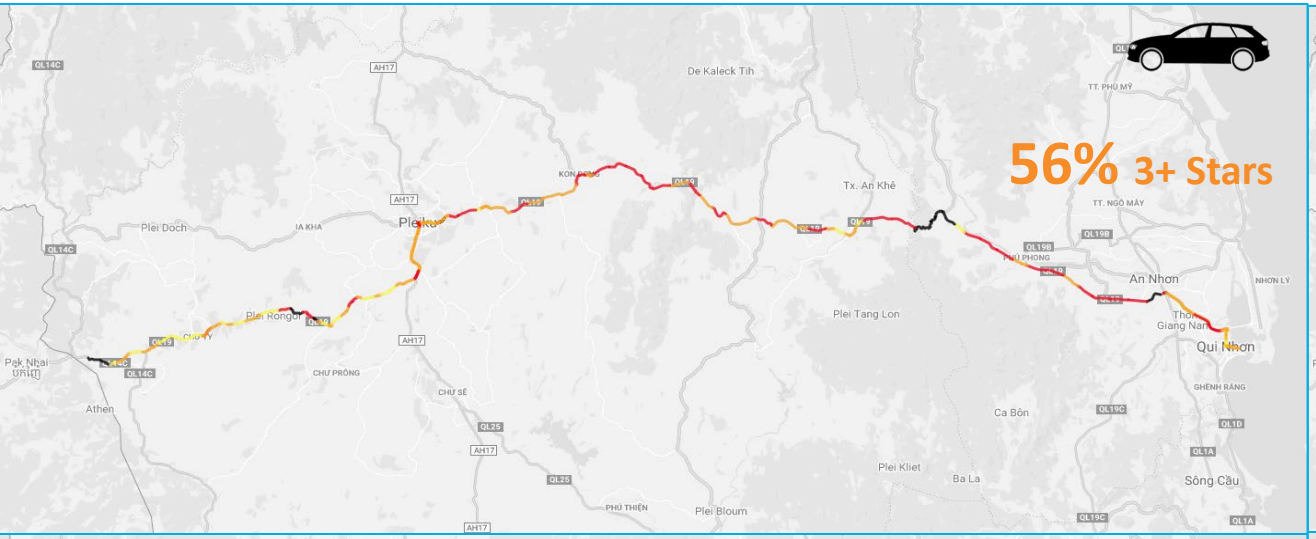


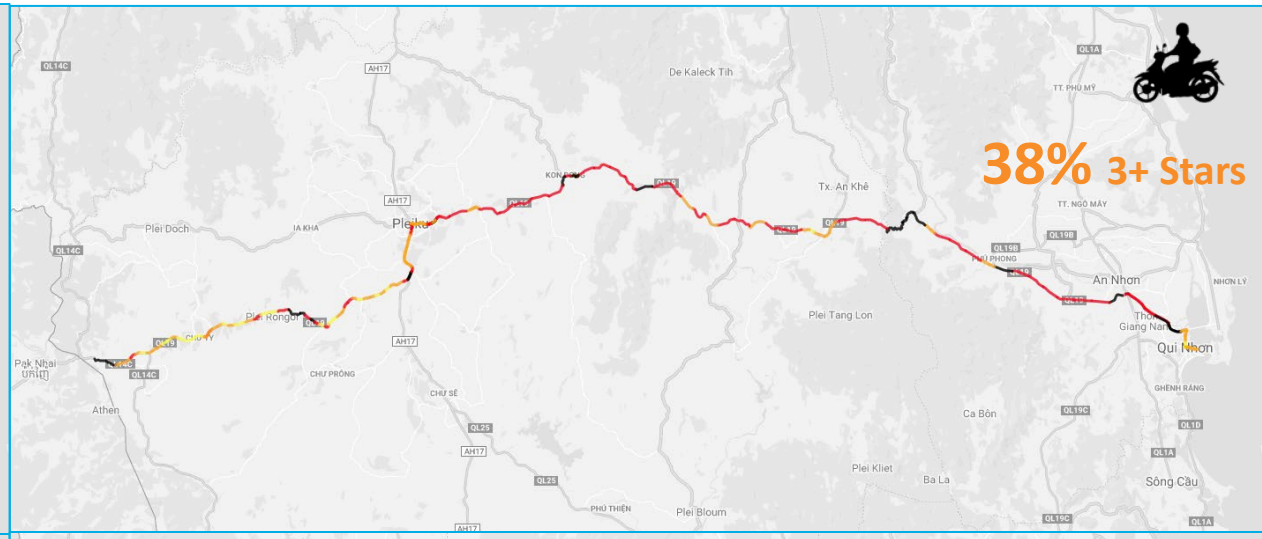
poorly designed roundabouts

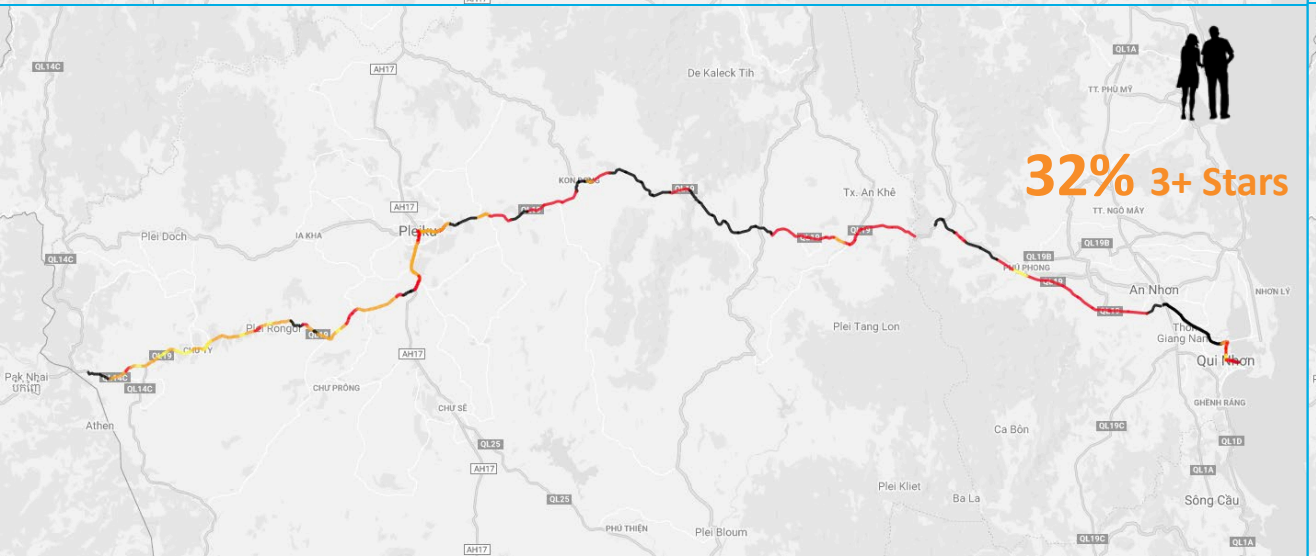


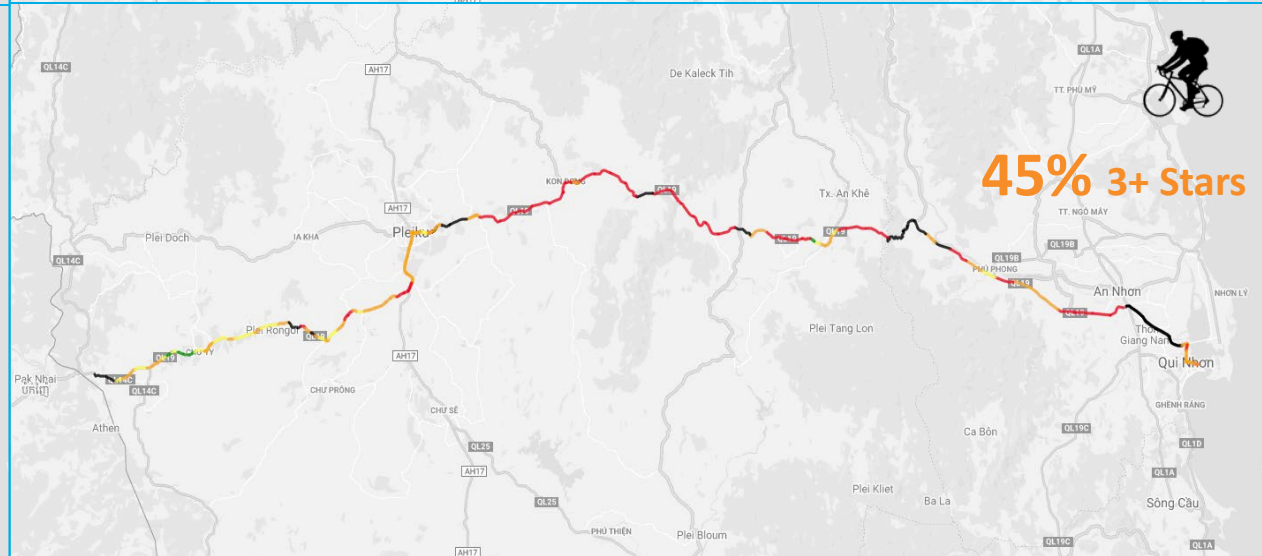
poor delineation on sharp bends

Baseline Star Rating (2021)

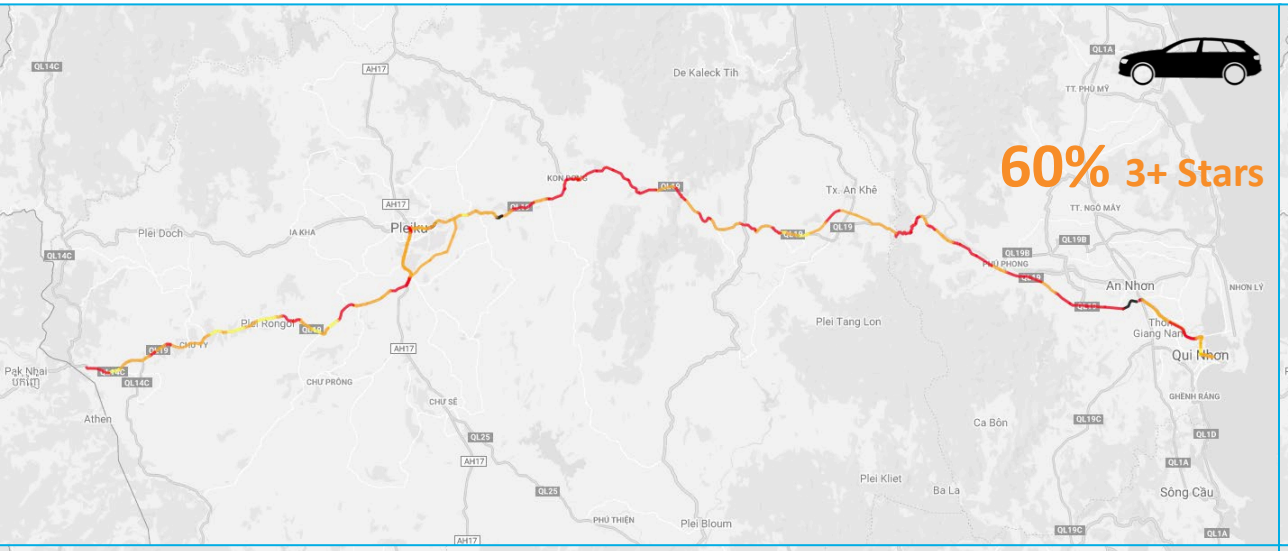


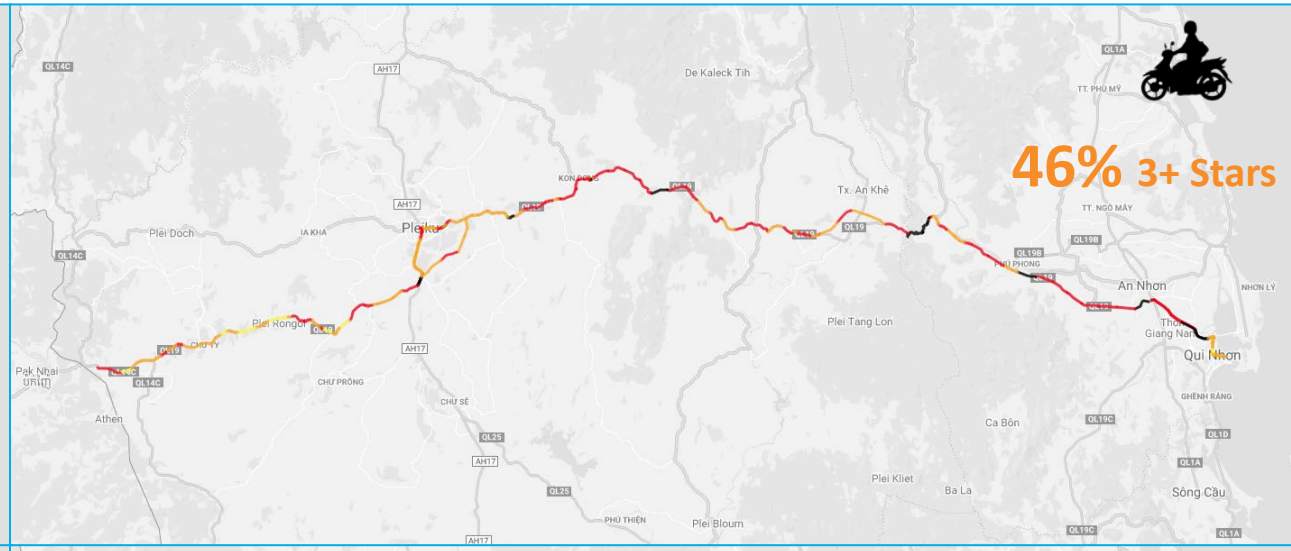


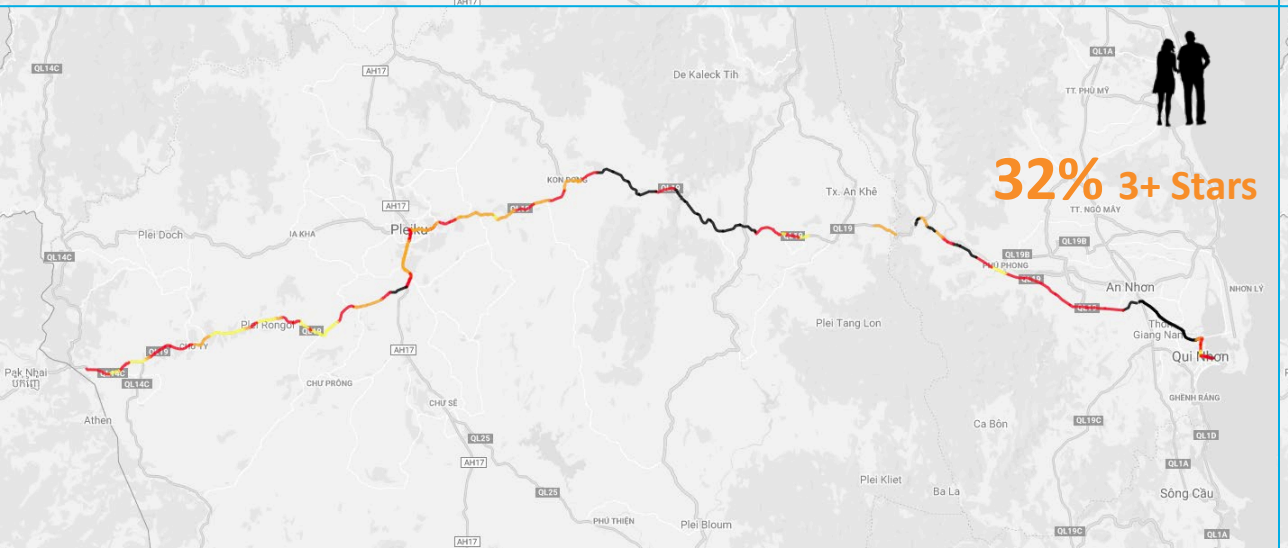


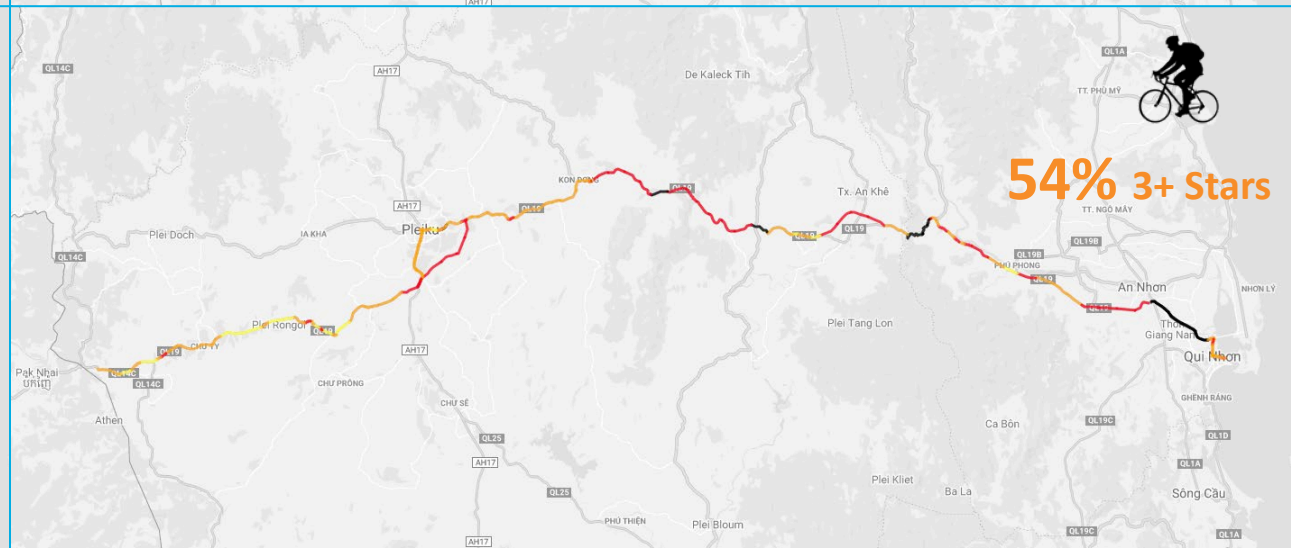


Star Rating after design on CHCIP sections

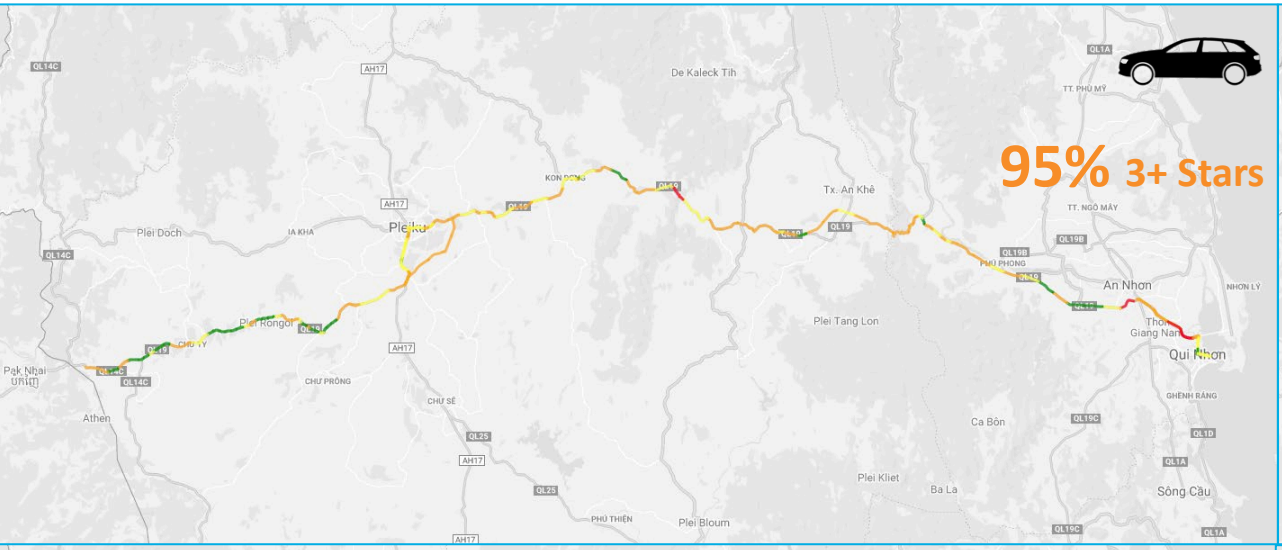


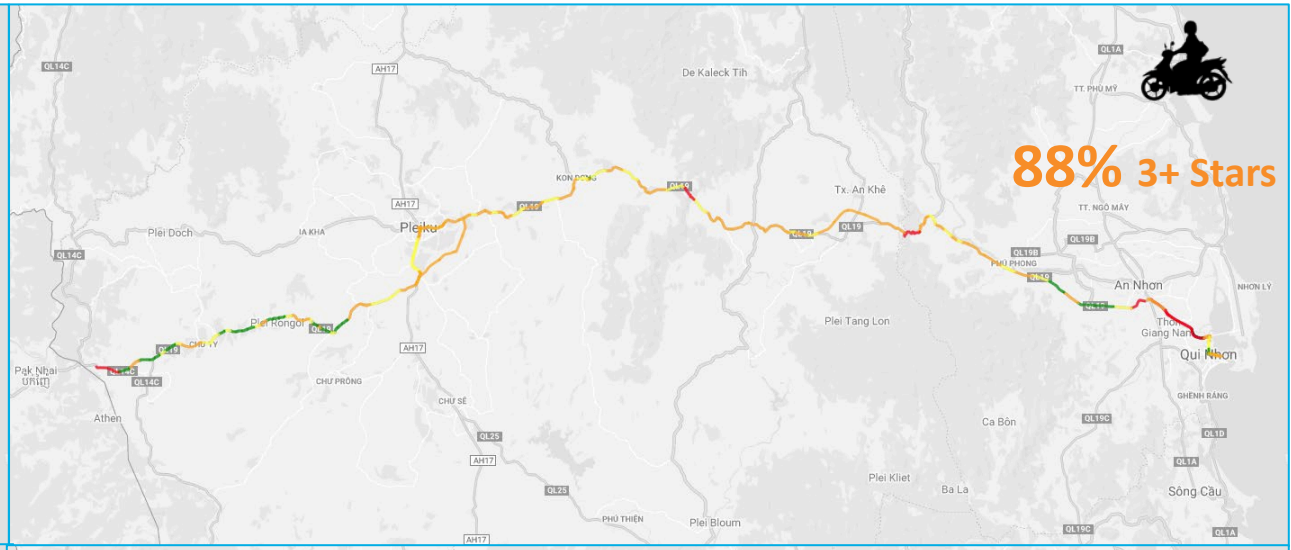


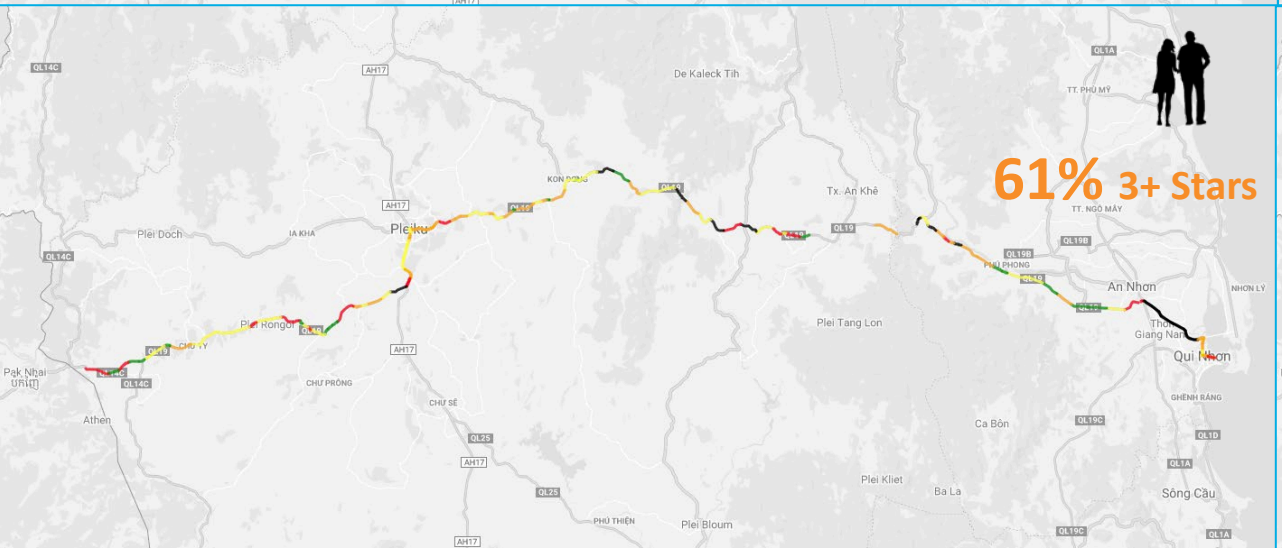


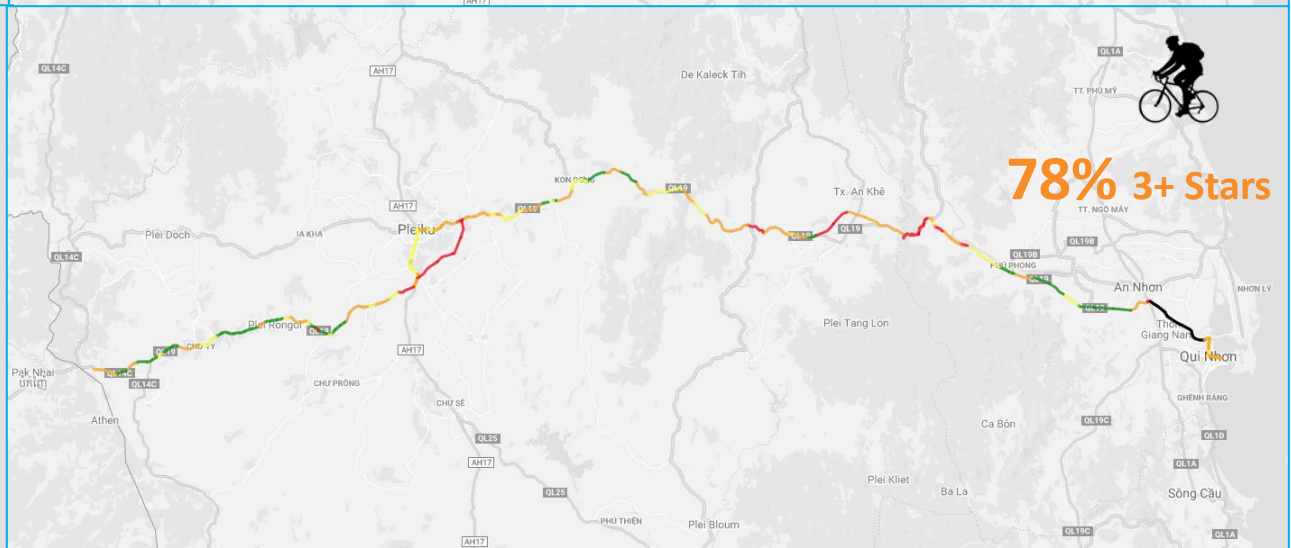


Star Rating after RSA/RSI

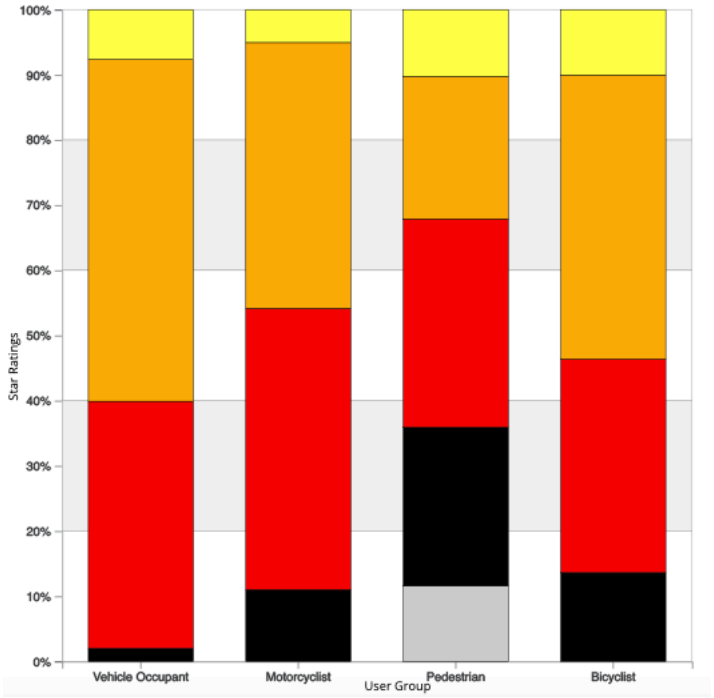




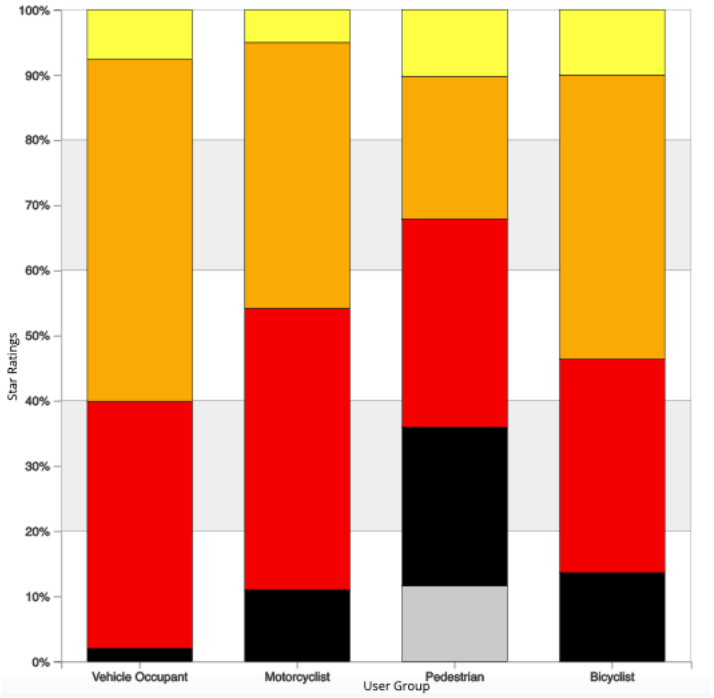




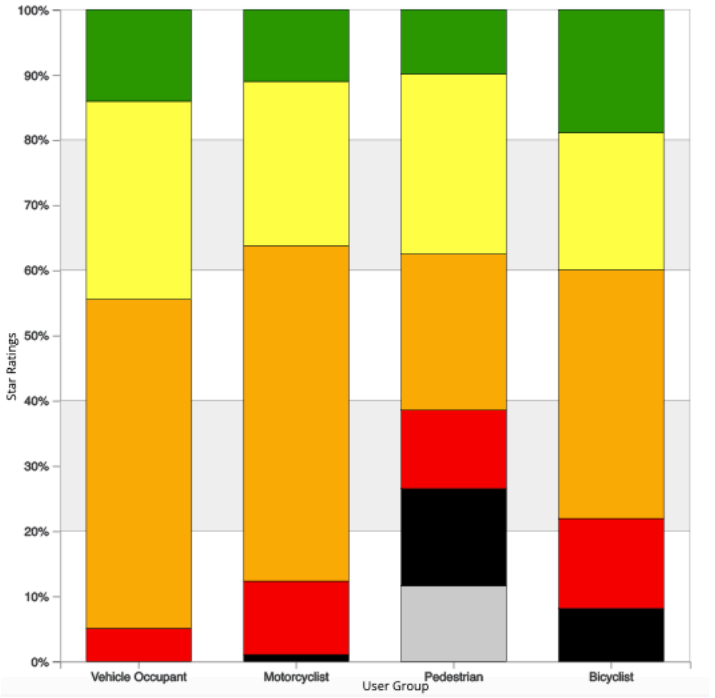
Star Rating improvement



baseline



after design (only CHCIP)



after RSA/RSI

Estimated annual reduction in FSI

Sections upgraded in CHCIP

FSI estimation	Vehicle occupants	Motorcyclists	Pedestrians	Bicyclists	Total
Existing conditions	45.1	293.4	47.5	71.3	457.4
Detailed design	30.7	170.9	14.3	33.1	249.0
Design after RSA recommendations	22.5	119.1	10.3	22.5	174.3

208 FSI prevented each year (design)

+75 FSI implementing RSA

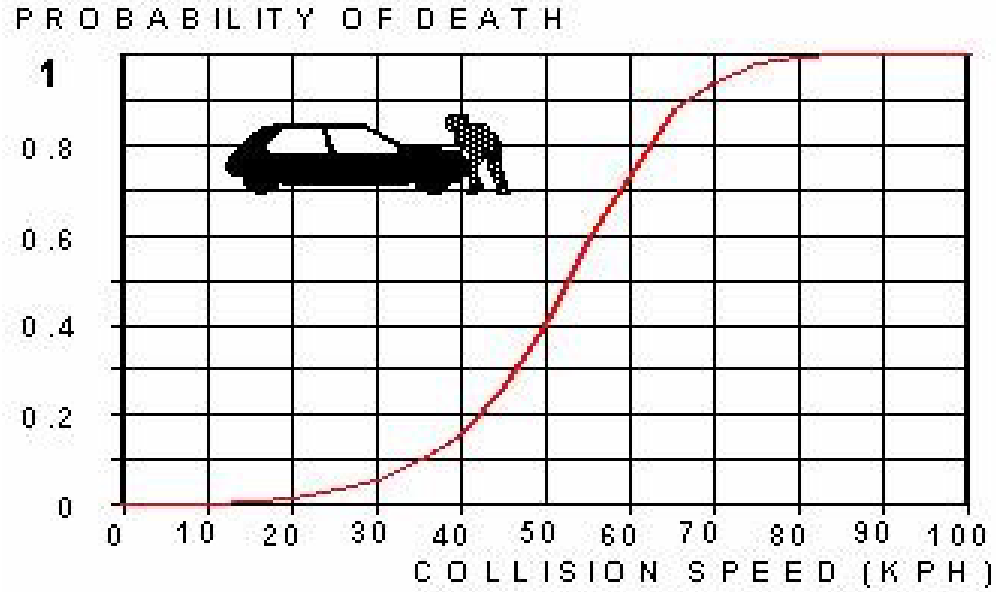
Sections not included in CHCIP (143km of carriageways)

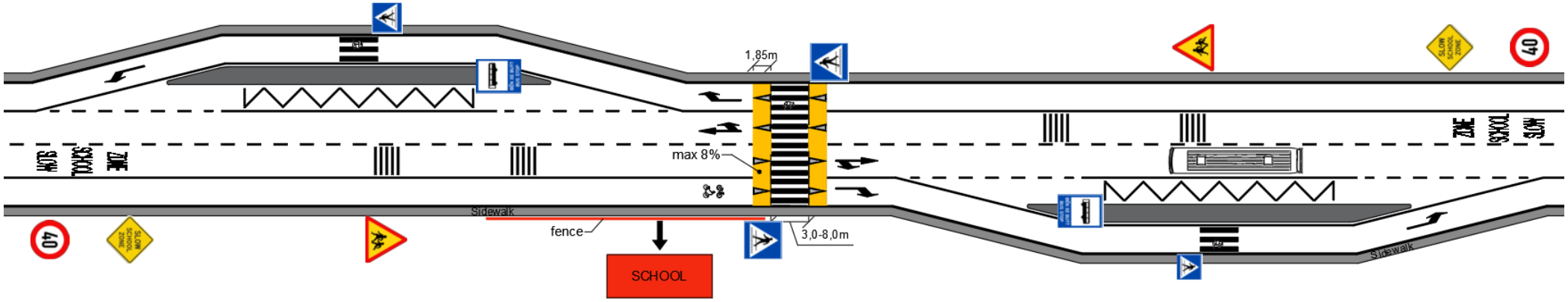
FSI estimation	Vehicle occupants	Motorcyclists	Pedestrians	Bicyclists	Total
Existing conditions	34.0	221.0	36.7	53.7	344.4
After RSI recommendations	23.0	159.7	19.4	30.4	232.6

112 FSI prevented each year

Speed management

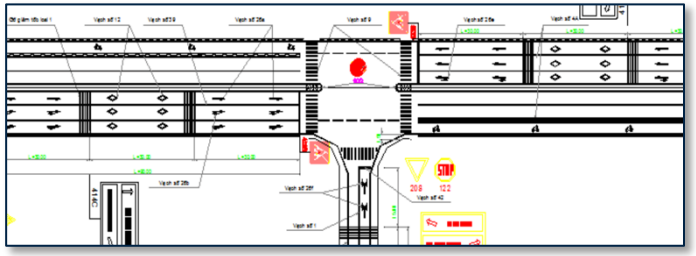
- Excessive and inappropriate speed are a **key risk factor** in road traffic injuries, influencing both the likelihood of road traffic crashes and the severity of the injuries tat result from them
- Recommendations in this respect covered the following aspects:
  - **Speed limits**
  - **School zones**
  - **Built-up areas gateways**
  - **Tortuous sections**

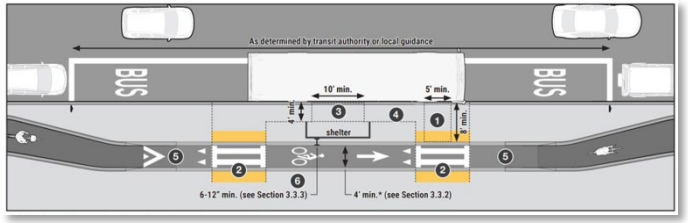


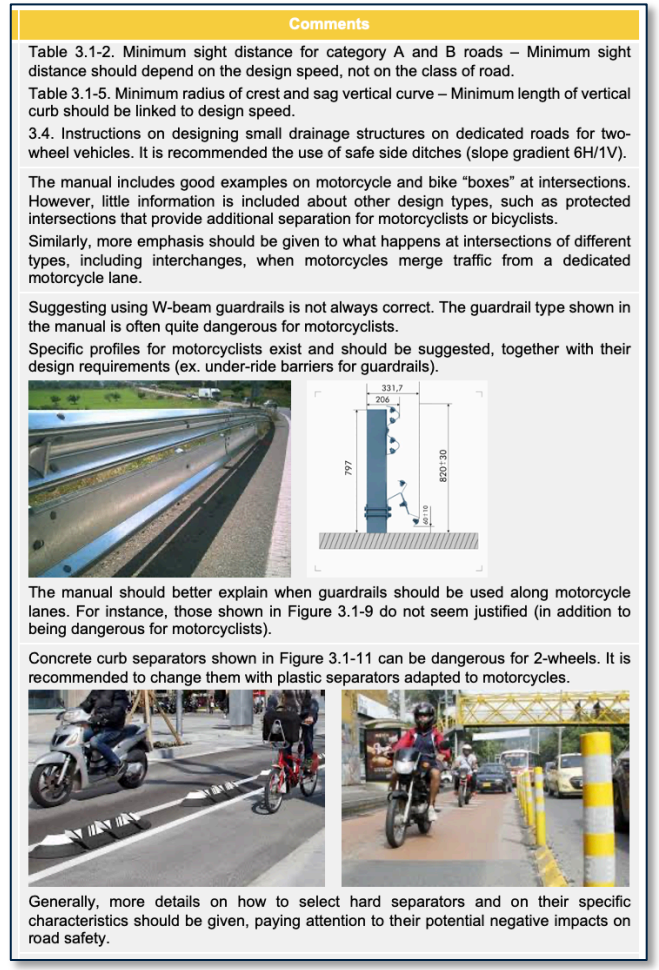


Upgrading the 2-wheelers guidelines

- ✓ Guidelines to improve road safety for motorcycles & reduce traffic congestion in Viet Nam
- ✓ Reviewed & upgraded from a road safety perspective & considering the Safe System approach
- ✓ Infrastructure measures for all type of 2-wheeler (motorcycles & cycles) and road category were reviewed based on road safety international best practices & adapted to Viet Nam context
- ✓ Measures assessed with Star Rating Demonstrator of ViDA







Target 3: By 2030, all new roads achieve technical standards for all road users that take into account road safety, or meet a three star rating or better.

Conclusions

- Road Safety is a **compulsory indicator** of all Viet Nam road projects financed by the WB, which is iRAP 3 stars or better
- Recommendations to strengthening road safety measures and standards in road safety assessments and designated motorcycle lanes apart from other transport modes
- Vietnam case study has been an excellent opportunity to test (perhaps for the first time) an **approach combining RSA/RSI and iRAP**
- This approach has proved **highly effective** and can be **replicated** in other projects in Viet Nam or other countries in the region
- iRAP has proved to be an excellent and powerful tool for objectively **tracking safety improvements** in the road infrastructure

Recommendations

- Specific RSA provision should be in law and/or supporting documents
- Provisions to open for other road crash risk assessments (iRAP etc.) following global practices
- Separated motorcycle lanes should be stipulated in law and/or supporting documents and become integral part of any new rehabilitation or upgrade road project where possible

Thanks for your attention!

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. INNOVATING IN ROAD SAFETY
FRED ENGINEERING

ASIA-PACIFIC ROAD SAFETY OBSERVATORY
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GRSF Global Road Safety Facility
Bloomberg Philanthropies INITIATIVE FOR GLOBAL ROAD SAFETY
iRAP
GLOBAL ROAD SAFETY PARTNERSHIP

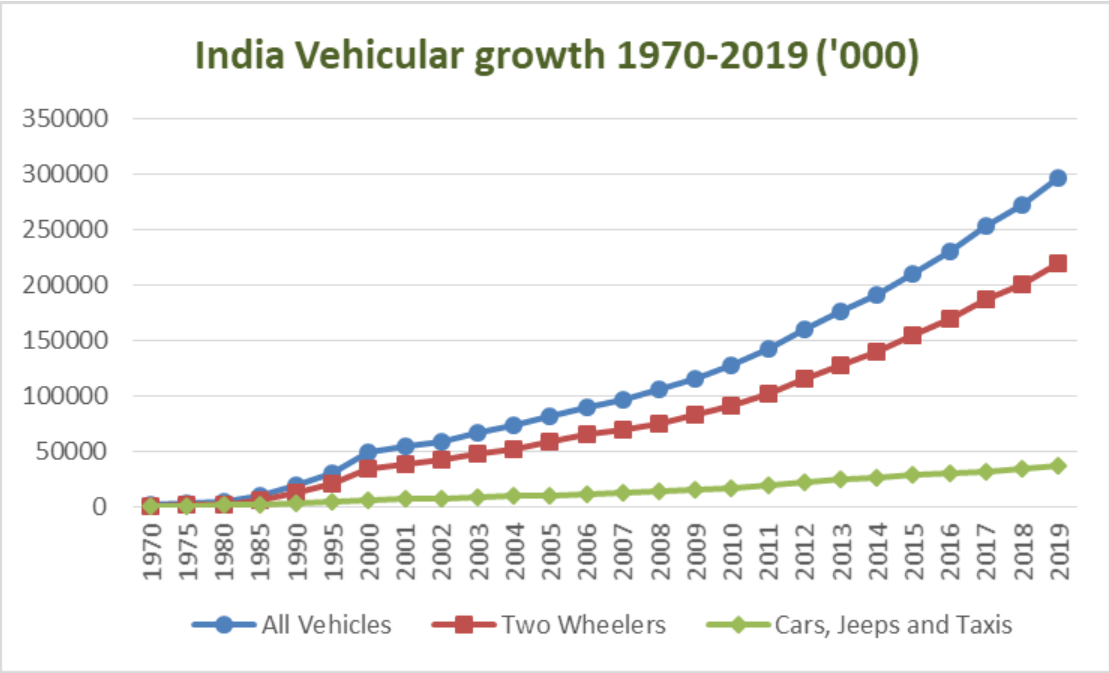
Questions?

Case study: National standards, capacity building and safe corridors in India

Krishnan Srinivasan
International consultant
World Bank, India

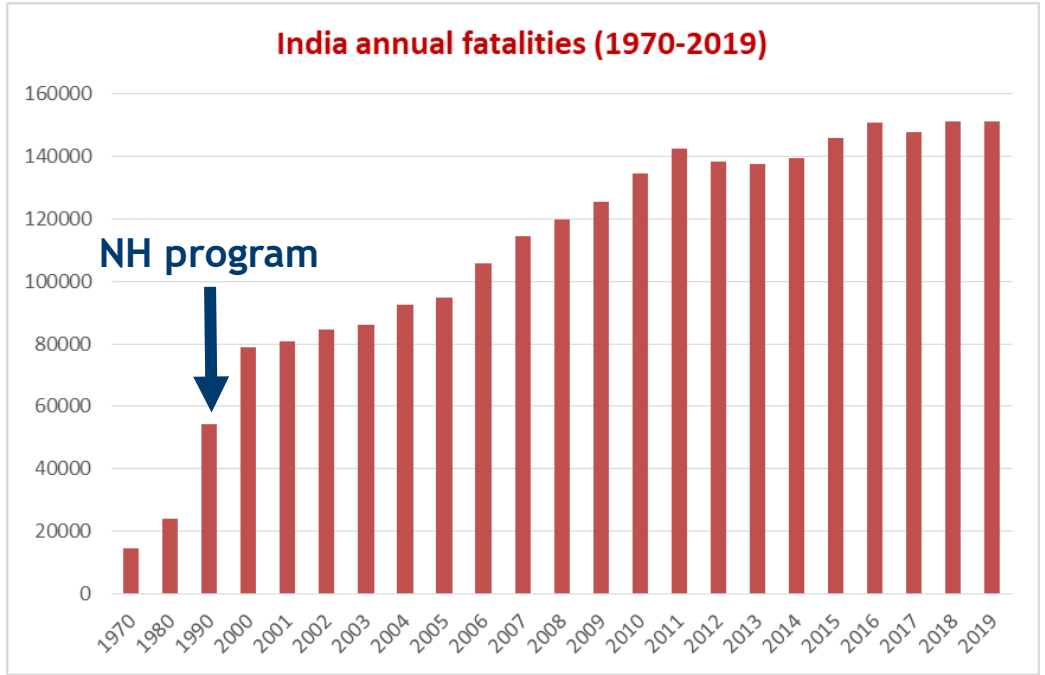
Road injuries are a developmental priority for India

Rapid Motorization



Vehicle CAGR: ~11%

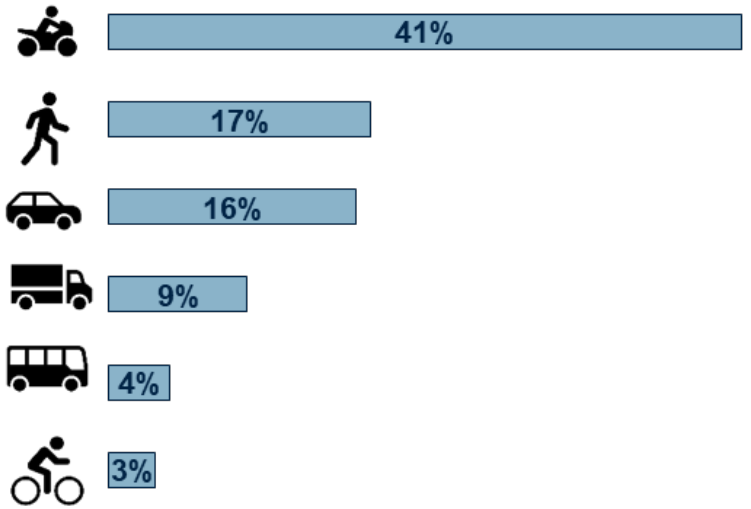
Rising RT Deaths



> 10-fold increase in fatalities

Who, Where and Why?

- 2/3 deaths of pedestrians, 2-W riders and cyclists
- 70% between aged 18-45
- 84% in the working age group



- 60% fatalities on National and State highways
- > 50% in open, inter-urban areas
- > 25% at junctions of main and other roads

- > 50% of roads are unsafe for vulnerable road users
- Speeding caused 2/3rd of fatalities and serious injuries in 2019

RS management and government initiatives

- Landmark Motor Vehicles Amendment Act (MVAA) passed in September 2019
  - National Road Safety Board to manage all safety aspects at national level
  - Golden Hour Scheme – improved emergency care
  - Use of ITS in licensing, vehicle registration, vehicle inspection, safety violations
  - Accountability framework for all stakeholders
- National Road Safety Strategy - Vision Zero by 2030
- State support program for road safety (2022-27)
  - $1 billion program – mix of mobilization and performance-based grants
  - 14 states that accounted for 85% of fatalities between 2015-19
  - 30% reduction in fatalities targeted
- Development of an Integrated Road Crash Data System (started Jan 2020)

WB engagement on road safety in India

Support at national level

- Advocacy toward National safety policy and Vision 2030
- Technical support for improving road safety legislation
- Improving standards and data management systems

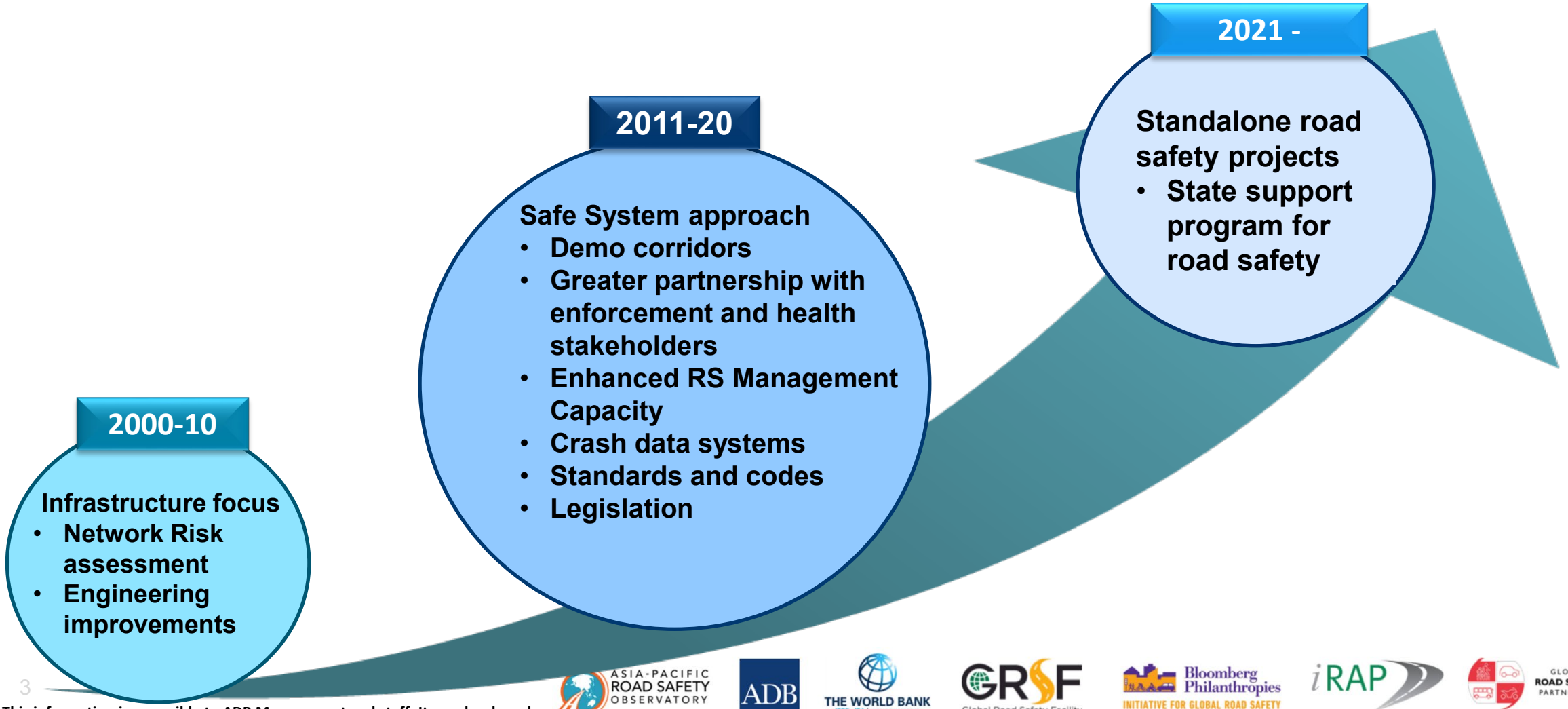
Support at state level

- Road Safety Component integral to all road sector projects
- Proactive assessments of project roads
- Setting up road safety management and institutions

Support at city level

- One of the implementing agencies of the Bloomberg Philanthropies Initiative for Global Road Safety in the major metros of Mumbai, Bengaluru and New Delhi

Evolution of WB engagement in India



Engagement in several corridors and areas

Ministry of Road Transport & Highways GNHCP Nationwide

Rajasthan – RRSMP Safety Corridors

Safer Greener Pilot NH-1 Delhi to Panipat Safety Corridor

Assam – ASRP Safety Corridors

Gujarat Road Safety Authority, 2018 (GSHP 2) & Safety Corridor

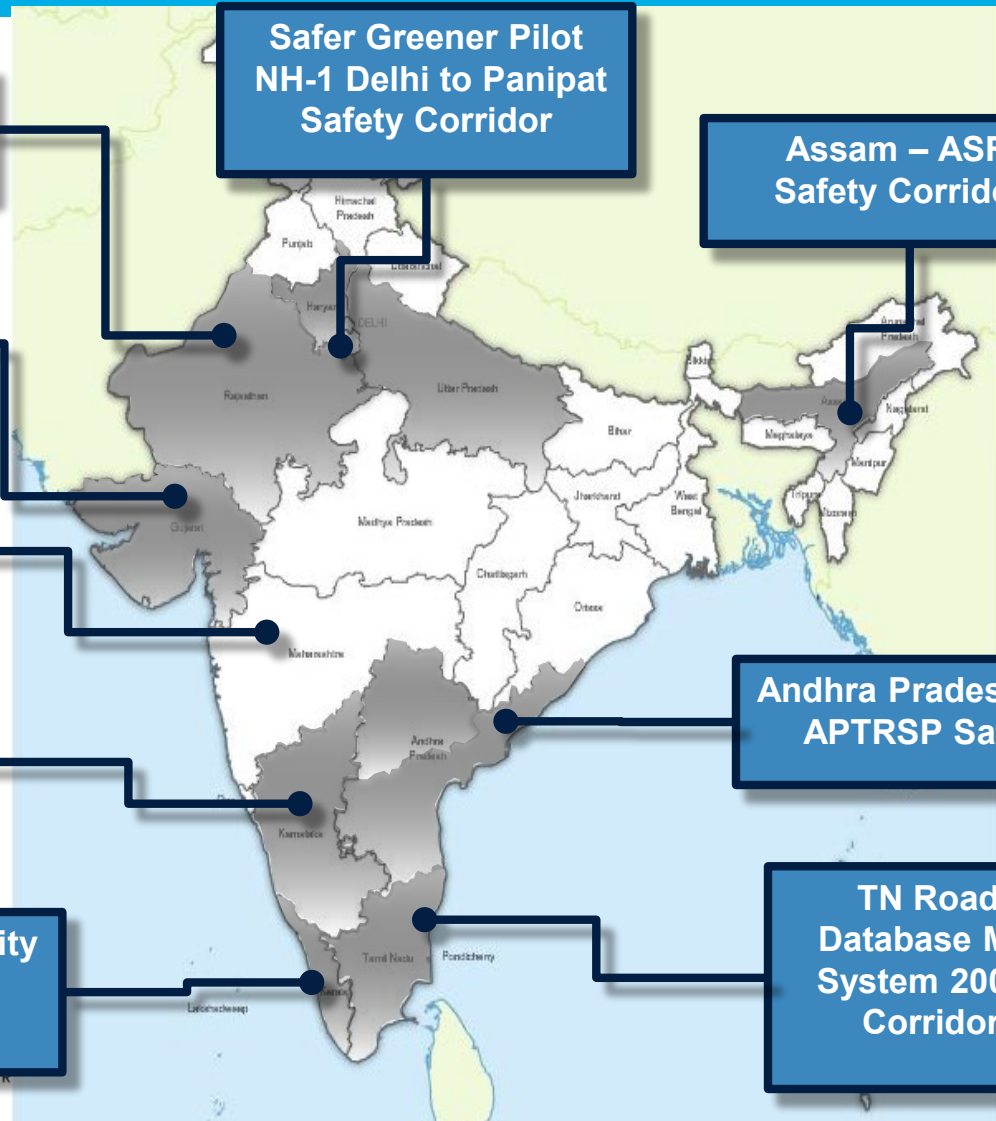
Mumbai - BIGRS Safety Corridor

Karnataka Traffic and Road Safety Cell, 2011 (KSHIPII) & Safety Corridor

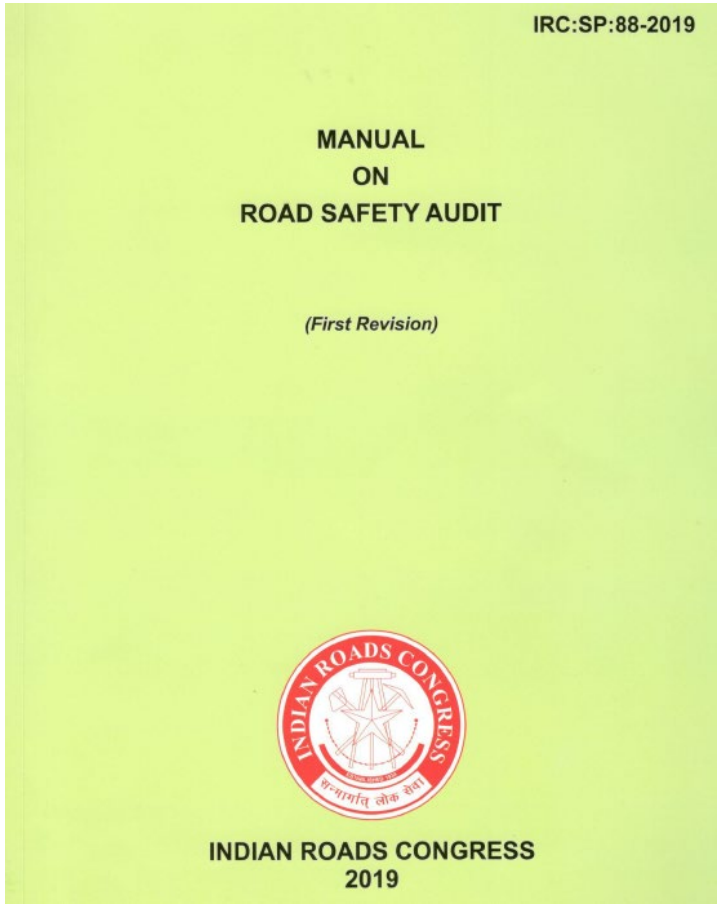
Andhra Pradesh & Telangana – APTRSP Safety Corridors

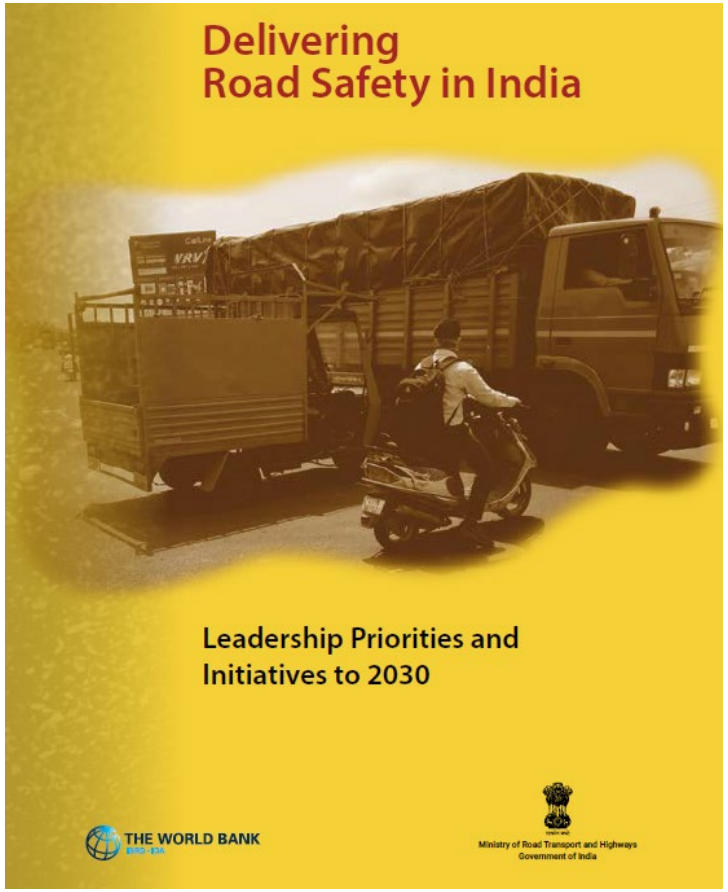
Kerala Road Safety Authority & Fund 2007 (KSTP) & Safety Corridor

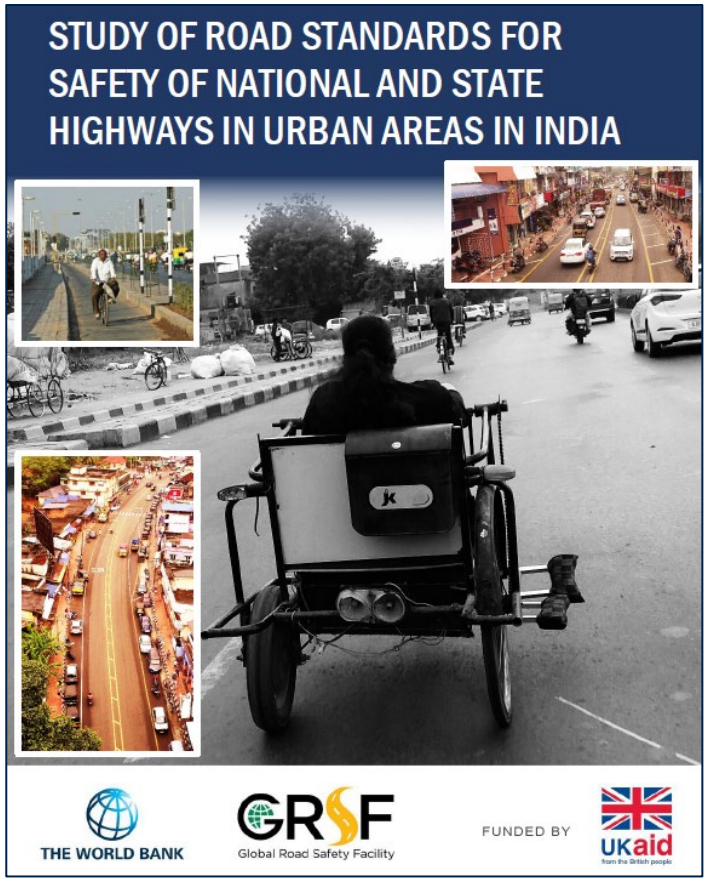
TN Road Accident Database Management System 2008) & Safety Corridor (TNRSP)



Support for reports, standards and guides







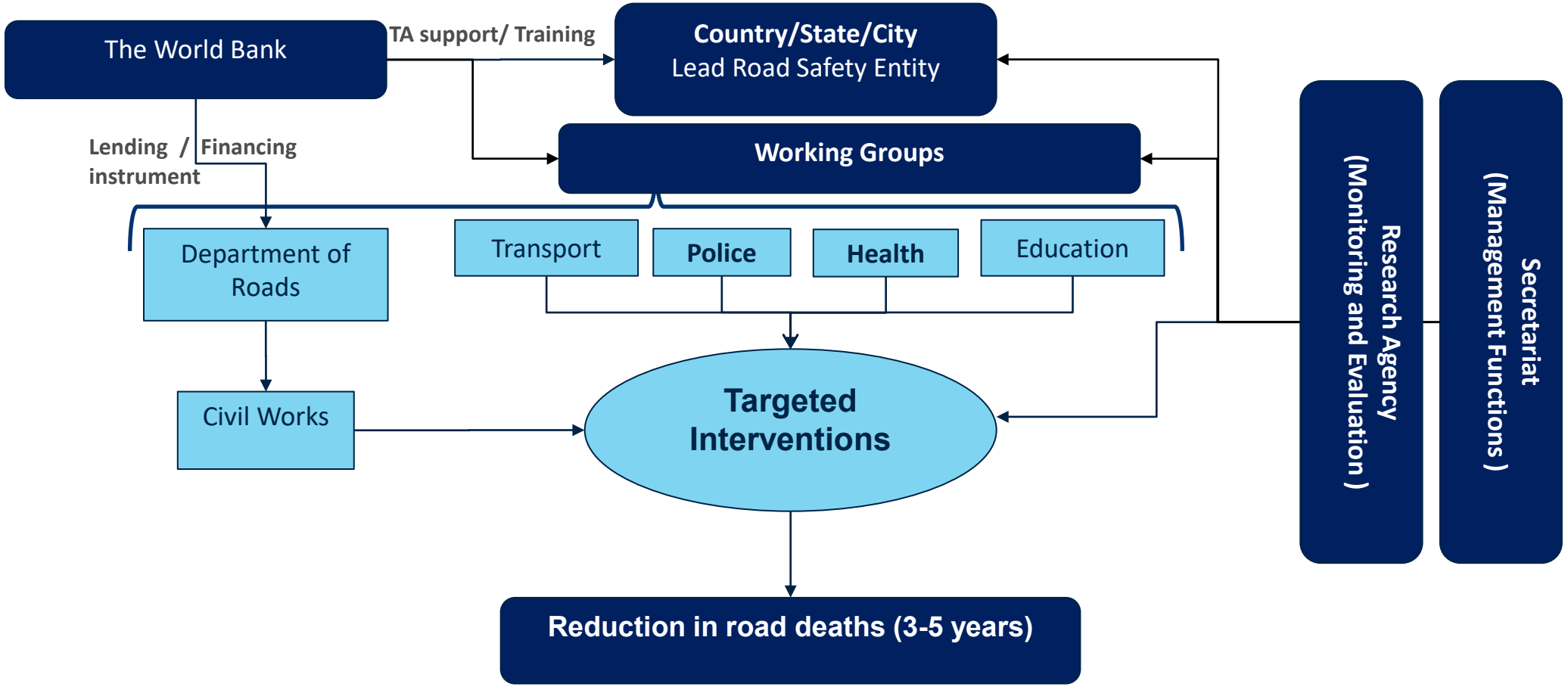
Support for enforcement and management training

Classroom training

Support for Highway patrol

Management training

Targeted, multi-sectoral approach



Results from WB support in Kerala (ended 2020)

SH 69

Fatalities reduced by 46%,
Fatalities of VRUs reduced by ~50% on a 80 km stretch (2019-21)

Results from WB support in Karnataka (60 km)

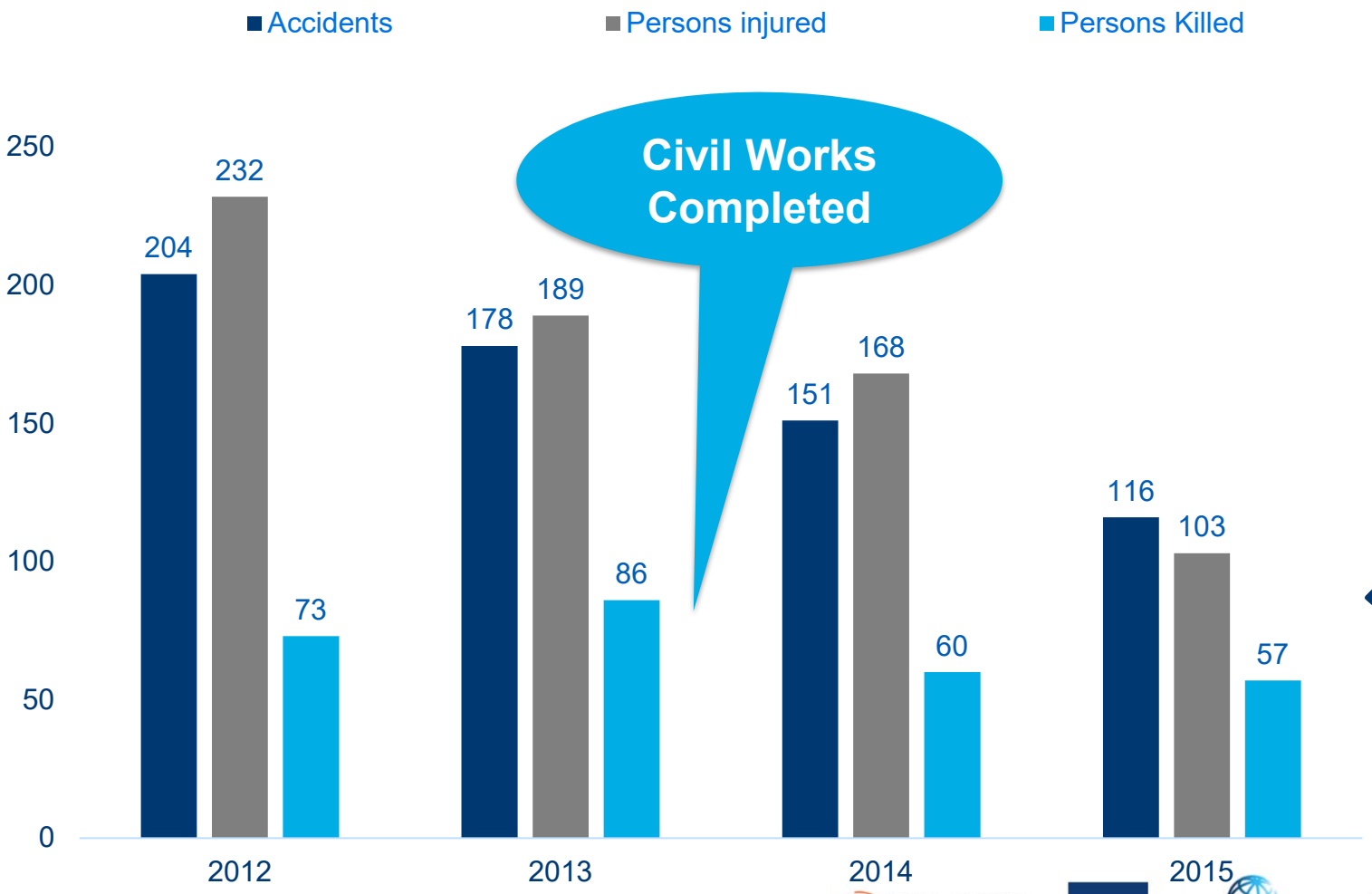
Traffic Calming at all Maj

Delineation

More than 50% reduction in crashes, fatalities and serious injuries between 2015 and 2018

Better Pedestrian and Bus Facilities

Results from WB support in Andhra Pradesh



Renigunta – Kadapa Road SH31, 139km ($5 m)

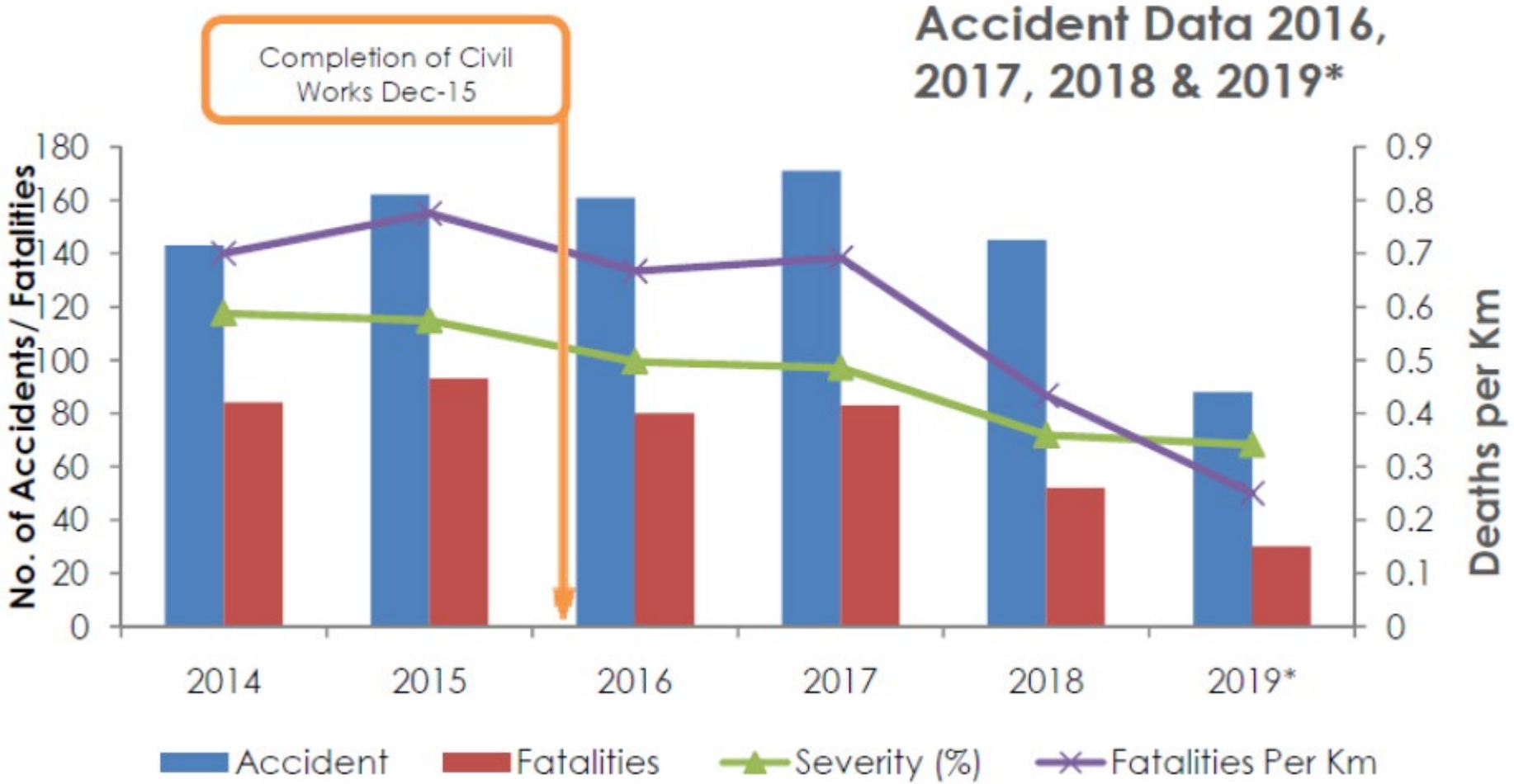
(2013-2015)

Crashes ↓ 29%

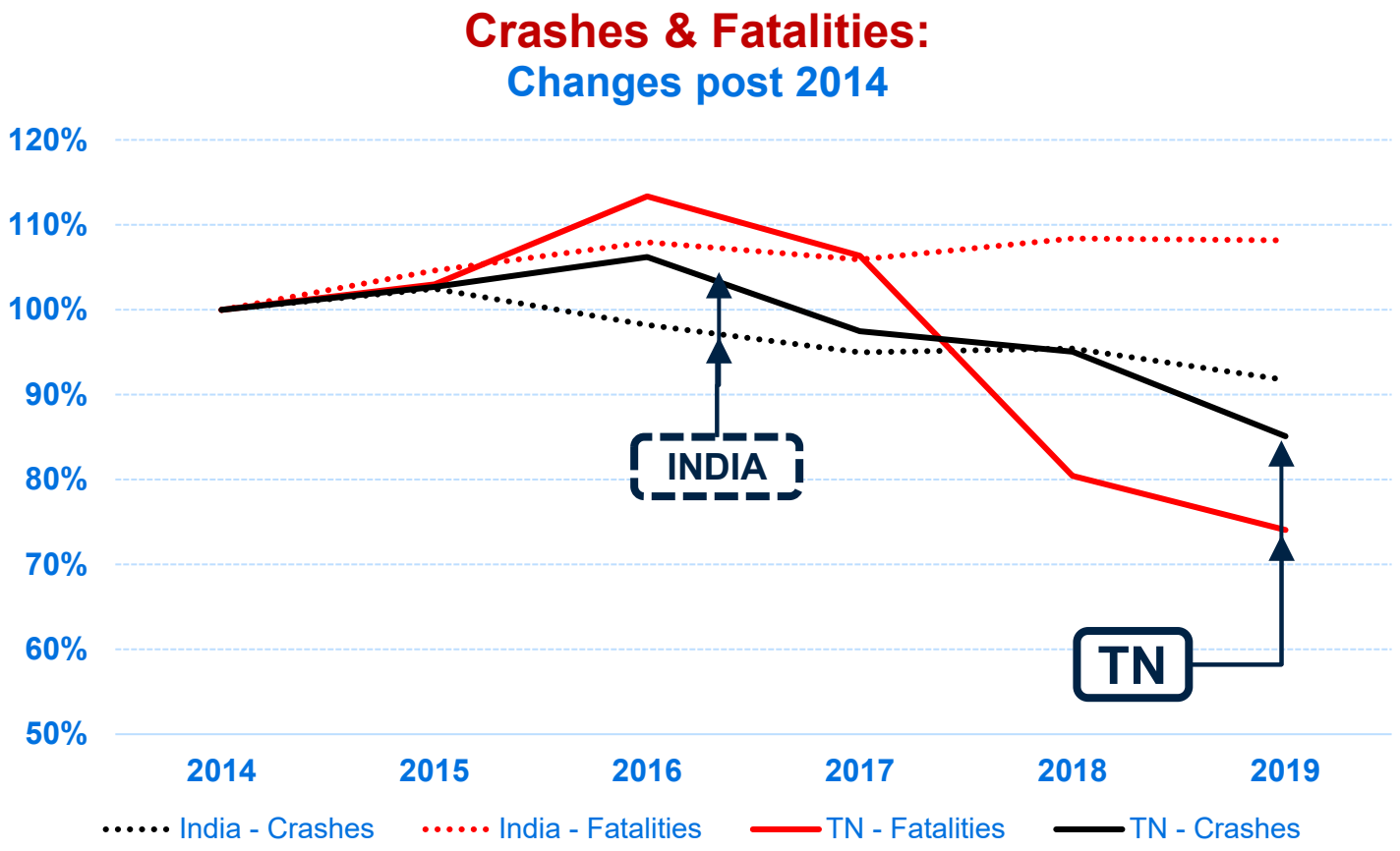
Injuries ↓ 43%

Fatalities ↓ 22%

Results from WB support in Telangana (118 km)



Results from WB support in Tamil Nadu



- WB support for crash database improvements, coordination, enforcement, pilot corridors & trauma care support
- Strong buy-in from state government, with knowledge sharing supported by WB
- State has performed better than national trends in reducing RTIs
- If it were a country, would be only one close to achieving the 2020 goal of halving 2010 fatalities (~46%)

Seeing is believing!

https://vimeo.com/508567613/8cccbcdd7b

Final thoughts

- **Interventions to consider needs of all road users**
  - Systematic, proactive safety assessment of roads for identifying safety risks to all road users
  - Application of best practice road safety audits during road design
  - Ensure “safety by design” and consistent implementation of countermeasures
  - Revise codes, standards and manuals with clear safety-focused guidance, and ensure their use

- **Effective institutional management needs**
  - Capacity building essential
    - ✓ Overseas courses for higher level executives on road safety management helps build champions
    - ✓ Continuous road safety engineering and audit training essential for field level staff
    - ✓ Training through standardized training modules would be critical for uniformity across states
    - ✓ Mandatory road safety courses needed as part of Staff induction/orientation programs
  - Pilot road safety projects (such as SCDPs) can help foster change area-wide

- **Results focus vital**
  - Continuous focus on results vital to drive interventions and achieve national and SDG goals
  - Uniform monitoring framework of results across states as basis for national support

https://vimeo.com/508567613/8cccbcdd7b

Questions?

Case study: Capacity building and network assessments in Georgia, Pakistan and Kazakhstan

Luke Rogers
Global Operations Manager
iRAP

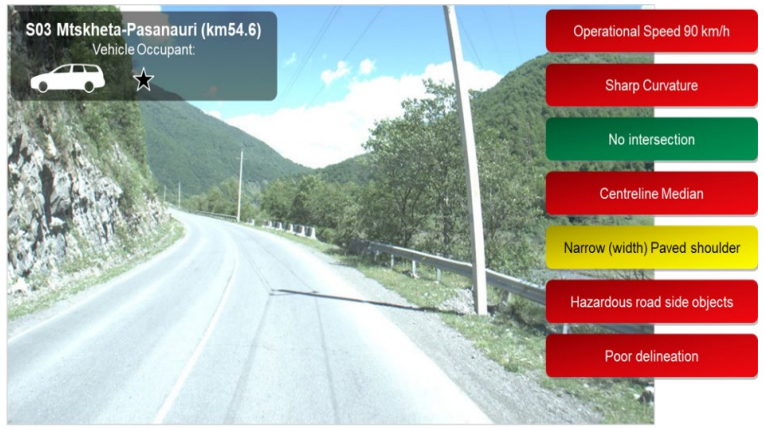
Global Plan: Decade of Action for Road Safety 2021-2030

Recommended actions to improve the safety of road infrastructure:

"Undertake crash-risk mapping (where crash data are reliable) and proactive safety assessments and inspections on the target network with a focus on relevant road user needs as appropriate"

Capacity building and network level assessments: Georgia

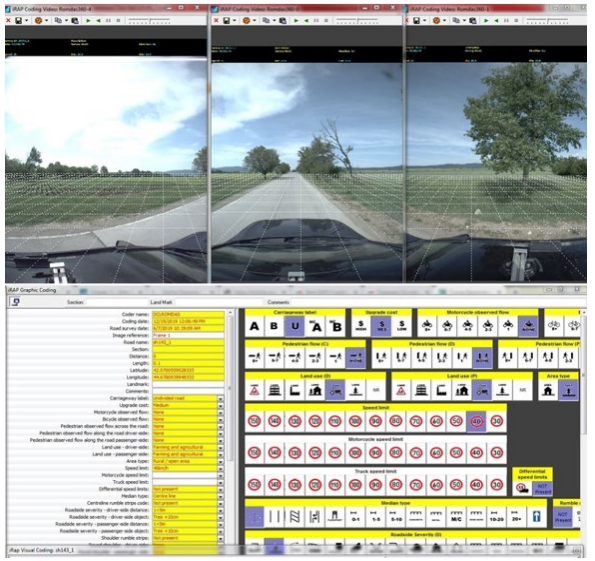
- iRAP appointed by Roads Department of Georgia
- Pilot project in Mtskheta-Mtianeti region (500km)
- Financed through WB funding (2019)



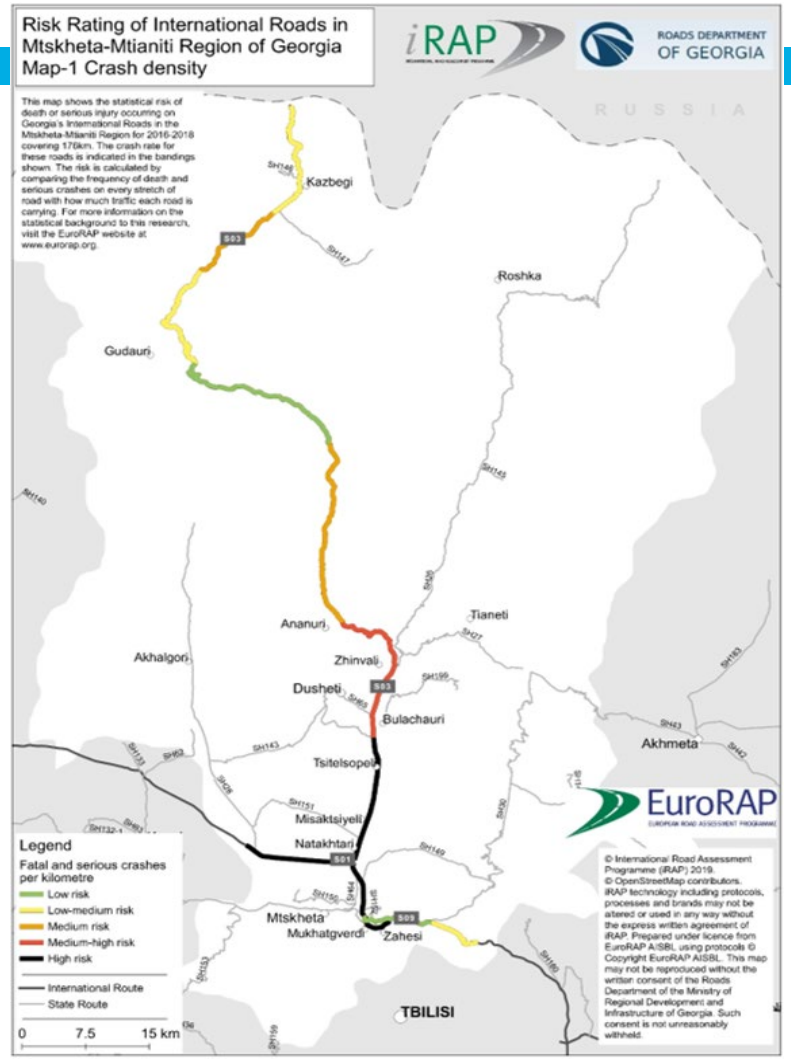
- Project designed to build capacity within RD to enable future crash-risk mapping and proactive safety assessments to be completed in-house

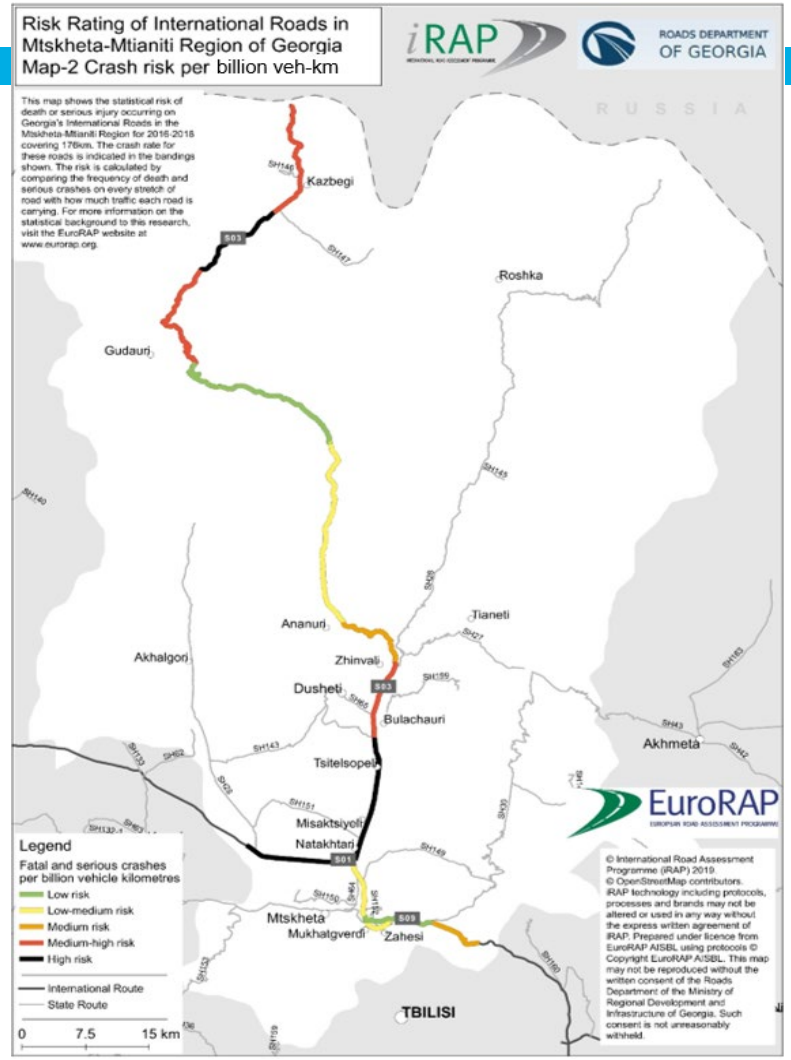
Capacity building and network level assessments: Georgia

- Identified high-risk roads
- 3 Investment Plans (USD10 million; USD25 million and USD60 million)
- Speed analysis (speed limit enforcement)
- Pilot Crash-risk mapping project



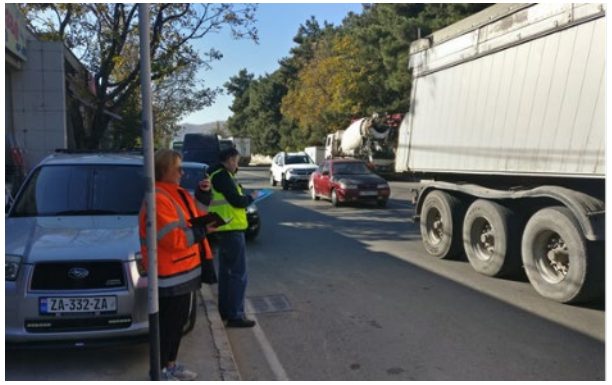
Capacity building and network level assessments: Georgia

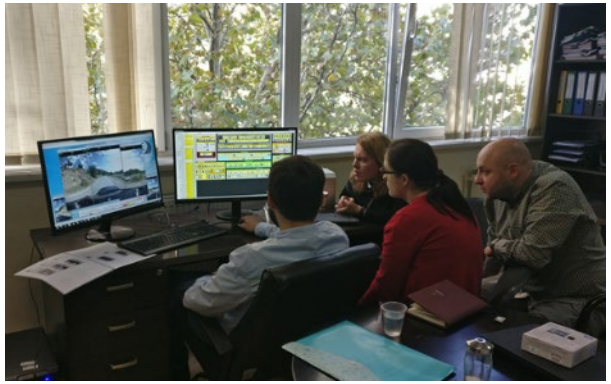


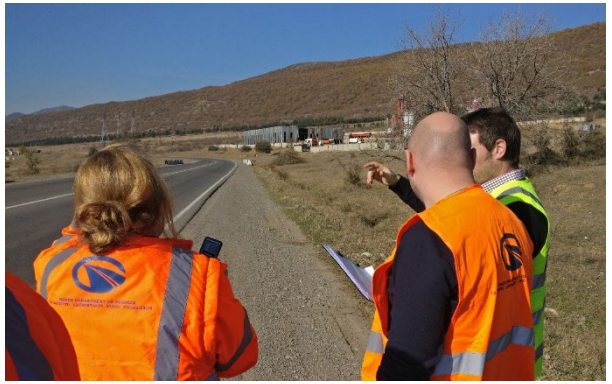


Capacity building and network level assessments: Georgia

- Investment plan estimatd to prevent 4,500 FSIs over 20 years
- 62% reduction in FSIs with a BCR 3
- Detailed training and accreditation programme







Capacity building and network level assessments: Pakistan

- ADB invited iRAP to work in partnership with the National Highway Authority (NHA) to develop the Pakistan Road Assessment Programme
- National Highway Safety Assessments in Pakistan
- Stimulate large-scale road assessments
- Guide policy and investment
- Knowlegde exchange with ChinaRAP team

ChinaRAP
CHINA ROAD ASSESSMENT PROGRAM

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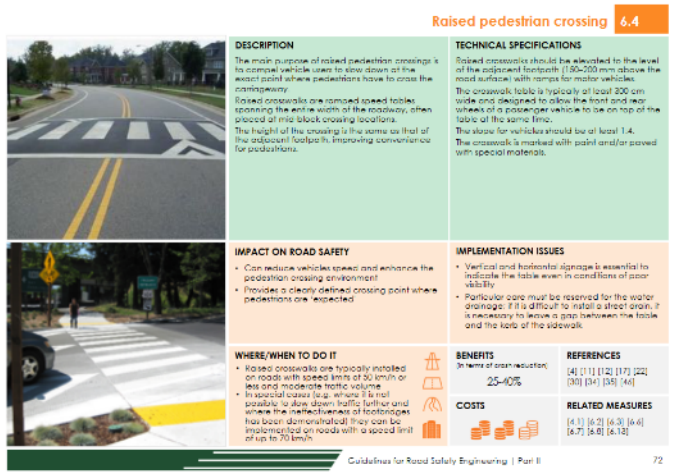
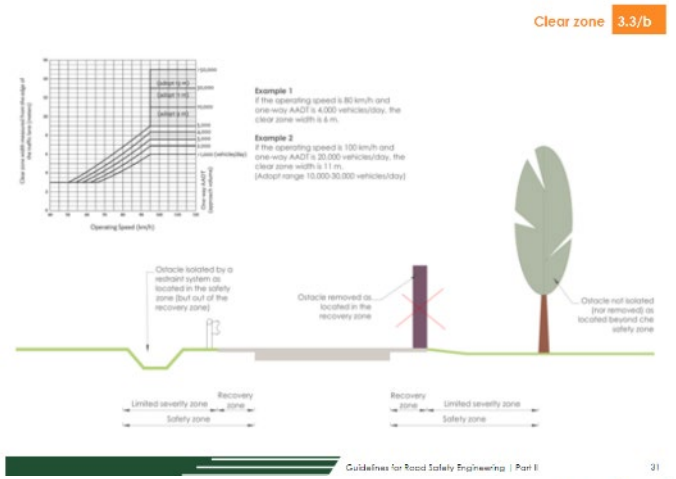
Capacity building and network level assessments: Pakistan

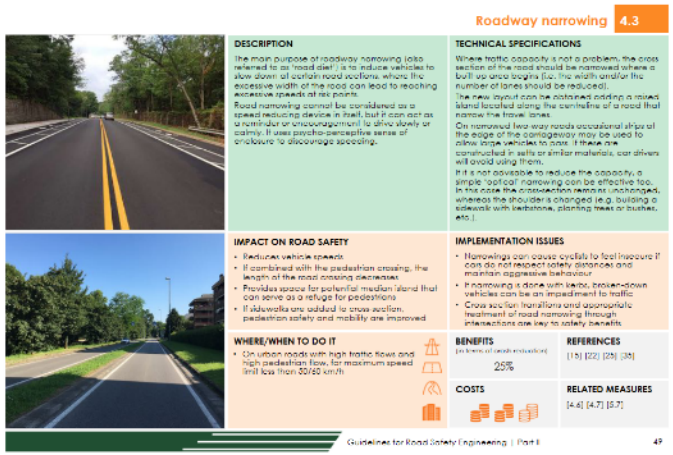
Capacity building and network level assessments: Pakistan

Capacity building and network level assessments: Pakistan

Countermeasures	Cost estimate
PUNJAB NORTH	**1,150,152,400**
N75	**5,178,400**
Central Hatching	28,500
Delineation	4,846,350
Pedestrian Crossing	296,300
Rumble Strip / Flexi-Post	7,250
N80	**96,908,000**
Bicycle Facilities	255,900
Central Hatching	418,000
Delineation	40,364,200
Intersection - Delineation	22,690,000
Parking Improvements	1,762,200
Pedestrian Crossing	11,373,500
Road Surface Upgrade	11,141,000
Roadside Safety - Hazard Removal	3,045,000
Traffic Calming	5,858,200







Capacity building and network level assessments: Kazakhstan

- Qazaq Research Institute for Road Traffic Safety; Committee for Roads, Ministry of Industry and Infrastructure Development; World Bank
- Network level assessment: East – West Roads Dev. Project
- Training 20 national experts
- Establish RAP Centre of Excellence
- Implementation of proactive safety assessments into national legislation

Qazaq Research Institute for Road Traffic Safety

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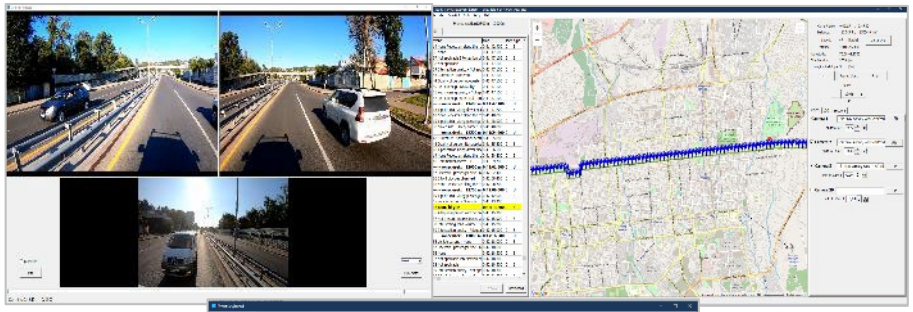
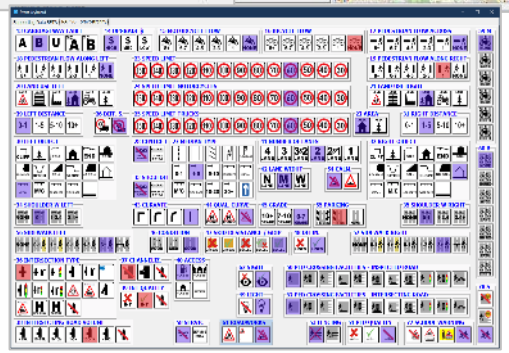
Capacity building and network level assessments: Kazakhstan





Sweroad

AFRY
ÅF PÖYRY

SABS

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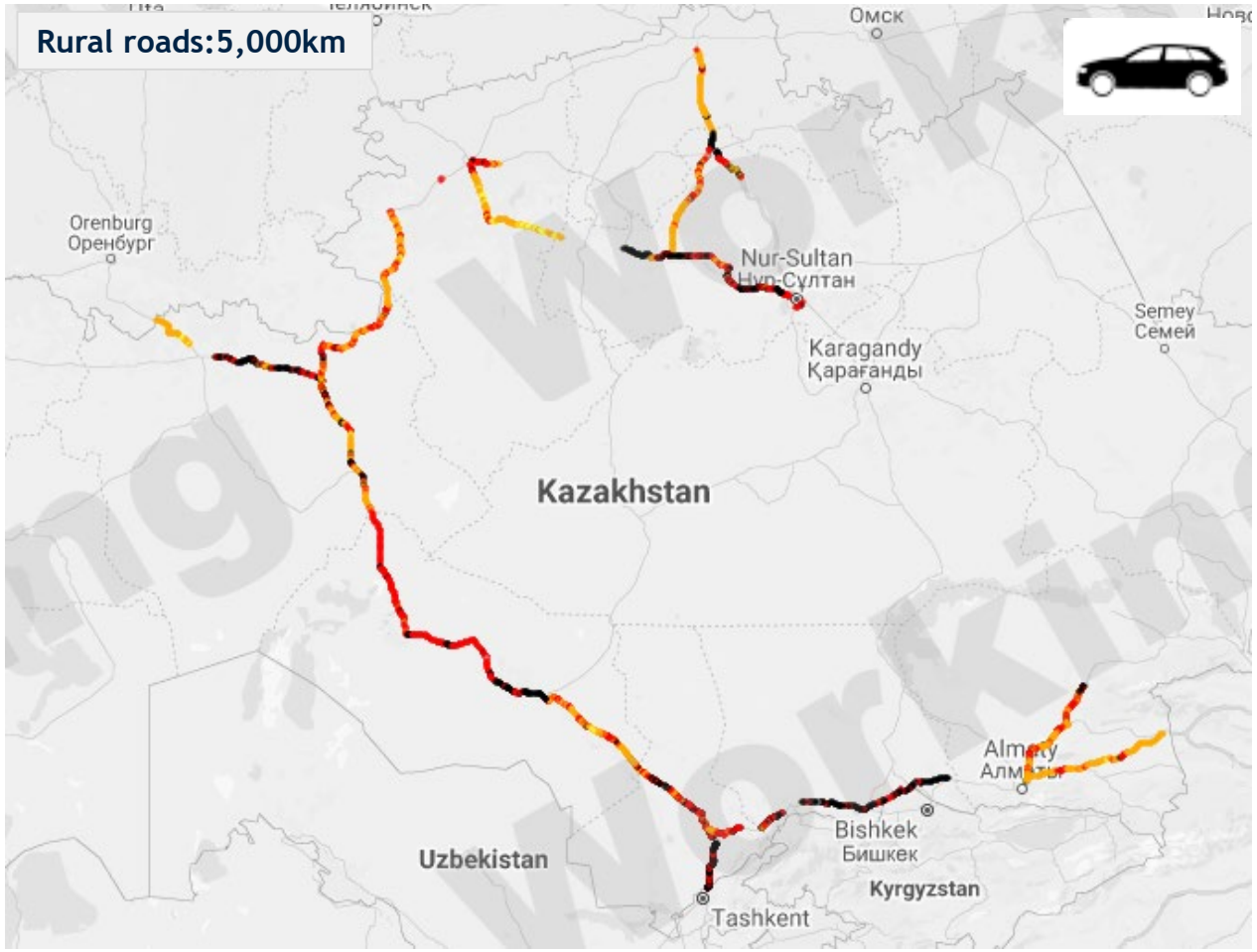
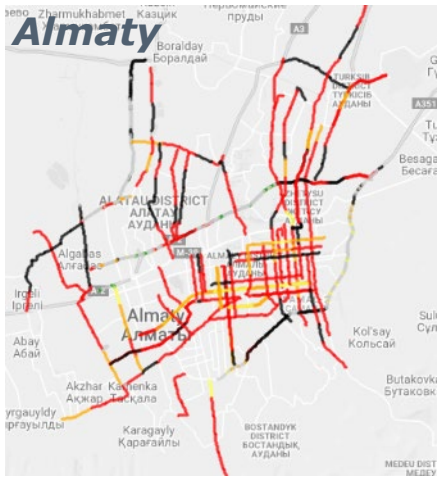
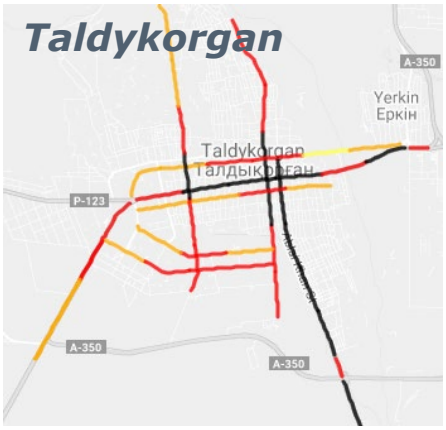
Capacity building and network level assessments: Kazakhstan

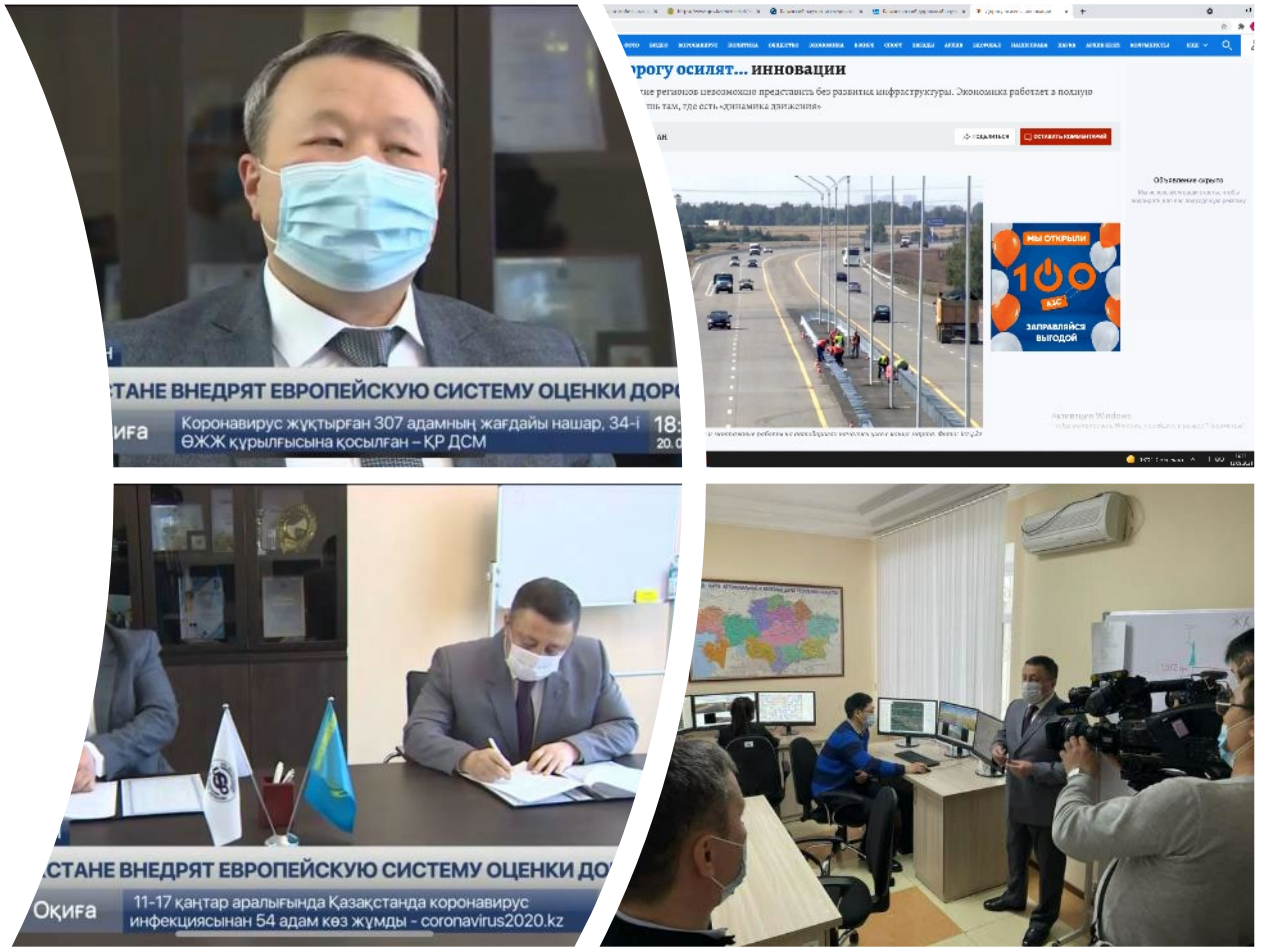






Capacity building and network level assessments: Kazakhstan

- Detailed training programme
- Prioritising roads for upgrade
- Effective communication/media presence
- 3-year plan to establish the programme with strong long-term political, technical and economic leadership



Summary

- Government and road authority committment
- Training and technical support to build local capacity for future sustainable network level assessments
- Focus on relevant road user needs to identify countermeasures and develop effective investment plans

Questions?

Case study: Road Safety capacity building and interventions in the Philippines

Fang Xu
Jigesh Bhavsar
World Bank

WORLD BANK ROAD SAFETY SUPPORT IN THE PHILIPPINES – A COMPREHENSIVE PROGRAM

- World Bank Lending Operations
  - Cebu Bus Rapid Transit Project (CBRT) and Metro Manila BRT Project (MMBRT)—Road Safety Audit
  - Mindanao Transport Connectivity Improvement Project—Systematic road safety program

- Technical Assistances (TA)
  - Implementation and scale up of Data for Road Incident Visualization Evaluation and Reporting –DRIVER (2018-ongoing)
  - Road Safety Reimbursable Advisory Service –RAS (2018-2021)
  - Mindanao Transport Connectivity TA (2019)
  - Active Transport Development in the Philippines (2021-2022)
  - Assessment of Vehicle Inspection Systems (2021-2022)

KEY FEATURES OF WB ROAD SAFETY SUPPORT (1)

- Systematic engagement through:
  - ✓ Various tools: lending and technical assistance;
  - ✓ Involving multiple stakeholders: NGA and LGUs, DOTr, DPWH, DOH, DILG, etc;
  - ✓ Systematic coverage: infrastructure, vehicles and road users.

- Strong ownership and leadership by country counterparts:
  - ✓ Leadership by department senior management;
  - ✓ Dedicated technical working groups;
  - ✓ Bureau heads leading daily implementations.

KEY FEATURES OF WB ROAD SAFETY SUPPORT (2)

- Evidence based approach
  - ❖ Assessment of institutional capacity and measures to strengthen it
  - ❖ Data driven
  - ❖ Best and up to date international practices within local context and needs
- Sustainability
  - ❖ Tailored capacity building
  - ❖ Hands-on training (learning by doing)
  - ❖ Mainstream road safety practice through the improved guidelines

ROAD SAFETY RAS - Objectives and Activities

- Assessment of DPWH's Institutional Capacity in Managing Road Infrastructure Safety
- Capacity Building in Road Infrastructure Safety Management

CAPACITY BUILDING ACTIVITIES DELIVERED

1. **Update of RS guidelines and documents**, roll these out on a national, regional and district level, active clarification process while monitoring their use
2. **Capacity building of RS engineers** within DPWH learning by doing hands-on training (ToT, Blackspot, iRAP)
3. **Certification process** for (internal/external) Road Safety Auditors
4. **Systematic safety assessment** of National Road Network

UPDATE OF ROAD SAFETY STANDARDS/GUIDELINES

New

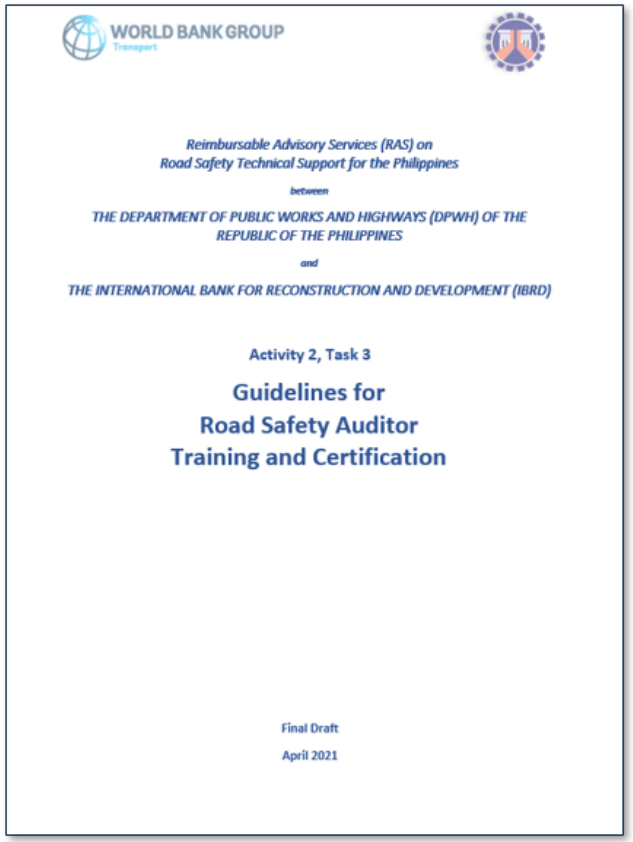
Guidelines for Road Safety Auditor Training and Certification

First time in the Philippines a standardized Road Safety Auditor training and certification process

defines eligibility, training curricula,

examination and certification process,

institutional and organizational framework for the certification



WORLD BANK GROUP
Transport

Reimbursable Advisory Services (RAS) on
Road Safety Technical Support for the Philippines

between

THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS (DPWH) OF THE REPUBLIC OF THE PHILIPPINES

and

THE INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT (IBRD)

Activity 2, Task 3

Guidelines for Road Safety Auditor Training and Certification

Final Draft

April 2021

UPDATE OF ROAD SAFETY STANDARDS/GUIDELINES

New

Guidelines for Road Safety Auditor Training and Certification

Revised

Road Works Safety Manual

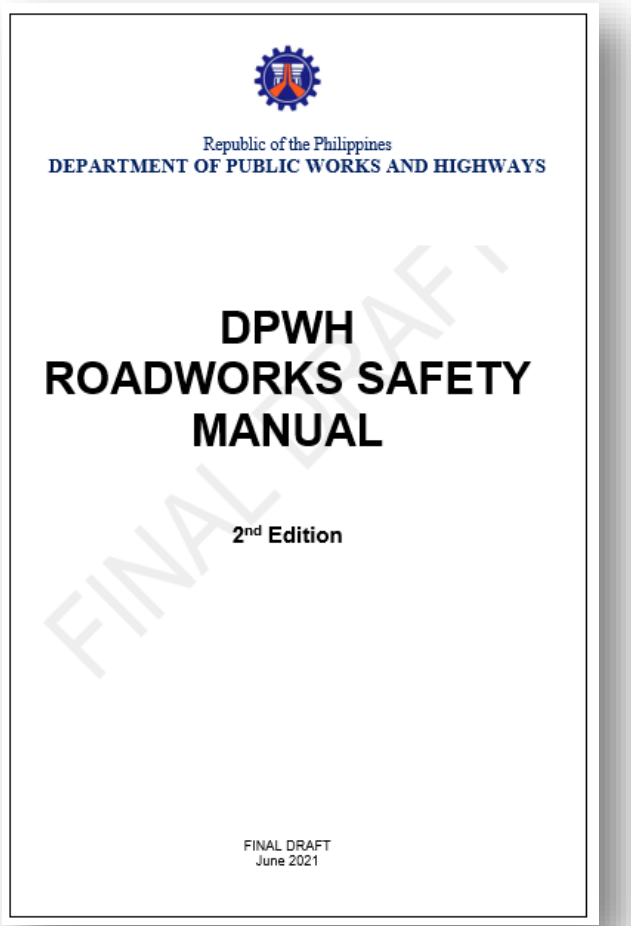
Revised with more in-depth guidance including

new sample layouts,

traffic management devices,

new checklists for safety supervisor and

rules for traffic controllers



UPDATE OF ROAD SAFETY STANDARDS/GUIDELINES

New

Guidelines for Road Safety Auditor Training and Certification

Revised

Road Works Safety Manual

Revised

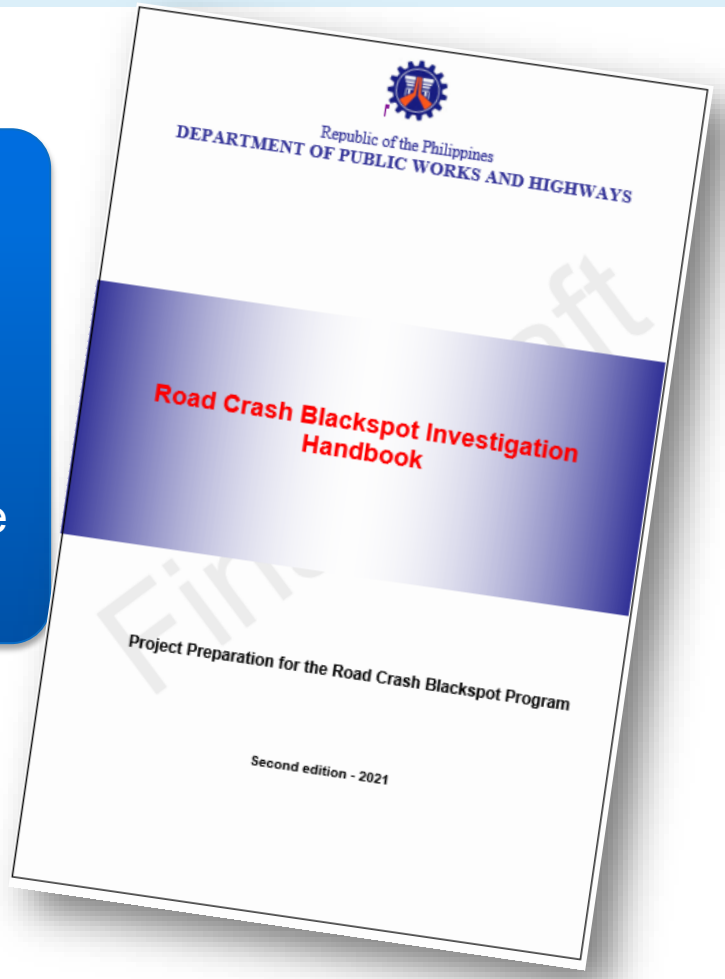
Road Crash Blackspot Investigation Handbook

Includes in-depth investigation process,

mention of crash database management system – DRIVER,

risk assessment,

BCR estimation and Project Scope Template



UPDATE OF ROAD SAFETY STANDARDS/GUIDELINES

New

Guidelines for Road Safety Auditor Training and Certification

Revised

Road Works Safety Manual

Revised

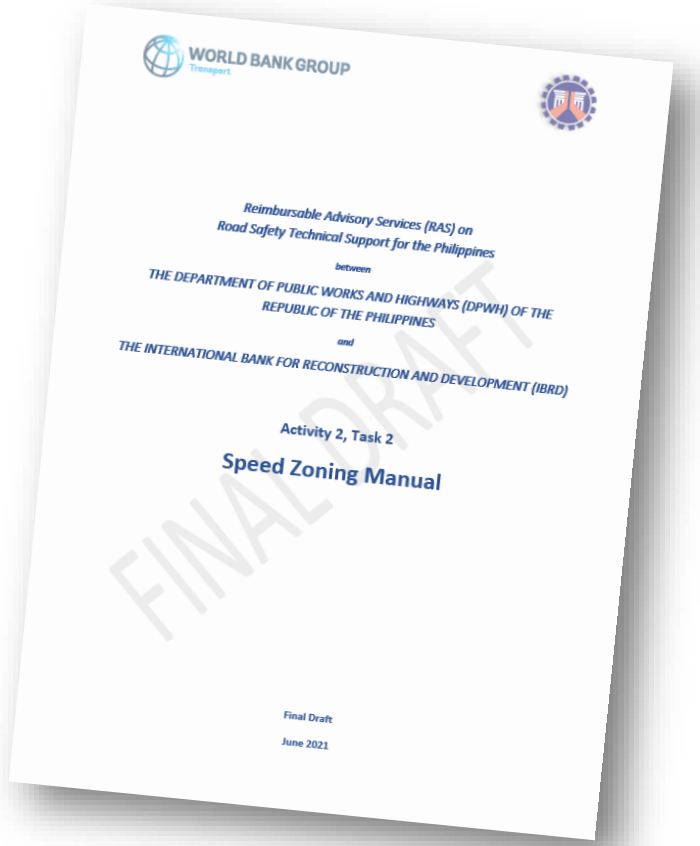
Road Crash Blackspot Investigation Handbook

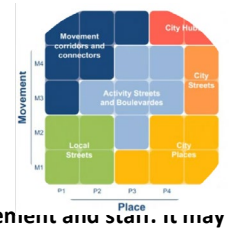
New

Speed Zoning Manual

Based on the Safe System Speed,

Addresses access, road function and VRU activity level





ROAD SAFETY AUDITORS TRAIN THE TRAINER COURSE

01 **WEBINAR 1**

02 **WEBINAR 2**

All 25 PARTICIPANTS RECEIVED CERTIFICATES

12 WITH HONORS

WORLD BANK GROUP

CERTIFICATE OF TRAINING

THIS IS TO CERTIFY THAT

PARTICIPANT'S NAME

has successfully completed the
DPWH ROAD SAFETY AUDITORS
TRAIN-THE-TRAINER COURSE.

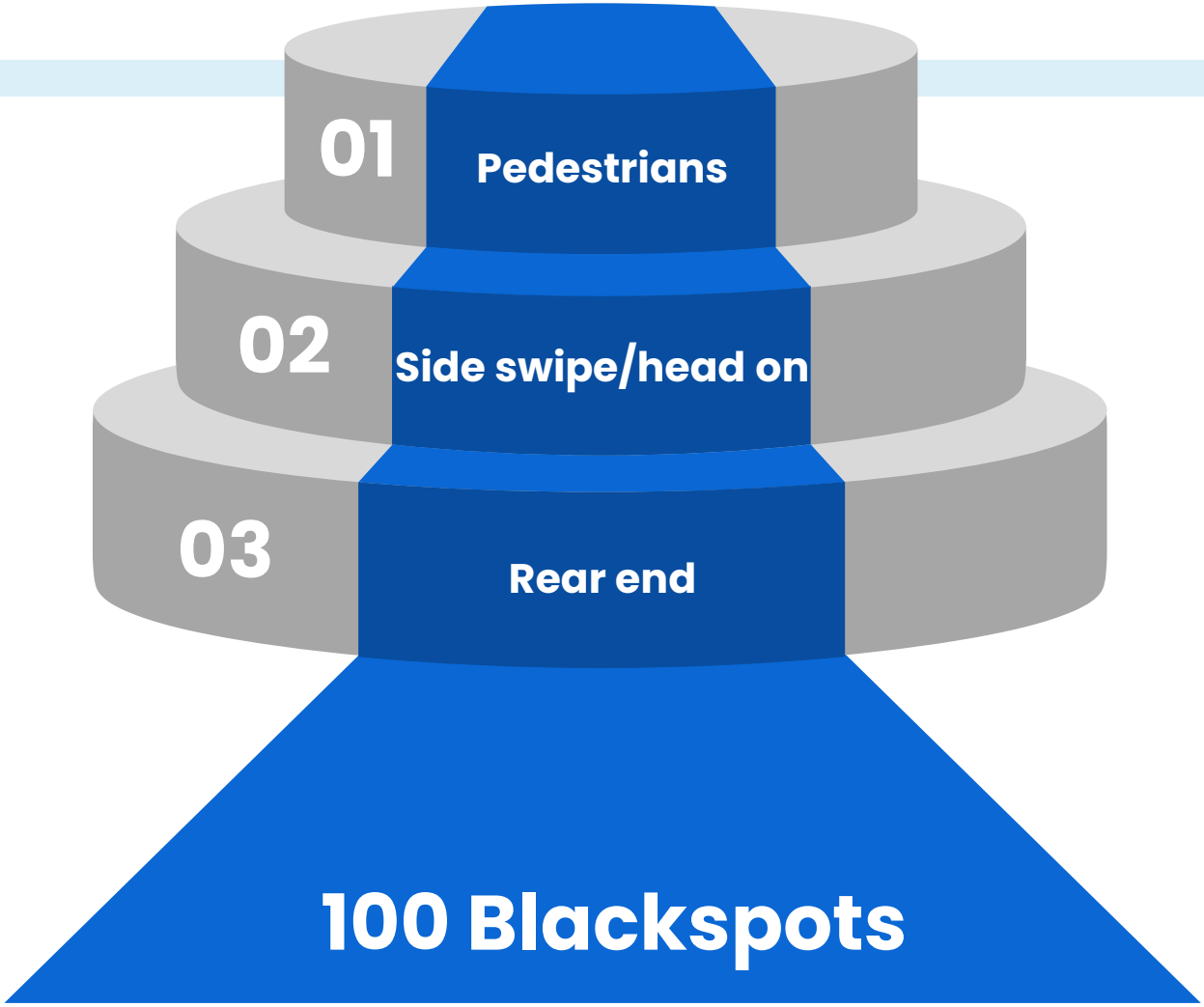
This event was organized by the World Bank and the Department of Public Works and Highways (DPWH) in the period of 7 June – 16 July 2021 (total of 12 full days).

| Manila, Philippines, 16 July 2021 |

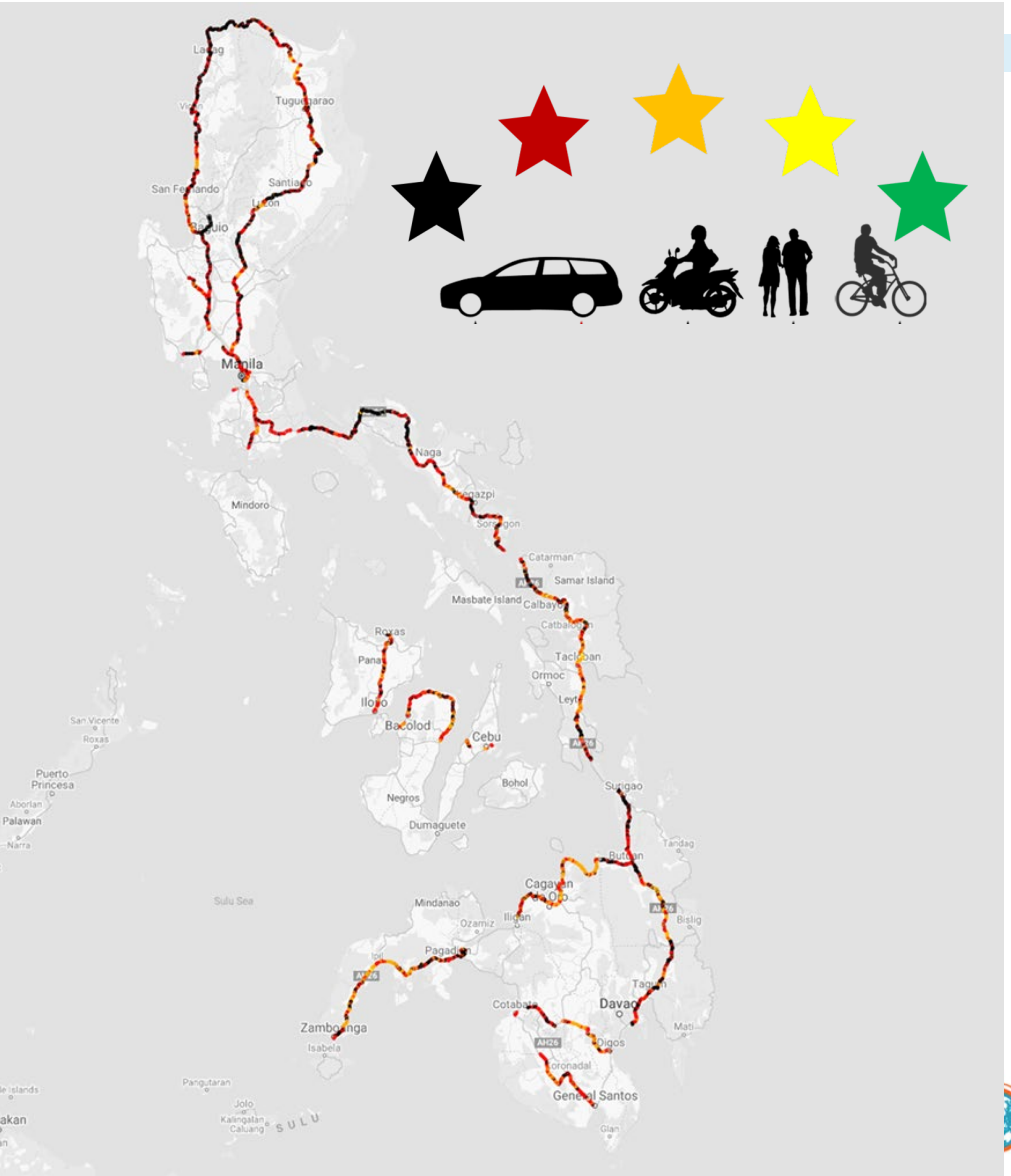
Maximo L. Carvajal
Undersecretary for Technical Services
DPWH

Achim Fock
Operations Manager
The World Bank

INVESTIGATION AND ASSESSMENT OF 100 BLACKSPOTS



iRAP ASSESSMENT OF 4,000KM NATIONAL ROAD NETWORK

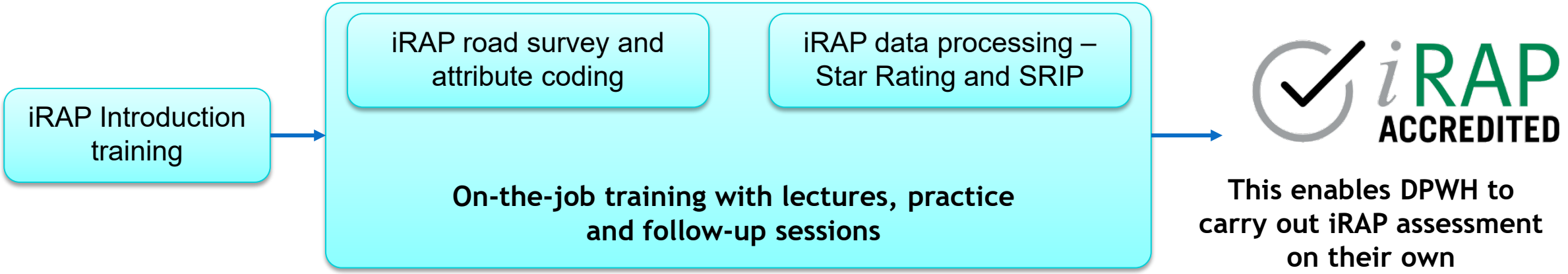


- ✓ Road safety assessment based on road inspection data
- ✓ Star Rating on the scale of 1 to 5 for four road user groups (vehicle occupants, motorcyclists, pedestrian and bicyclists)
- ✓ Three islands (Luzon, Mindanao, Visayas)
- ✓ 15 regions (I-XIII, CAR and NCR)
- ✓ 190 road sections
- ✓ 4,073.3 km of roads (3,821.4 km of single carriageway and 251.9 km of dual carriageway)
- ✓ iRAP training during the assessments and workshops to disseminate findings

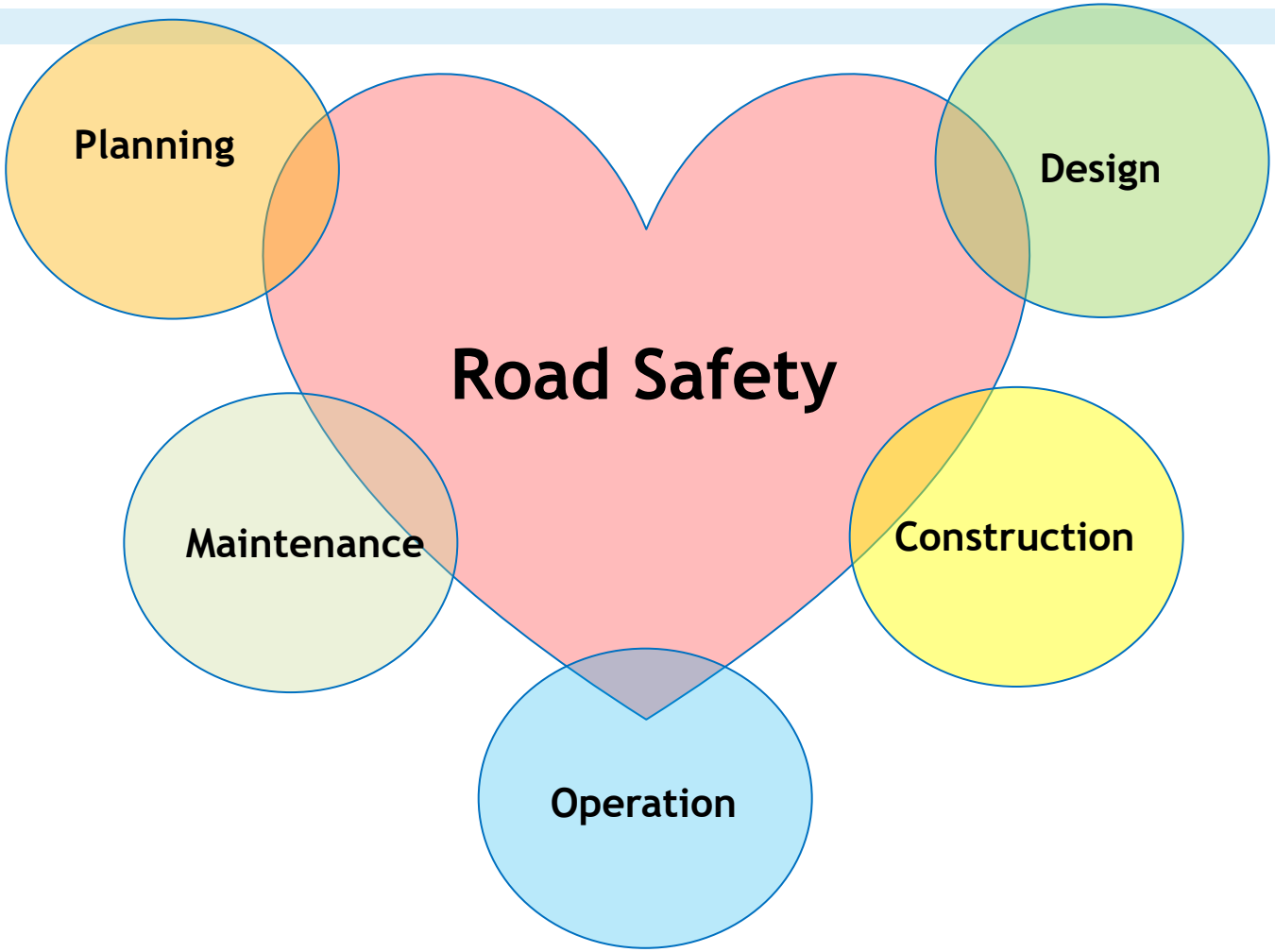
ASIA-PACIFIC ROAD SAFETY OBSERVATORY · ADB · THE WORLD BANK · GRSF Global Road Safety Facility · Bloomberg Philanthropies INITIATIVE FOR GLOBAL ROAD SAFETY · iRAP · GLOBAL ROAD SAFETY PARTNERSHIP

SUSTAINABILITY OF SAFER INFRASTRUCTURE

- iRAP capacity building, mentoring and accreditation
- DPWH Staff provided extensive iRAP training
- 6 staff members undergoing iRAP Accreditation



Safety at the Heart of the Road



Let's create a road system for the Philippines that is a "Safe System"

Human life is the highest good and it is **not** negotiable.

Source: FIA

Questions?

SAFETY PERFORMANCE INDICATOR FOR SAFER ROAD IN INDONESIA

Handiyana Ariephin
Directorate General of Highway
Ministry of public Works and housing
Indonesia

OUTLINE

- ROAD SAFETY NATIONAL PLAN (RUNK)
- RAP (ROAD ASSESMENT PROGRAM)
- CASE STUDY

ROAD SAFETY NATIONAL PLAN (RUNK)

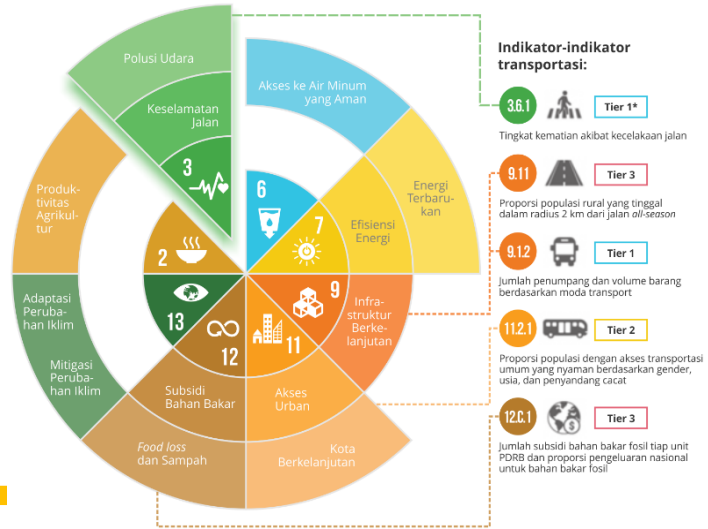
ROAD SAFETY NATIONAL PLAN AND SAFETY GLOBAL TARGETS

RUNK LLAJ was launched in June 2011 by Deputy President of the Republic of Indonesia which contains the KLLAJ long-term program up to in 2035, of which the first 10 years are the implementation of 2011 Decade of Action for Road Safety - 2O2O.

RUNK LLAJ needs updating and aligned with global dynamics, the potential for success when the program is implemented in the year 2O21 - 2O4O.

Sustainable Development Goals (SDG's) are a global action plan to ending poverty, reducing inequality and protecting the environment.

SDG's GLOBAL TARGETS



5 PILARS AND 3 BASIC PRINCIPLES OF ROAD SAFETY NATIONAL PLAN (RUNK) REGULATION OF PRESIDENT REPUBPLIC INDONESIA NUMBER 1/2022

5 PROGRAMME PILARS OF RUNK

SAFER SYSTEM;

SAFER ROADS;

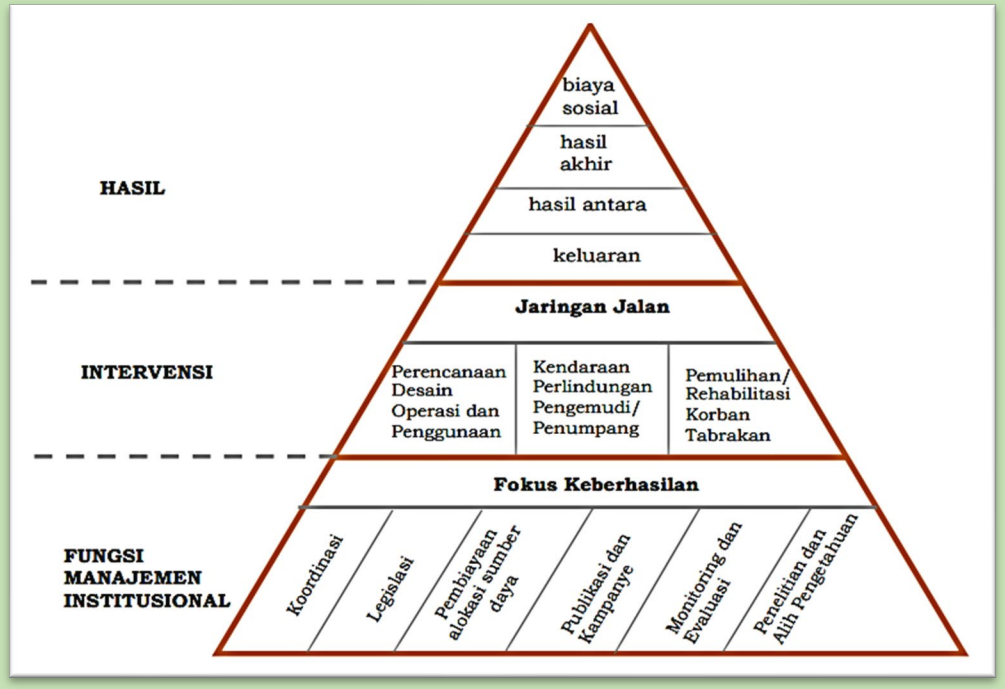
SAFER VEHICLE;

SAFER PEOPLE;

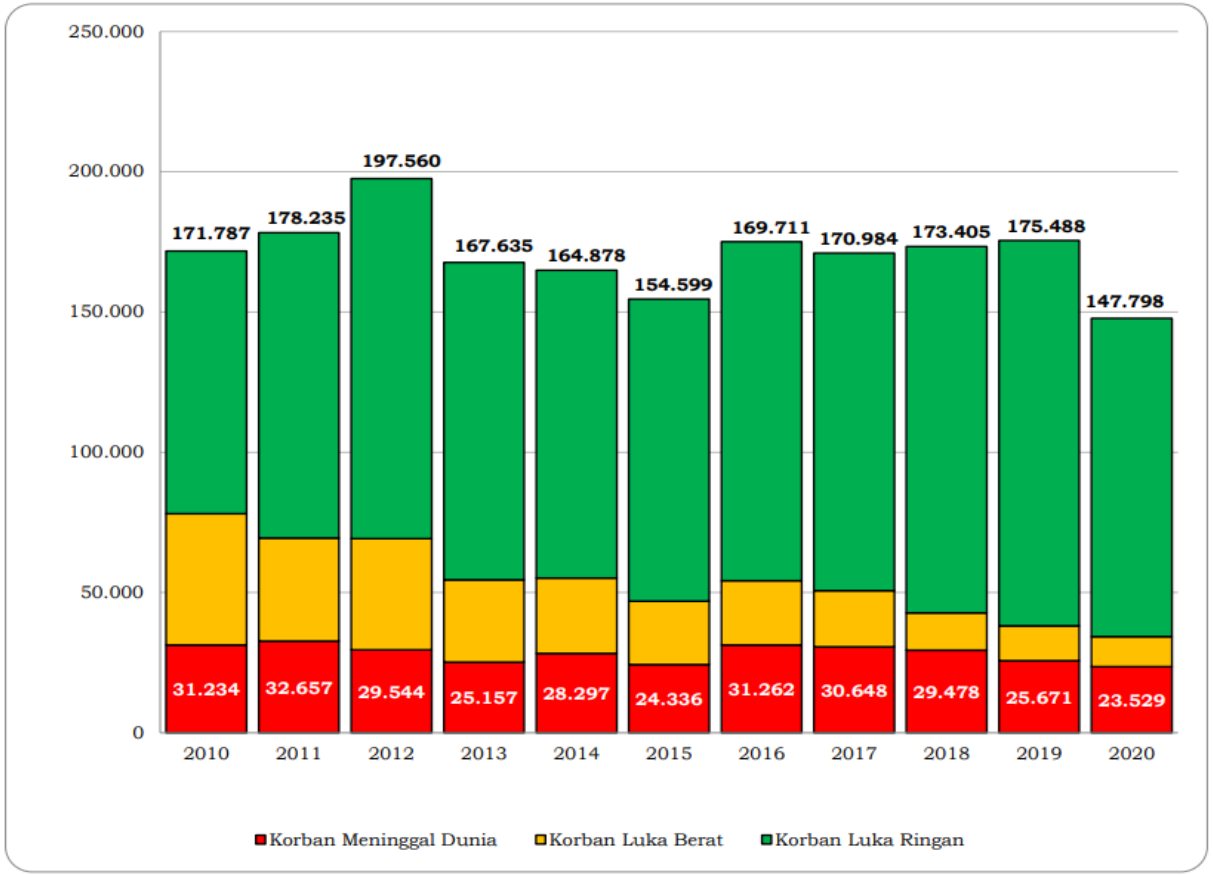
POST CRASH RESPONSES.

3 BASIC PRINCIPLES OF ROAD SAFETY MANAGEMENT

1. INSTITUTION MANAGEMENT FUNCTION;
2. INTERVENTION;
3. RESULTS;

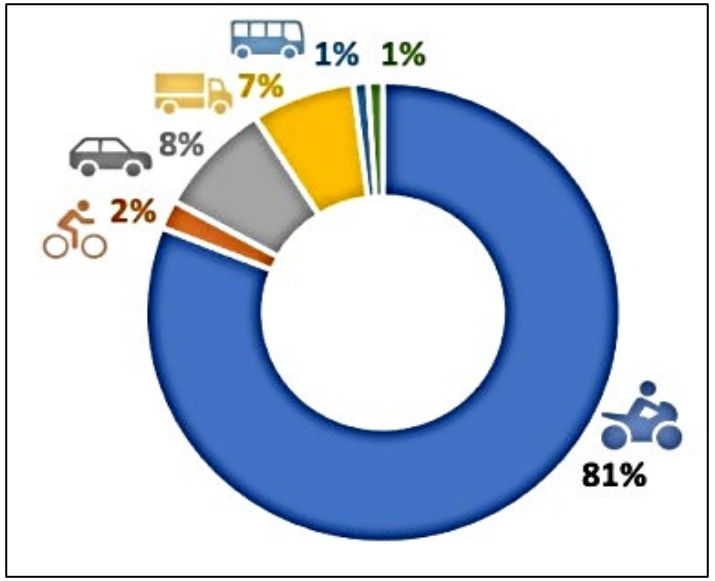


NATIONAL ACCIDENT CONDITION



- ACCIDENT IN 2010 – 2020 BETWEEN 147.798 – 197.560.
- NUMBER OF FATAL ACCIDENT IN THE WORLD BETWEEN 23.529– 32.657.
- IN 2020 NUMBER OF FATAL ACCIDENT IN INDONESIA 23.529 EQUAL TO 3 PERSON DEADT/HOUR IN THE WORLD.

ACCIDENT BASED ON VEHICLE TYE IN 2020



ACCIDENT BASED ON ROAD STATUS IN 2020

ROAD STATUS	TOTAL ACCIDENT	PERCENT	LENGTH (KM)	PERCENT	RATIO
NATIONAL TOLL	1.596	1,37%	2.093,45	0,39%	0,76
NATIONAL NON TOLL	27.418	23,55%	47.017,27	8,79%	0,58
SUB URBAN	87.406	75,08%	485.779,84	90,82%	0,17
TOTAL	116.420	100%	534.890,56	100%	

TARGET ROAD SAFETY NATIONAL PLAN (RUNK)

YEARS	Prediction number of death (person)	TARGET 1		TARGET 2	
		Fatality Index /100.000 population	Percent Fatality Index /100.000 population	Fatality Index /100.000 vehicle	Percent Fatality Index /100.000 vehicle
2010 (base year)	31.234	13,14	-	3,93	-
2025	27.838	9,53	30%	1,37	65%
2030	23.852	7,62	40%	0,98	75%
2035	20.246	6,04	55%	0,78	80%
2040	16.640	4,63	65%	0,59	85%

TARGET ROAD SAFETY NATIONAL PLAN (RUNK)

TARGET	INDICATOR
At 2030, all countries have access one or more highways that fulfills safety instrument UN	Realization of regulations related to road traffic accident in accordance with UN legal instruments, including road assessments according to the International Road Assessment Programs (iRAP)
At 2030, more than 75% of motorized vehicles travel on the road existing ones that have fulfilled road rating standard 3 stars	The realization of more than 75% of the journey motorized vehicles through roads in Indonesia that meets the standard of 3 stars by using an assessment approach iRAP

NATIONAL STRATEGIC PLAN DITJEN BINA MARGA 2020-2024 ROADMAP

STRATETIG PLAN (SS2) Akhir 2024

Increasing the CONNECTIVITY of the national road network

IKU – Travel Time

2024

1,90 (Jam/100Km)

1. Preservation of National road 47.017 Km
2. Bridge **38.726 m**
3. Fly Over dan Underpass **31.053 m**
4. New Toll Road and Operation 2.500 Km
5. New National Road 3.000 Km

TOTAL BUDGET 290,5 T

Programme PLAN (SP)

Improving national road SERVICE PERFORMANCE

	2020	2021	2022	2023	2024
IKP.1 – accessibility (*Persentase PKN, PKW, PKSN, dan simpul trans-portasi nasional yg telah diakses jalan nasional*)	81,8	82,8	84,6	85,8	87,9
IKP.2 – condition (*Nilai rating terhadap indikator IRI, PCI, umur struktur jalan, dan drainase jalan*)	2,70	2,63	2,61	2,57	2,50
IKP.3 - safety (*Nilai gabungan antara angka kecelakaan per populasi serta jumlah titik blackspot per populasi)*	3,51	3,14	2,95	2,89	2,82

In 2021 there is a new target (KI Batang, KI Subang, *Food Estate*) sebesar 7,14 T

RENSTRA allocation	40,12 T	56,23 T	60,94 T	66,77 T	66,45 T
Real allocation	30,10 T	53,96 T	39,70 T		
Back log accumulation	10,02 T	12,29 T	33,53 T		

PROGRAM PERFORMANCE INDICATOR (IKP)

2 component Program Performance Indicator (IKP) :

- Accident component
- Blackspot component

Accident component : number of accidents ratio to total population at level implementation.
Blackspot component : number of blackspot ratio to total population at level implementation.

IKP Accident component

$$\text{accident index} = \frac{total\ accident}{population\ (million)}$$

$$\text{IKP accident} = \frac{accident\ index}{60} \times 5$$

If accident index ≤ 15, take KPI accident = 1
If accident index > 60, take KPI accident = 15

IKP accident : IKP blackspot = 70% : 30%

IKP Blackspot component

$$\text{blackspot index} = \frac{total\ blackspot}{population\ (million)}$$

$$\text{IKP accident} = \frac{blackspot\ index}{8} \times 5$$

If accident index ≤ 2, take KPI blackspot = 1
If accident index > 8, take KPI blackspot = 5

ROAD ASSESMENT PROGRAM IN INDONESIA (RAP)

RAP IN INDONESIA

Indonesia already upload 7000 KM to Vida tolls for Road Assessment Programme.

Pilot project for Road Assesment Programme in Indonesia:

- North Java corridor 2013-2014;
- East Sumatera Coridor 2013-2014;
- National road at Bandung City 2018;
- Jagorawi Toll Road 2020; and
- Cipularang Toll Road 2020.

Indonesia also using IRap countermeasure for planning and budgeting tools in Bina Marga

RAP IN INDONESIA

2010

IRE researchers contact with iRAP

2011

iRAP Workshop with MIROS

2012

IndII supported project: coder sertification, hawkeye equipment, workstation

2013–2014

Road assessment for North Java and East Sumatera corridor

2018

BIGERS project for Bandung city/local road assessment

2020

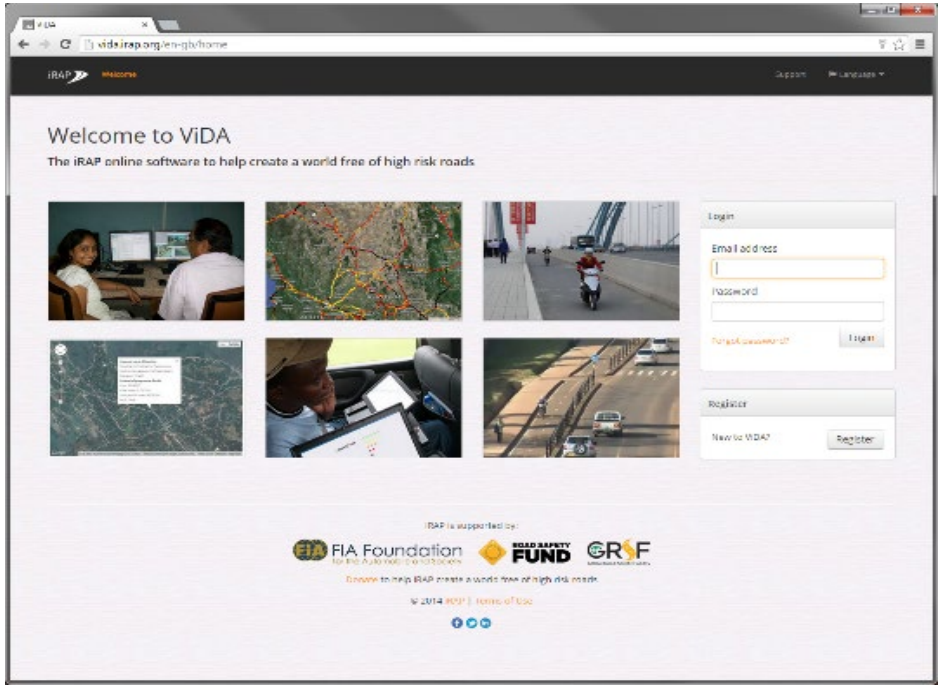
Jasa Marga - Cipularang and Jagorawi Toll Road assessment

2021

Road to Establishment of RAP body in Indonesia

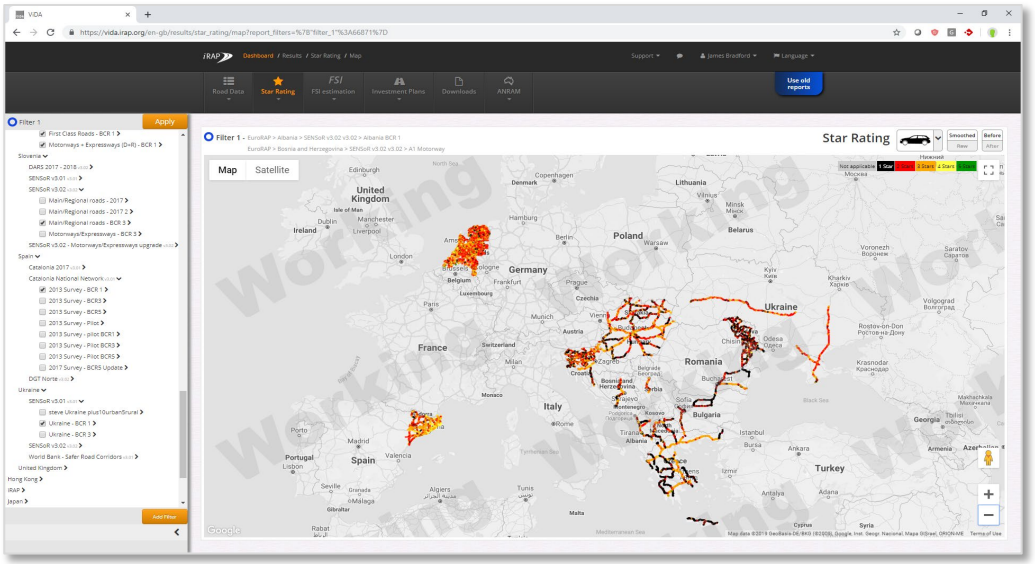
VIDA – ONLINE ANALYST TOOLS

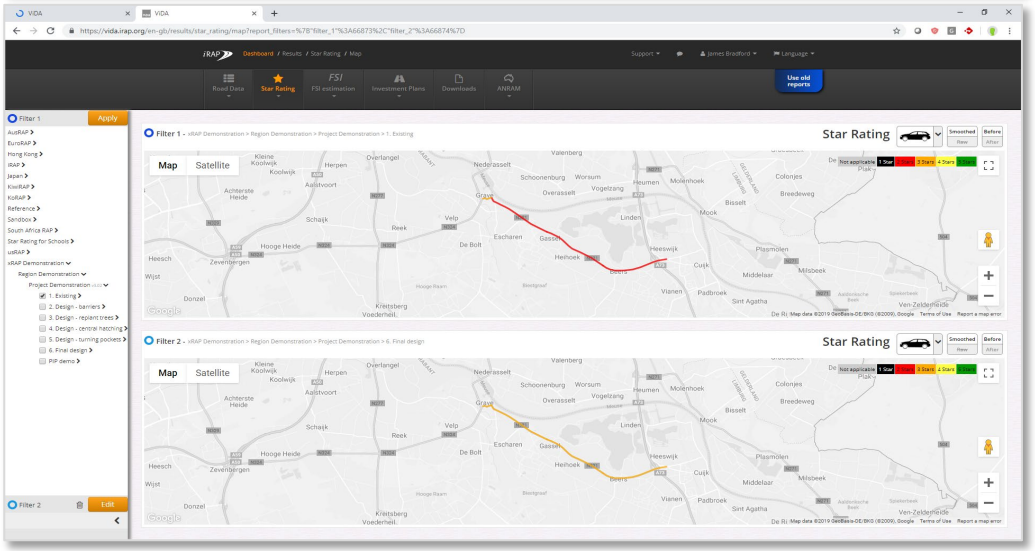
VIDA TOOLS



http://vida.irap.org

VIDA MAPS





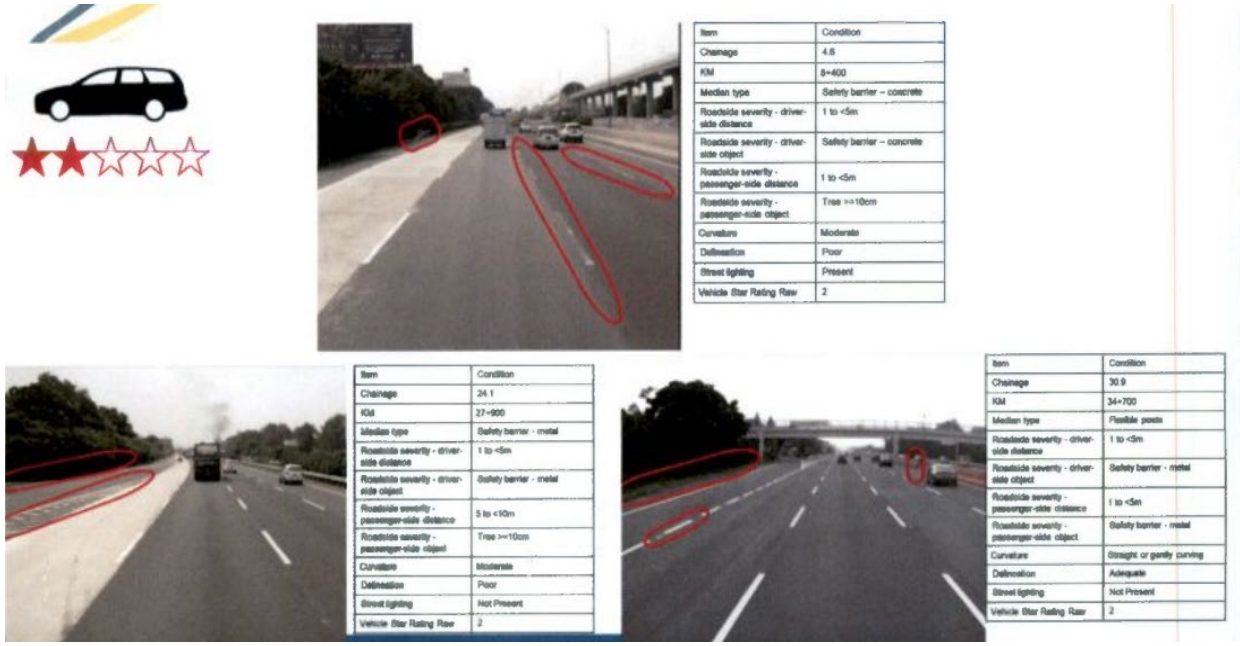
VIDA RESULTS

CASE STUDY (TOLL ROAD)

RECAPITULATION OF STAR RATING BEFORE RECOMENDATION AT TOLL ROAD

STAR RATINGS	JAGORAWI A		JAGORAWI B		CIPULARANG A		CIPULARANG B		PADALEUNYI A		PADALEUNYI B	
	VEHICLE OCCUPANT		VEHICLE OCCUPANT		VEHICLE OCCUPANT		VEHICLE OCCUPANT		VEHICLE OCCUPANT		VEHICLE OCCUPANT	
	LENGTH (KM)	PERCENT (%)	LENGTH (KM)	PERCENT (%)	LENGTH (KM)	PERCENT (%)	LENGTH (KM)	PERCENT (%)	LENGTH (KM)	PERCENT (%)	LENGTH (KM)	PERCENT (%)
5 STARS	12,2	28,18%	9,4	21,91%	8,9	15,61%	15,7	28,09%	2	5,59%	1,2	3,36%
4 STARS	25,3	58,43%	22	51,28%	24,5	42,98%	20,3	36,31%	10,9	30,45%	14	39,22%
3 STARS	5,5	12,70%	10,7	24,94%	20,3	35,61%	18	32,20%	13,1	36,59%	16,2	45,38%
2 STARS	0,3	0,69%	0,7	1,63%	3	5,26%	1,8	3,22%	8,3	23,18%	4,3	12,04%
1 STARS	0	0%	0,1	0%	0,3	0,53%	0,1	0%	1,5	4,19%	0	0%
NOT APPLICABLE	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
TOTALS	43,3	100%	42,9	100%	57	100%	55,9	100%	35,8	100%	35,7	100%

EXAMPLE PROBLEM AT TOLL ROAD



EXAMPLE OF PROBLEM:

1. **LANE MARKING;**
2. **LINE WIDTH;**
3. **WARNING SIGN;**
4. **CELAR ZONE;**
5. **GUARD RIIL;**
6. **ROADSIDE BARIER.**

RECOMMENDATION AND STAR RATING AFTER RECOMMENDATION

ROAD SAFETY TREATMENT AT TOLL ROAD:

1. **ROADSIDE BARRIERS – PASSENGER SIDE;**
2. **ROADSIDE BARRIERS – DRIVER SIDE;**
3. **SHOULDER RUMBLE STRIPS;**
4. **CENTRAL MEDIAN BARRIER**

STAR RATINGS	JAGORAWI A		JAGORAWI B		CIPULARANG A		CIPULARANG B		PADALEUNYI A		PADALEUNYI B	
	VEHICLE OCCUPANT		VEHICLE OCCUPANT		VEHICLE OCCUPANT		VEHICLE OCCUPANT		VEHICLE OCCUPANT		VEHICLE OCCUPANT	
	LENGTH (KM)	PERCENT (%)	LENGTH (KM)	PERCENT (%)	LENGTH (KM)	PERCENT (%)	LENGTH (KM)	PERCENT (%)	LENGTH (KM)	PERCENT (%)	LENGTH (KM)	PERCENT (%)
5 STARS	28,8	52,27%	21,2	49%	44,7	78,42%	40,9	73,10%	12,7	35,47%	16	44,82%
4 STARS	17,4	40,18%	19	44%	10	17,54%	13,5	24,15%	17,7	49,44%	11,4	31,93%
3 STARS	1,1	2,54%	2,7	6%	2,3	4,04%	1	1,79%	5,4	15,09%	8,3	23,25%
2 STARS	0	0%	0	0%	0	0%	0,5	0,89%	0	0%	0	0%
1 STARS	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
NOT APPLICABLE	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
TOTALS	47,3	95%	42,9	100%	57	100%	55,9	100%	35,8	100%	35,7	100%

CASE STUDY (NATIONAL ROAD)

STAR RATING NATIONAL ROAD AT BANDUNG

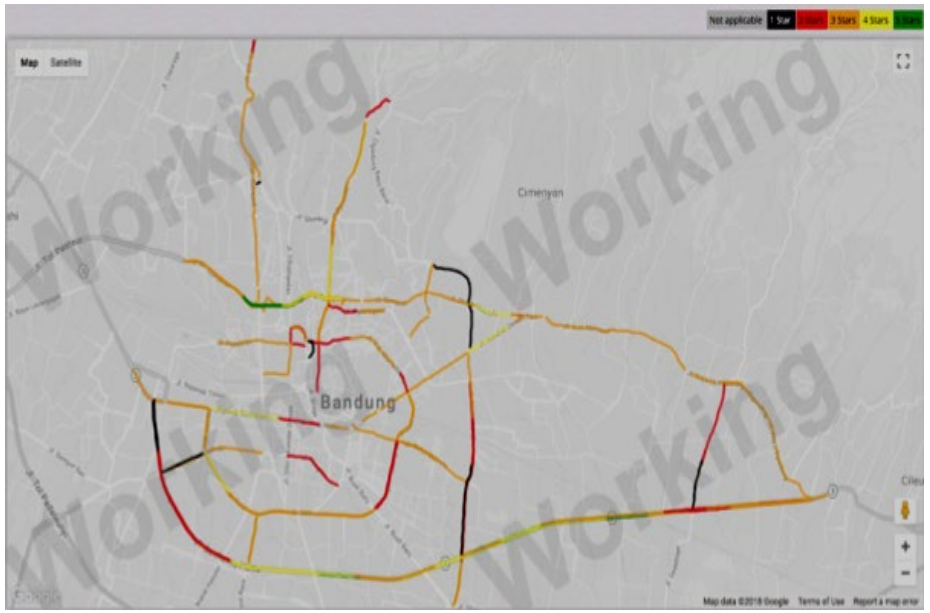
STAR RATING NATIONAL ROAD AT BANDUNG CITY

Beta

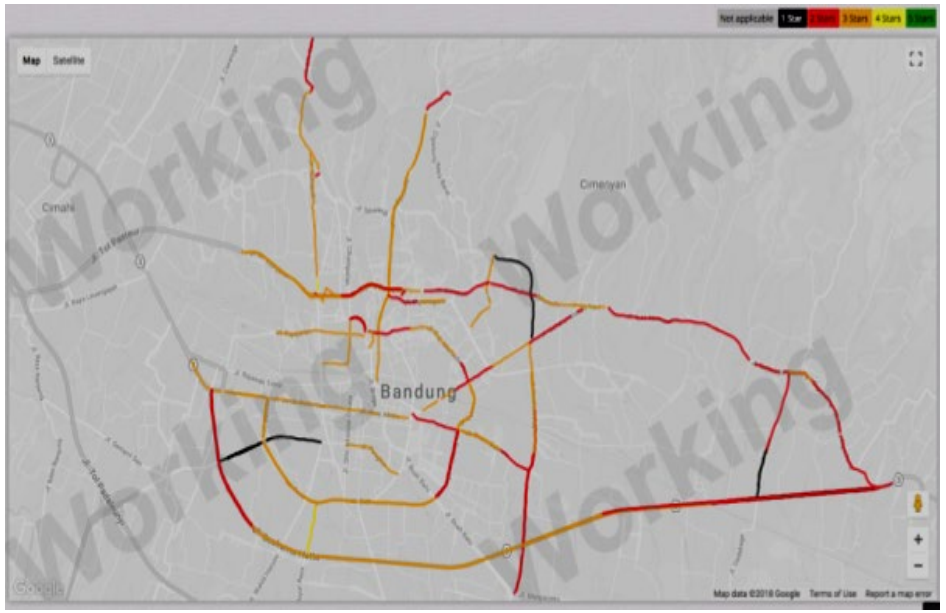
Star Ratings	Vehicle Occupant		Motorcyclist		Pedestrian		Bicyclist	
	Length (kms)	Percent	Length (kms)	Percent	Length (kms)	Percent	Length (kms)	Percent
5 Stars	16.20	9.45%	10.60	6.18%	0.00	0.00%	0.00	0.00%
4 Stars	46.40	27.06%	24.40	14.23%	1.30	0.76%	17.30	10.09%
3 Stars	89.90	52.42%	97.40	56.79%	95.60	55.74%	104.40	60.87%
2 Stars	17.00	9.91%	29.40	17.14%	61.40	35.80%	42.10	24.55%
1 Star	1.90	1.11%	9.60	5.60%	13.10	7.64%	7.60	4.43%
Not applicable	0.10	0.06%	0.10	0.06%	0.10	0.06%	0.10	0.06%
Totals	171.50	100.00%	171.50	100.00%	171.50	100.00%	171.50	100.00%

STAR RATING MAPS

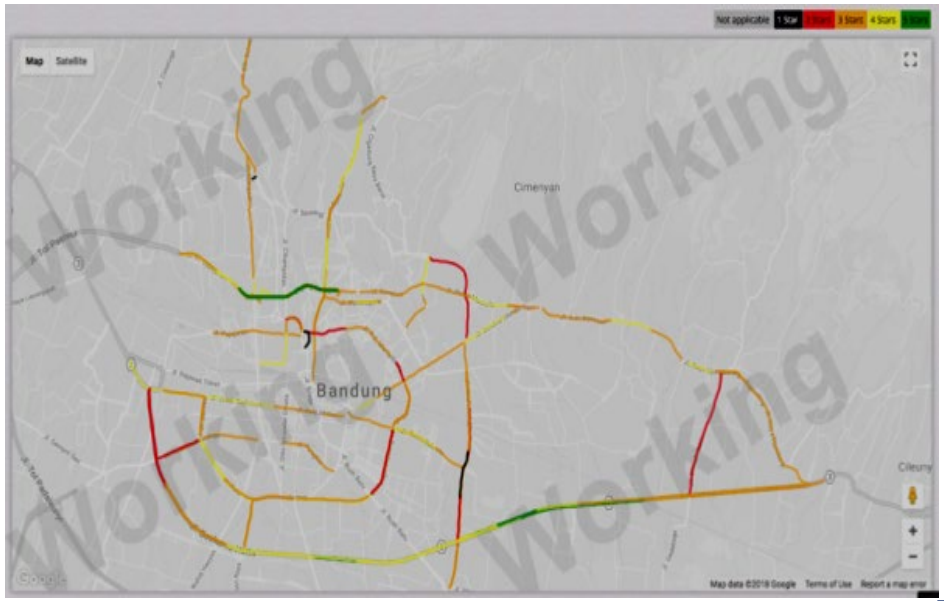
VEHICLE STAR RATING



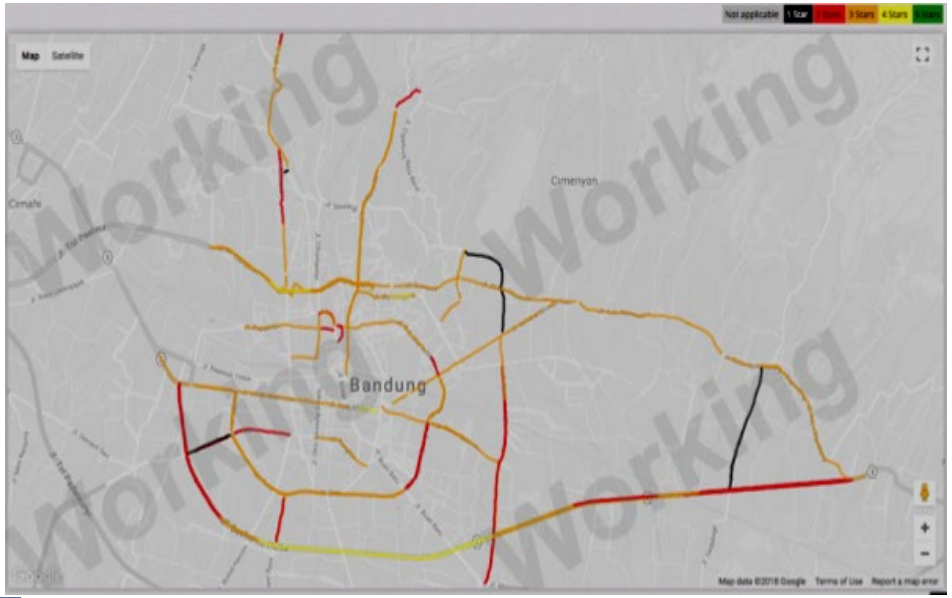
PEDESTRIAN STAR RATING



MOTORCYCLE STAR RATING



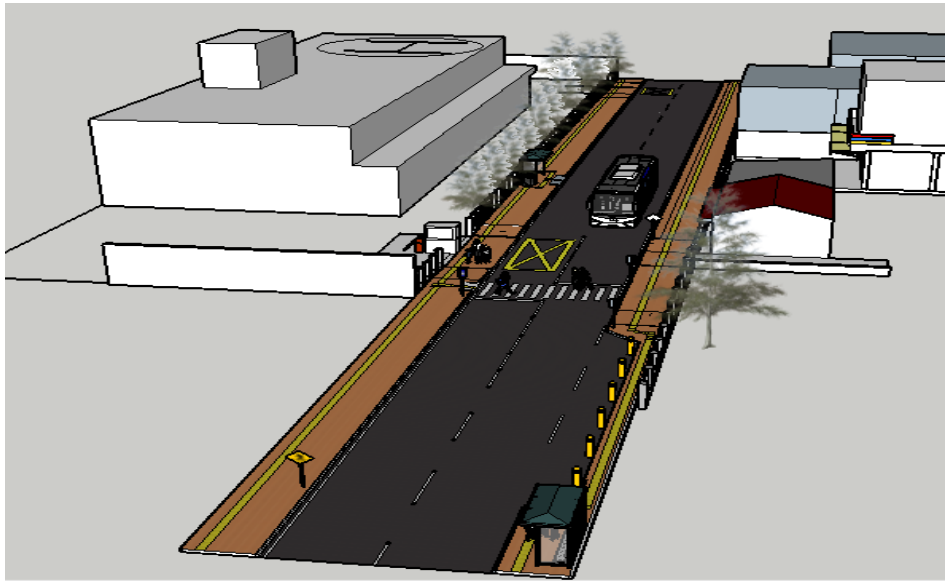
BYCYCLE STAR RATING

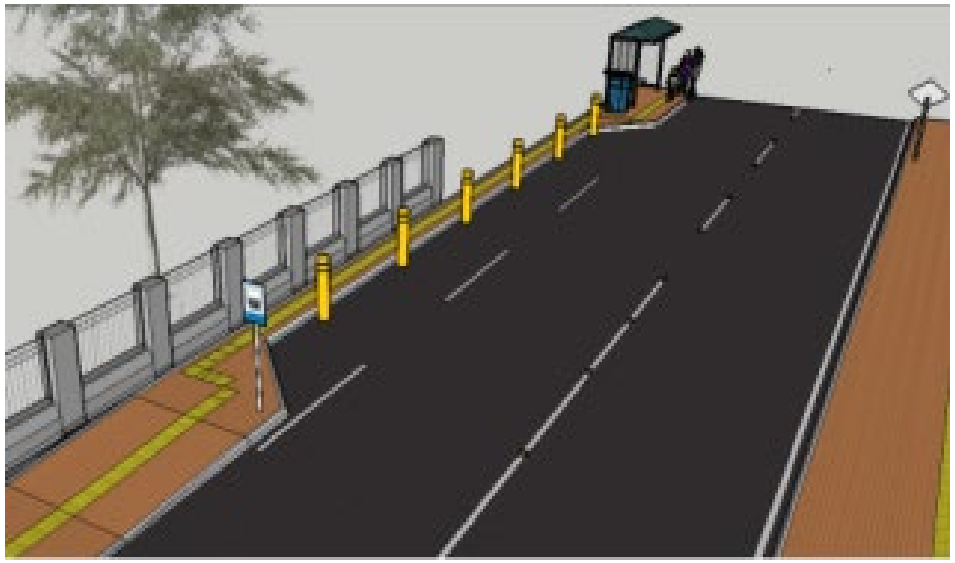


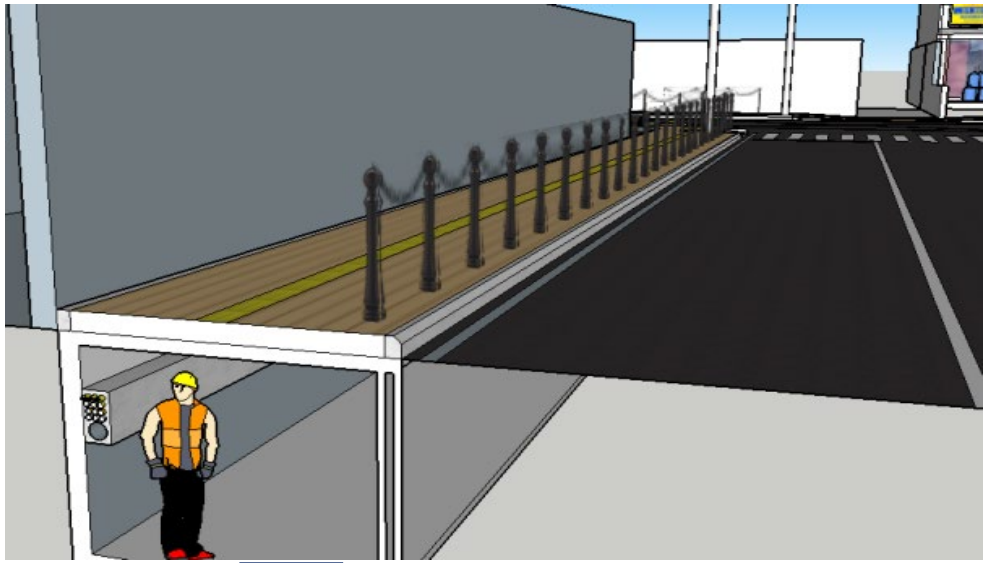
SAFER ROAD INVESTMENT PLAN

Countermeasure	Length / Sites	FSIs saved
Traffic calming	64.00 km	39,178
Pedestrian fencing	51.10 km	33,358
Pave road surface	10.00 km	22,621
Unsignalised crossing	161 sites	21,172
Upgrade pedestrian facility quality	123 sites	7,900
Central hatching	17.10 km	7,319
Signalised crossing	1 sites	387
School zone warning - signs and markings	0.20 km	33
Clear roadside hazards (bike lane)	3.20 km	1

RECOMENDATION







RECOMMENDATION:

1. BOX CULVERT INSTALATION;
2. INTERSECTION HANDLING;
3. YELLOW BOX INSTALATION;
4. LAYBAY PUBLIC TRANSPORT;
5. PEDESTRIAN FACILITIES.

RESULT AFTER RECOMMENDATION

Star Ratings	Before Simulasi		After Simulasi	
	Length (km)	%	Length (km)	%
5 Stars	0	0.00%	0	0.00%
4 Stars	0	0.00%	1.30	100.00%
3 Stars	0	0.00%	0	0.00%
2 Stars	0	0.00%	0	0.00%
1 Star	1.30	100.00%	0	0.00%
Not applicable	0	0.00%	0	0.00%
Totals	1.30	100.00%	1.30	100.00%

PUPR
SIGAP MEMBANGUN NEGERI

THANK YOU

SIGAP MEMBANGUN NEGERI

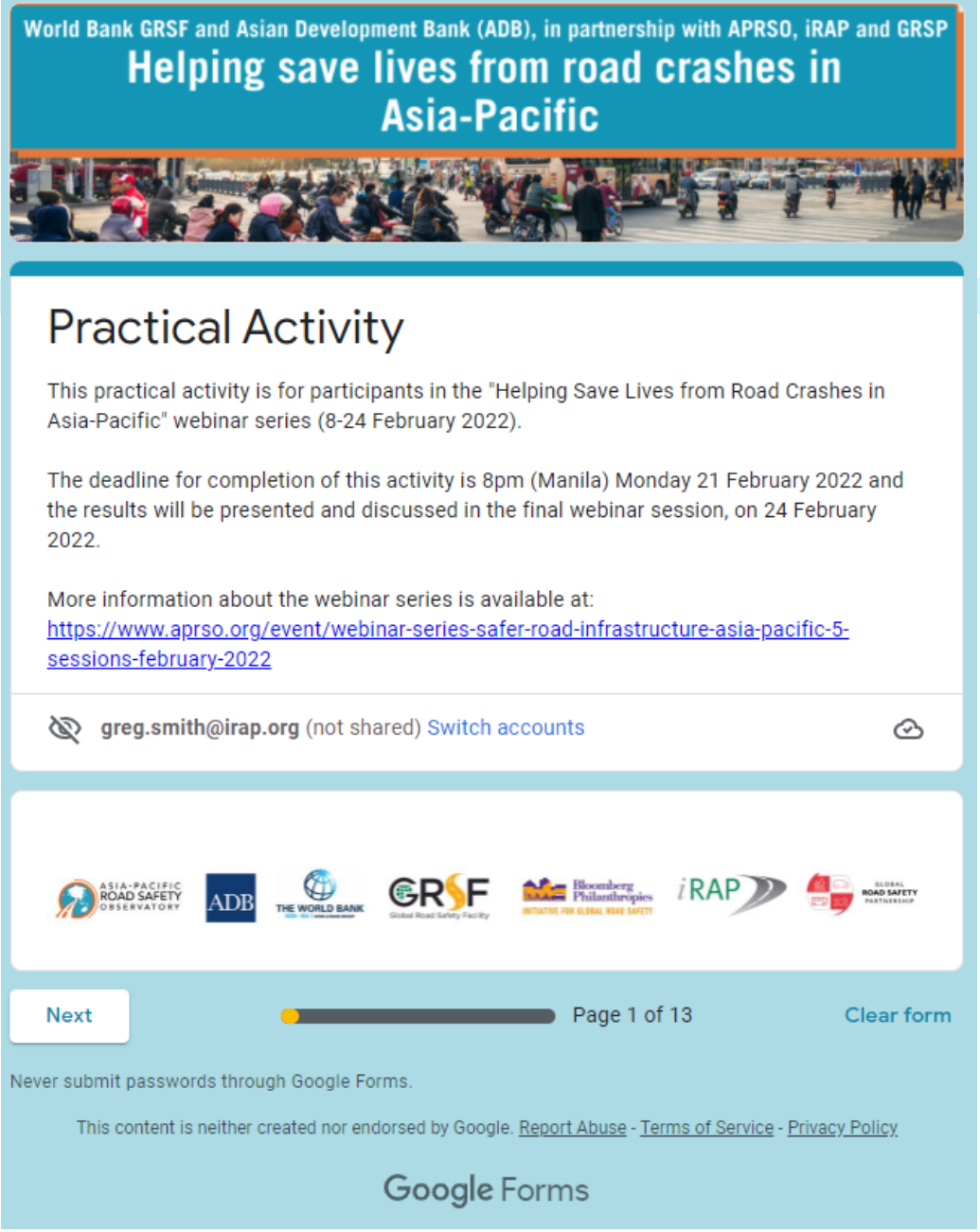
Questions?

Introduction to the practical activity and examples of support materials

Greg Smith
Global Programme Director
iRAP

PRACTICAL ACTIVITY

- English: https://bit.ly/SafetyWebinarActivity
- Russian: https://bit.ly/ZadaniyeBebinara
- Due: 8pm (Manila) Monday 21 February 2022
- Results to be discussed in final webinar session: Thursday 24 February 2022



DECADE OF ACTION FOR ROAD SAFETY 2021 - 2030

GLOBAL PLAN

DECADE OF ACTION FOR ROAD SAFETY
2021–2030

Box 2

Recommended actions to improve the safety of road infrastructure

- Develop functional classifications and desired safety performance standards for each road user group at the geographic land-use and road corridor level.
- Review and update legislation and local design standards that consider road function and the needs of all road users, and for specific zones.
- Specify a technical standard and star rating target for all designs linked to each road user, and the desired safety performance standard at that location.
- Implement infrastructure treatments that ensure logical and intuitive compliance with the desired speed environment (e.g. 30 km/h urban centres; ≤ 80 km/h undivided rural roads; 100 km/h expressways).
- Undertake road safety audits on all sections of new roads (pre-feasibility through to detailed design) and complete assessments using independent and accredited experts to ensure a minimum standard of three stars or better for all road users.
- Undertake crash-risk mapping (where crash data are reliable) and proactive safety assessments and inspections on the target network with a focus on relevant road user needs as appropriate.
- Set a performance target for each road user based on the inspection results with clear measurable metrics at the road-attribute level (e.g. sidewalk provision).

Practical activity: instructions

In preparation for the United Nations High-Level Meeting on Road Safety in June 2022, the Office of the President/Prime Minister has requested that your jurisdiction (which may be a city, province or country):

1. Evaluates its preparedness to implement the recommended actions to improve the safety of road infrastructure in the Global Plan for the Decade of Action for Road Safety 2021-30.

2. Identifies priority steps needed to implement each of the recommended actions.

Recommended action 1: Develop functional classifications and desired safety performance standards for each road user group at the geographic land-use and road corridor level

In your experience, how ready is your jurisdiction to "Develop functional classifications and desired safety performance standards for each road user group at the geographic land-use and road corridor level"? *

	1	2	3	4	5	6	7	8	9	10	
Not all ready	○	○	○	○	○	○	○	○	○	○	Completely ready

In a few sentences, please explain why you have selected this level of readiness. *

Your answer

In a few sentences, please explain what steps need to be taken in order to implement recommended action 1 in your jurisdiction. *

Your answer

TIPS

- Each student should submit their own activity, but collaboration is allowed.
- Consider: manuals/standards, training, and organization responsibilities and roles.
- Webinar content: https://adb.eventsair.com/road-safety-capacity-building-programme/safer-road-infrastructure-in-the-asia-pacific
- Global Plan: https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/decade-of-action-for-road-safety-2021-2030.
- Asia Pacific Road Safety Observatory: https://www.aprso.org/.
- Global Status Report: https://www.who.int/publications/i/item/9789241565684.
- Vaccines for Roads: https://www.vaccinesforroads.org/.
- The Global Road Safety Facility: https://www.roadsafetyfacility.org/.

Thanks!

Contact:

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ROAD SAFETY CAPACITY BUILDING PROGRAMME FOR THE ASIA-PACIFIC:

HELPING SAVE LIVES FROM ROAD CRASHES IN ASIA-PACIFIC - WEBINAR SERIES ON SAFER ROAD INFRASTRUCTURE IN THE ASIA-PACIFIC

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