



First Road Working Group Meeting

11–12 March 2026 | Urumqi, People's Republic of China

Первое заседание Рабочей группы по автомобильным дорогам

11–12 марта 2026 года | Урумчи, Китайская Народная Республика



Mainstreaming Road Safety Risk Management Across CAREC Road Investments

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BIG ROAD PROJECTS. TOUGH TERRAIN.

Many CAREC roads have been improved. Pavements are smoother, alignments better. Speeds are higher. Safety is at increased risk.

CAREC's commitment to road safety

- CAREC Ministerial Conference 2015 committed to road safety.
- CAREC Ministerial Conference 2016 committed to the regional road safety strategy (including the Safe System).
- Objective is to reduce fatalities on CAREC roads by 50% by 2030.
- An estimated 23,000 lives could be saved.

- Most CAREC countries will not meet their 2030 targets.
- Road fatalities are *not* going down.
- Why?
- Many reasons.
- Systematic gaps in road safety across CAREC.



Systemic gaps in road safety

1. Gaps between policy intent and regulatory implementation
2. Gaps in road design standards
3. Gaps in implementation practices
4. Gaps in road safety audit governance
5. Gaps in performance monitoring



Systemic gaps in road safety

- Can we close these gaps, and improve road safety in future road projects?
- This first meeting of the CAREC Road Working Group offers an opportunity to discuss the systematic gaps in road safety in CAREC, and to explore how these can be addressed.
- Can we enhance regional harmonization, institutional strengthening and improved standards and practices to save lives on CAREC roads?

1. Gaps between policy intent and regulatory implementation

- Internationally recognised road safety practices such as the Safe System, iRAP assessments, and Vision Zero have no apparent regulatory or policy status in CAREC member countries.

Gap analysis between CAREC and global best practices

CAREC

Standards are the responsibility of a national standards committee. Road design standards are one of its responsibilities.

There are no national road safety audit policies or national regulations that guide/direct the use of the audit process.

Speed management is mostly based on village/town signs. 60kmh in villages, 90kmh in rural areas. Road humps are not permitted on national or main roads and are rarely used in local streets.

GLOBAL BEST PRACTICE

Road design standards are developed, reviewed and updated by a national committee that specializes in such standards. Standards reviewed each 5-7 years.

Road authorities have a road safety audit policy that sets the requirements for audits (stages, number of audits per project, number of approved auditors in a team) based on the size of the project.

Speed limits are set according to the class of road, and the extent of development. The main aim is to establish speed limits that will maximize driver compliance. Road humps, humped crossings and raised intersections are widely used on local streets.

Gap analysis between CAREC and global best practices

CAREC	GLOBAL BEST PRACTICE
<p>The clear zone concept is not practiced. The roadside hazard management strategy is not known.</p>	<p>The clear zone concept has been widely used for many years as a way of identifying roadside hazards. The roadside hazard management strategy is used to assist designers.</p>
<p>National road authorities have few road safety engineers.</p>	<p>National road authorities have well-resourced road safety engineering departments, most of which have regional outposts.</p>
<p>Crash reporting is inconsistent, even for fatal crashes. Under-reporting is common.</p>	<p>Crash data is gathered by Police, with a high degree of accuracy for fatal and serious casualty crashes. Data is shared with stakeholders, including the public, via websites.</p>

2. Gaps in road design standards

- What is a “standard”?
- Standards are items that are required by national regulation to be used in a road project.
- They include geometric issues, cross sections, signs (types/colours), and markings.
- In most CAREC road authorities they are GOST and SNiP standards from the Soviet era, some of which have been updated in recent times.

2. In response to road safety audit recommendations, these are often said to be “standards”:

- Paved shoulders are too narrow (often 0.5m).
- Road furniture that will increase crash severity if/when a vehicle leaves the road.
- Unsafe roundabout designs. Roundabouts are highly regarded in the Safe System as the safest form of intersection control but must be well designed.
- Road projects often do not consider the needs of vulnerable road users.
- Pedestrian facilities that do not suit pedestrian needs or safety.
- Speed limits (60 km/h or 90km/h only) despite safety-focused demands for other limits.
- Bridge cross sections are unsafe, with in-built roadside hazards.
- More.

Standards

- Are a good place to start.
- Highway designers need to know them and use them.
- if applied comprehensively, many safety problems will disappear.
- Not all standards = safety.
- Many safety issues have no standards to guide designers.
- Some current standards in CAREC were removed in other countries many years ago (e.g. Fish Tail barrier terminals)

3. Gaps in implementation practices

What are “implementation practices”?

Implementational practices: things that are routinely done (or not done) in the design or the construction stages of a road project.

Because they have been done for many years, and have not been questioned, it is assumed they are the best way to do things and they are safe!

3. Gaps in implementation practices

Proven implementation practices in road safety from around the world include:

- The Safe System
- The road safety audit process
- Clear zone concept
- The roadside hazard management strategy
- More on these shortly.....



3. In response to road safety audit concerns, these are often said to be “our practice”:

- Limited bypass strategies for settlements.
- Speed management inconsistencies
- Inadequate attention to traffic calming through villages.
- Intersection controls.
- Retaining high-risk Y-junctions
- Roundabouts based on obsolete design practices
- Roadside safety inconsistencies
- Work zone safety deficiencies

How can CAREC move forward, and update such practices?

4. Gaps in road safety audit governance

- The audit process is not institutionalized in national road authorities.
- Few audits in CAREC undertaken by local auditors.
- Most audits are still undertaken by international consultants at the request of a development bank.
- Road authorities have weak response and sign-off mechanisms.
- Many responses dismiss the audit findings.
- The safety recommendations in audit reports are also dismissed as “too costly” or “too late”.
- Recurring road safety issues are a familiar feature of CAREC audit reports. The lessons are not being learnt.



5. Gaps in performance monitoring

- Limited collection and reporting of road crash data.
- Limited sharing of data.
- A belief that road crashes are the fault of the road user and thus a matter for education and enforcement.
- A shortage of researchers to provide expert independent advice.
- A failure to apply the Safe System.
- Limited corridor-level safety performance monitoring.
- Minimal use of objective tools such as iRAP star ratings.
- An absence of safety-focussed key performance indicators in road authority performance frameworks.

Examples of standards and implementation practices that can assist CAREC road safety

Proven implementation practices in road safety from around the world include:

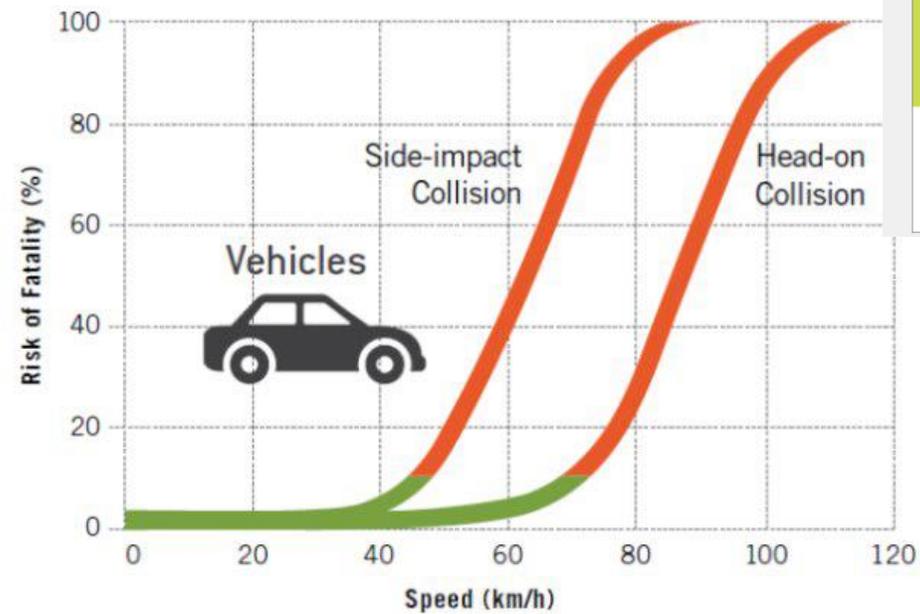
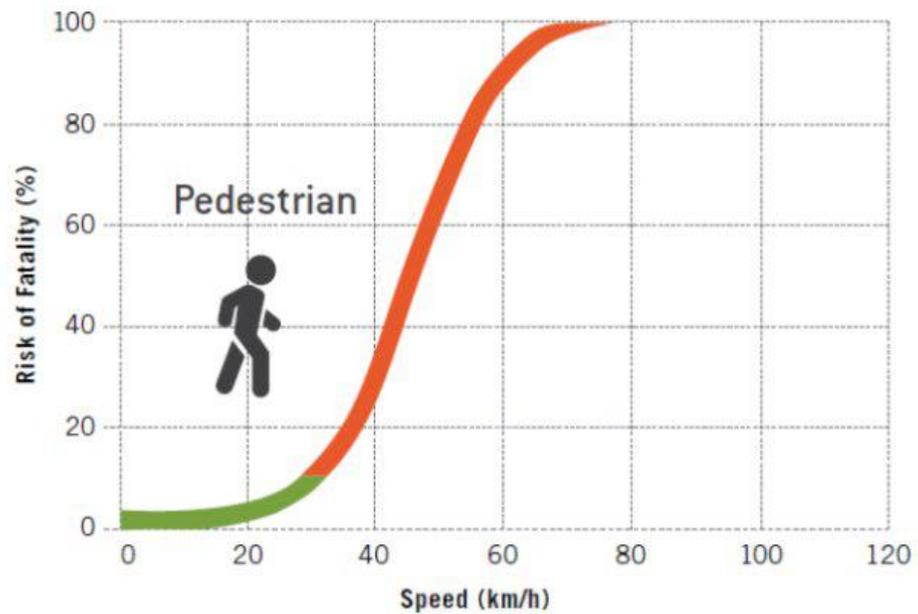
- The Safe System
- The road safety audit process
- Clear zone concept
- The roadside hazard management strategy

The Safe System

- People make mistakes. A mistake should not cost anyone's life or health.
- Physics determine the known limits to the amount of force our bodies can take.
- When a crash occurs (and they will continue to occur because people make mistakes), all the elements within the Safe System should work together to ensure the forces in the crash do not exceed human limits (and result in a fatal/ serious injury).
- Speed management is critical in the Safe System, as speed at impact determines the severity of injuries in a collision.

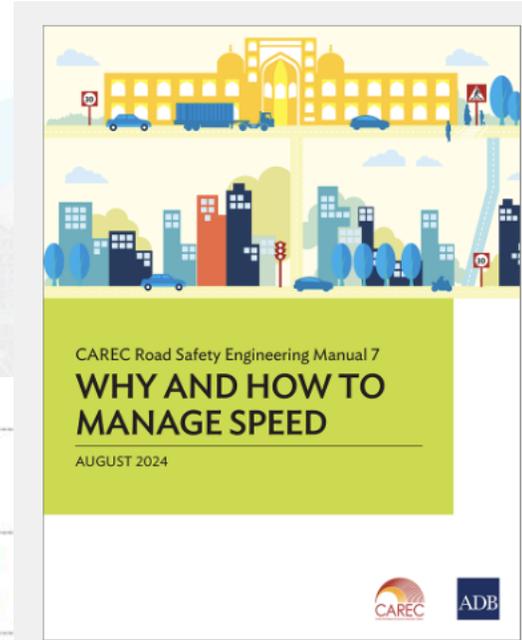


Speed management is important

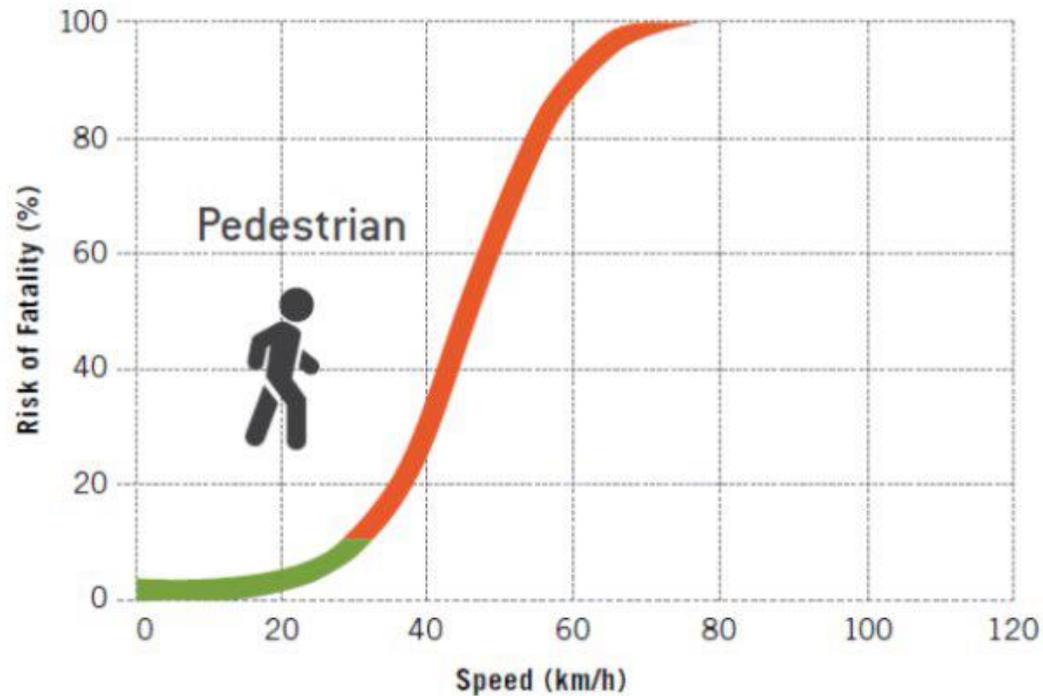


Crash involving vehicles vs vehicle and vehicles vs pedestrian/cyclist

Source: Austroads Balance between harm reduction and mobility in setting speed limits: a feasibility study (2005)

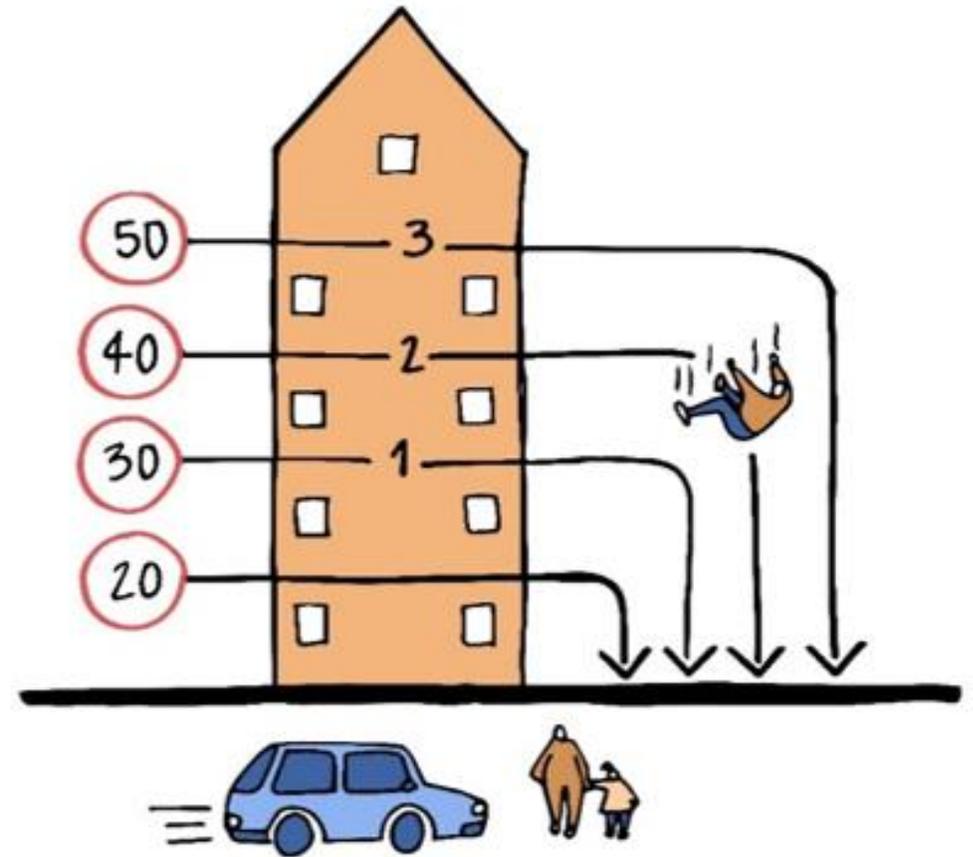


Speed management is important



Crash involving vehicles vs vehicle and vehicles vs pedestrian/cyclist

Source: Austroads Balance between harm reduction and mobility in setting speed limit



Narrow paved shoulders

0.5m seems to be the standards paved shoulder width

But pedestrians and bicyclists need much wider – 1.5m minimum

Errant vehicles need wider paved shoulders to assist recovery

The sub-base lasts longer with better waterproofing from wider paved shoulders



A wide shoulder but only 0.5m paved



A narrow paved shoulder on a new CAREC road.
This crossing on this high-speed road is a high risk.



Wider paved shoulders assist vulnerable road users

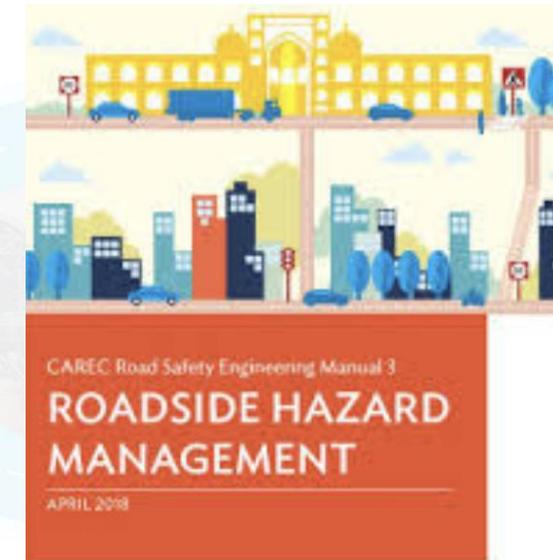
Tactile centre lines and edge lines can reduce run-off-road crashes



Roadside hazard management

The Clear Zone Concept is a simple way for designers to consider how best to create safe roadsides.

The Roadside Hazard Management Strategy is also a simple but clear process for deciding on the most appropriate and cost-effective treatment of known hazards.



What is a Clear Zone ?



- “A drivable roadside area that should be kept clear of hazardous objects in order to minimise the danger of a collision, should a vehicle leave the road”.



What is a roadside hazard?

Anything that is “fixed”, with a diameter of 100mm or more, and is within the clear zone.

Does CAREC have any roadside hazards?

GOKDEPE
TÜRKMENBASÝ



METJIT
AŞGABAT
MARY



E 60 L 9
პოტი 361
POTI
ბათუმი 403
BATUMI

E 60 L 9
გორი 116
GORI
სტეპანტმინდა 181
STEPANTSMINDA





X



These street lighting columns are roadside hazards within the clear zone. Safer columns are available.

Deep concrete drains within the clear zone are hazards.



Deep concrete drains within the clear zone are hazards.



Pedestrian facilities

Pedestrians are the largest group of road users in every country in CAREC

They are also the largest group of road fatalities

42% Azerbaijan

40% Tajikistan, Kyrgyzstan

31% Kazakhstan

27% Georgia

Other CAREC countries – unknown

Much more can be done for them, at modest cost





Pedestrians are the largest group of road users in CAREC



Pedestrians are the largest group of road users in CAREC



Placing Zebra Crossings across 3 traffic lanes is high risk.



Placing Zebra Crossings across 6 traffic lanes is a very high risk.

Pedestrian crossings should not be installed on high-speed roads.



Pedestrian crossings should not be installed on high-speed roads.



Money is often wasted on footbridges. Traffic calming in towns/villages would be better and safer for all.



Roundabouts are the safest form of intersection control. Proven!

The Safe System recommends them highly

In CAREC, they could be excellent because they are safe, require little maintenance, and don't fail when the power fails.

BUT – not enough engineers design roundabouts well.

They mistakenly think roundabouts require extra circulating lanes. They do not appreciate that capacity is controlled by the number of entering lanes

Change in design is needed for your next project

Do your standards allow for change?

An aerial photograph of a roundabout with a central landscaped island. The roundabout has four exits. A red semi-truck is in the top exit, a white car in the right exit, and a blue car in the bottom exit. A road with a white truck is on the right side. A green checkmark is in the top-left corner. Text labels describe the traffic flow at different points.

One entering, one
through, one exiting

Two entering, two
through, two exiting



CAREC - one entering, two through,
one exiting. Confusing line marking

Bridge cross sections



This existing bridge is a roadside hazard.



This existing bridge is a roadside hazard.



This new bridge is a roadside hazard.
CAREC bridge standards need a review.



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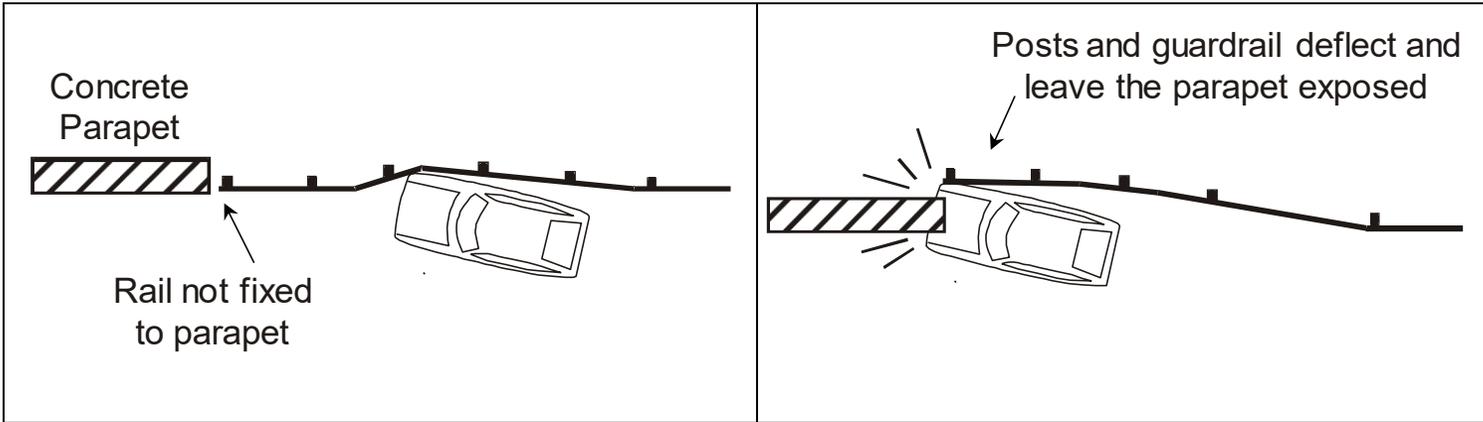
This new bridge is a roadside hazard.
CAREC bridge standards need a review.



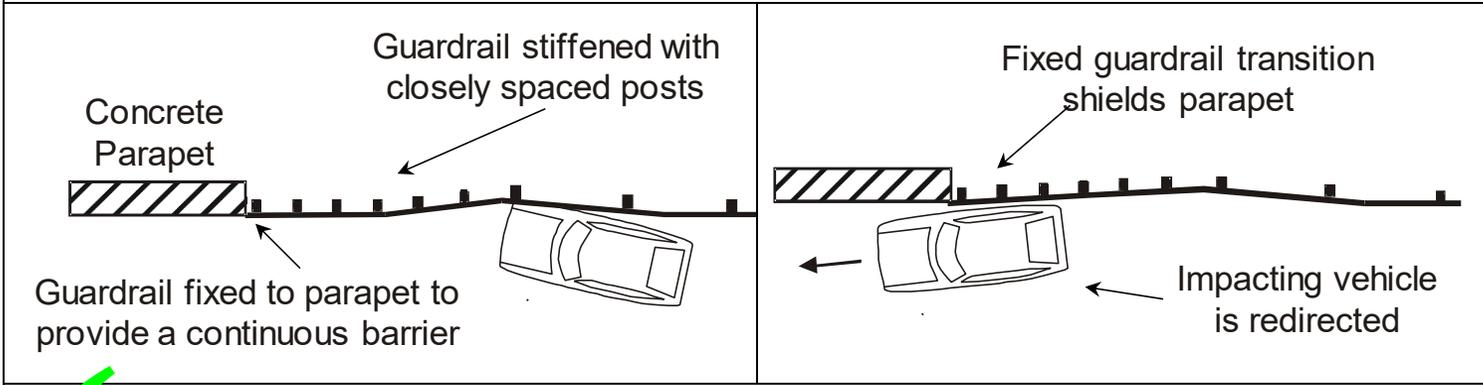
What's stopping CAREC from allowing a simple, strong bridge cross section and railings like this?



Unsafe. A “pocketing” risk



Performance without guardrail / bridge barrier connection



Performance with guardrail / bridge barrier connection





Safer. No “pocketing” risk

Traffic management at road works





X



Risk-focused review of standards and practices

- Embrace the Safe System.
- Encourage safety innovations, even if they are outside current norms.
- Resource a road safety engineering section in the national road authority.
- Manage the audit process to aid safer road projects.
- Balance the competing needs of non-motorised road user safety with speed/ capacity during the design phase.
- Adopt the Clear Zone concept for safer roadsides.
- Broaden the range of safe pedestrian facilities (include humped crossings).

Regional harmonization and cooperation

Some CAREC countries have shortages of funds and professional staff.

These countries can benefit from sharing resources with CAREC neighbours.

CAREC has a major cross-border corridor focus, providing opportunities and obligations for CAREC neighbours to work towards safer roads through:

- Consistent road design standards on CAREC corridors.
- Harmonization of CAREC roads (geometrics, cross sections, roadside safety, speed limits) that reduces driver uncertainty.
- Shared training for road safety engineers, designers and project managers.
- Regional road safety auditor “pools”.
- A regional road safety engineering forum (reference group).

Prioritized recommendations for harmonization of standards and practices

There are opportunities to reduce road trauma at three levels – regional, national and project.

Regional

- Establish a regional road safety engineering forum.
- Within this forum, convene a regional standards coordination platform for representatives of CAREC neighbouring countries to review, update and promulgate road safety engineering standards.
- Share and co-ordinate road safety targets for cross-border CAREC corridors.
- Shared road safety audit training programs.
- Share independent auditors.

Prioritized recommendations for harmonization of standards and practices

National

- Establish a road safety engineering committee (road authority, traffic police, academia and industry representatives).
- Institutionalize crash data systems.
- Introduce Safe System compliance.
- Mandate a national road safety audit policy; train local auditors.
- Manage the audit process.
- Support the implementation of low-cost safety initiatives (see earlier).

Prioritized recommendations for harmonization of standards and practices

Project

- Implement changes that improve road safety but do not clash with standards.
- Wider paved shoulders (min 1.5m); tactile edge lines on rural highways.
- Sheltered left turn (U-turn) lanes on divided roads.
- More, modern-designed, roundabouts.
- Enhanced pedestrian facilities.
- Adopt the clear zone concept to guide roadside safety.
- Wider, safer bridge cross sections.
- Clear, consistent speed management via regulatory speed restrictions signs.
- Traffic calming (road humps).

Institutional strengthening

- More road safety engineers are needed.
- Road design standards to be reviewed and updated, with accountability for a sustainable review process.
- More road safety auditors are needed.
- Develop audit skills and experience. Regional harmonisation can assist.
- Performance indicators should be linked to safety outcomes.
- Annual crash reporting mechanisms to be updated and made mandatory within CAREC.

Strategic choices for the way ahead

- Continue with current standards/practices; accept the present risk trajectory.
- Note that the 2030 objective of a 50% reduction in fatalities on the CAREC network is unlikely to be met with this approach.
- Improve current frameworks incrementally towards a focussed and widely agreed national objective.
- Strengthen institutions to close the systematic gaps.
- Adopt Safe System principles fully, embrace them at the national level and harmonize them regionally.

Discussion-do you agree there are systemic gaps in road safety in CAREC?

- Gaps between policy intent and regulatory implementation
- Gaps in road design standards
- Gaps in implementation practices
- Gaps in road safety audit governance
- Gaps in performance monitoring
- If there are gaps, what can be done to close these gaps (affordable, sustainable and harmonized across CAREC)?

Discussion-do you agree there are systemic gaps in road safety in CAREC?

- Are your road design standards as safe as practical?
- Are they reviewed/updated based on global developments?
- If so, by which agency?
- Can “global best practice” be adopted by national highway authorities?
- What are the impediments?

Discussion- do you agree there are systemic gaps in road safety in CAREC?

- Are your institutional practices as safe as practical?
- Can they be reviewed/updated based on “global best practices”?
- What are the impediments?

Thank you - look forward to your discussions.

