

Forgiving road design

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Veronika Valentová

Director of Research, Development and Knowledge Transfer

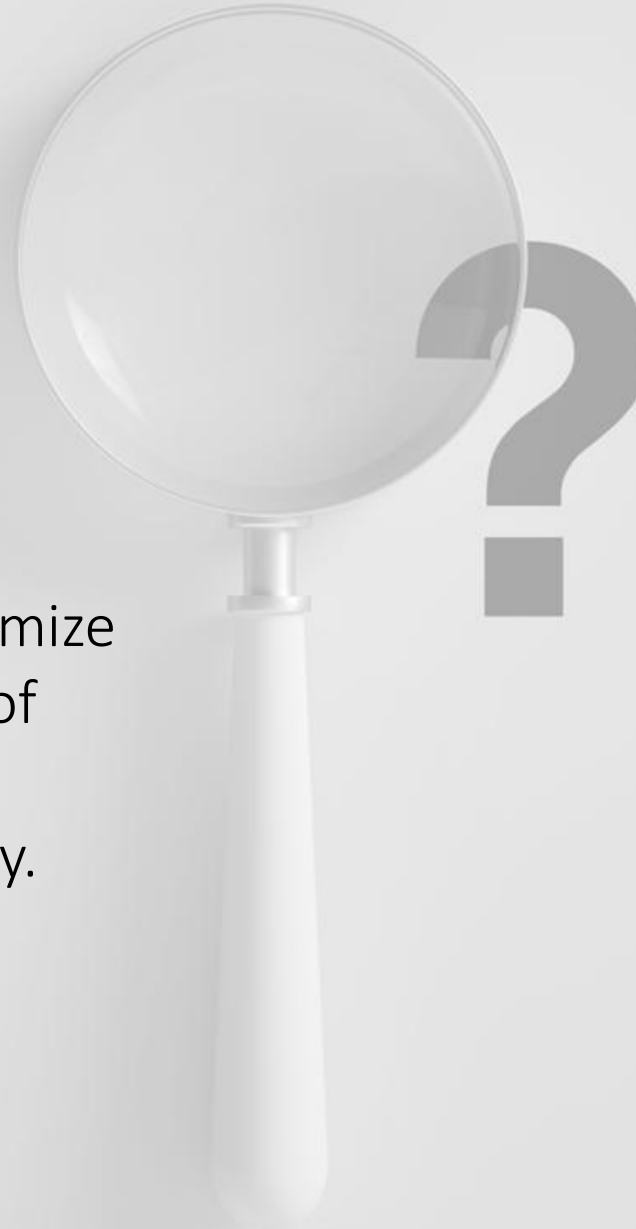
What is forgiving road design

Definition:

A design philosophy aiming to minimize the probability and consequences of human error by creating roads and roadsides that reduce crash severity.

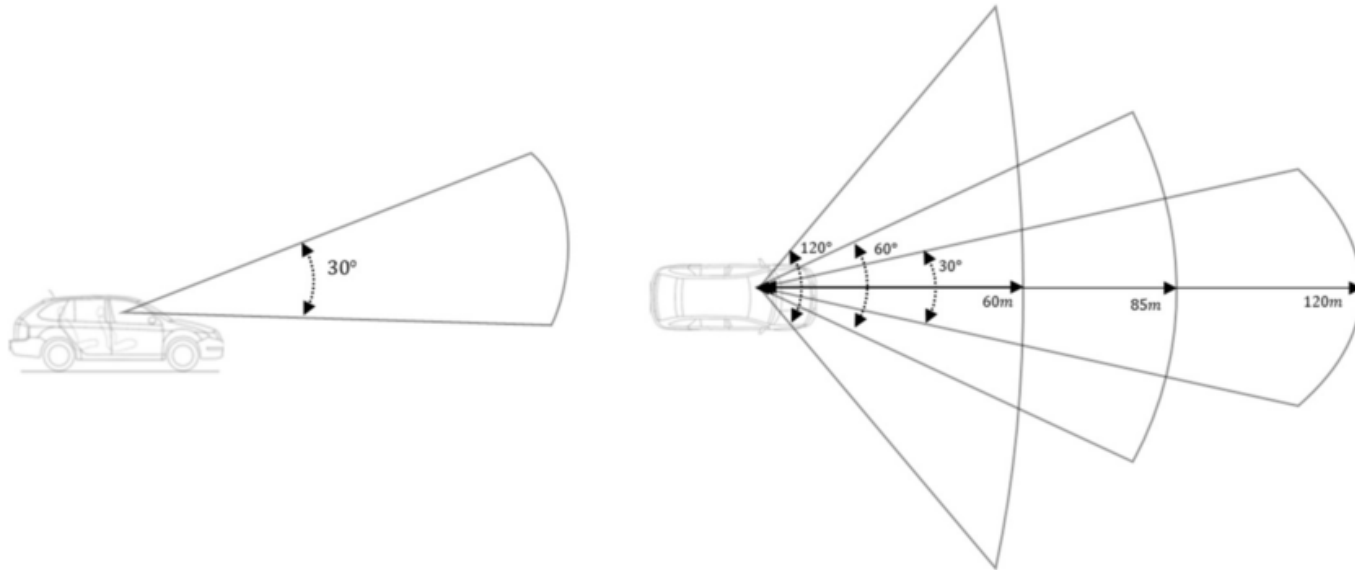
Key Principles:

- Meet human expectations
- Clear categorisation of roads and streets
- Provide recovery opportunities
- Minimize hazards and obstacles



Human perception and physiological limitations

Design must align with driver's perception logic and expectations, avoiding confusion.



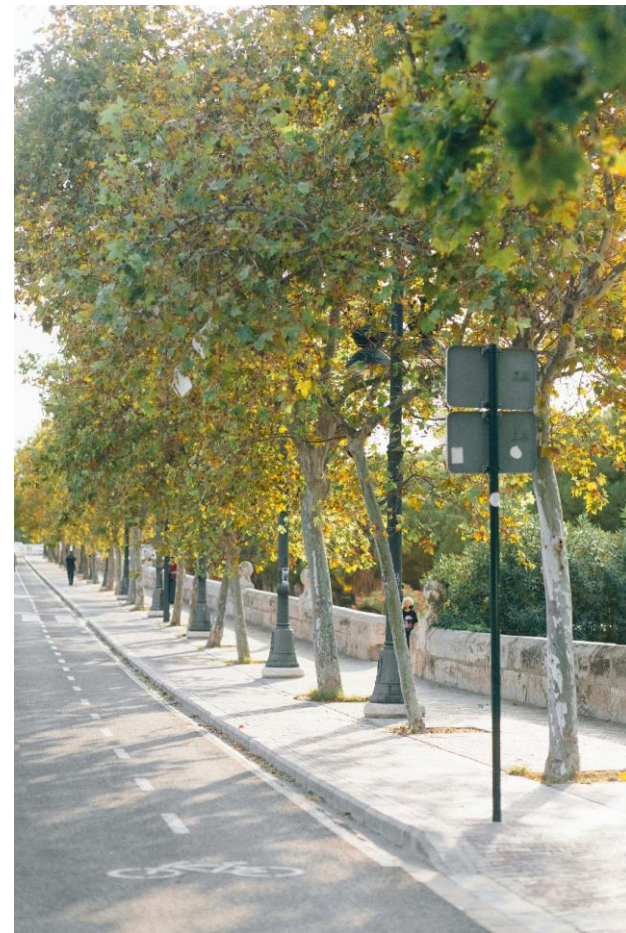
Road categorisation and hierarchy

Road Functions

- Different purpose
- Different types of users
- Different expectation

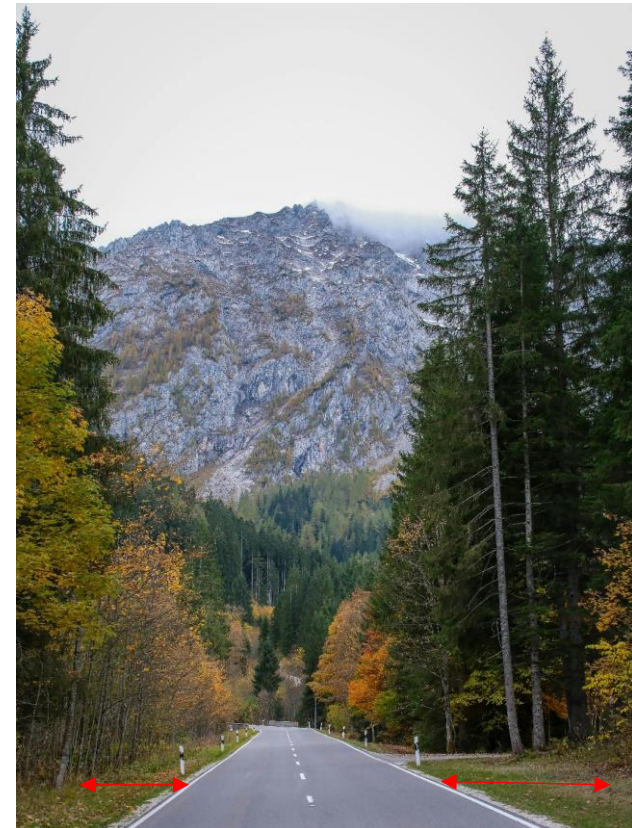
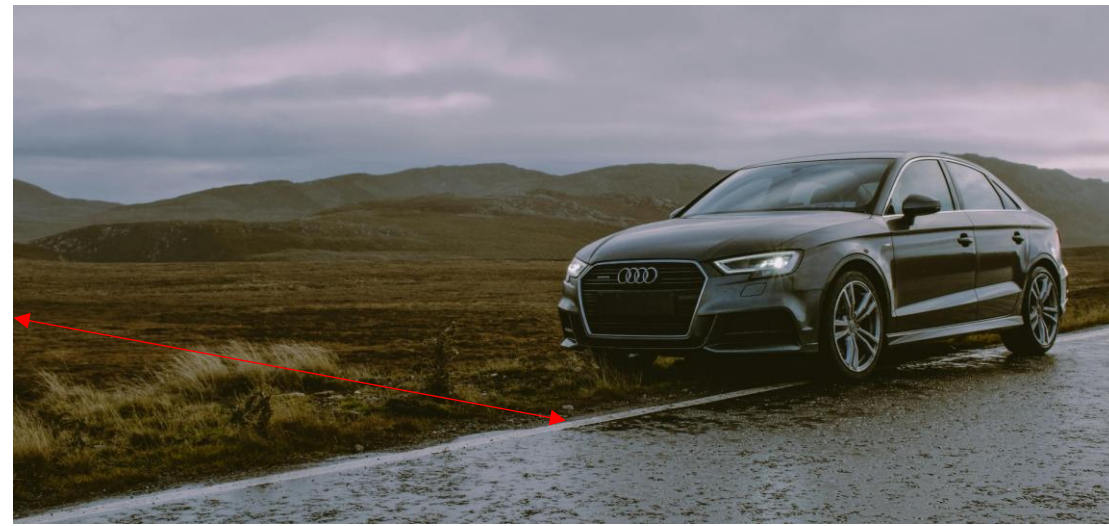
Road design

- Different speed
- Different alignment
- Different elements and equipment
- Different separation of road users



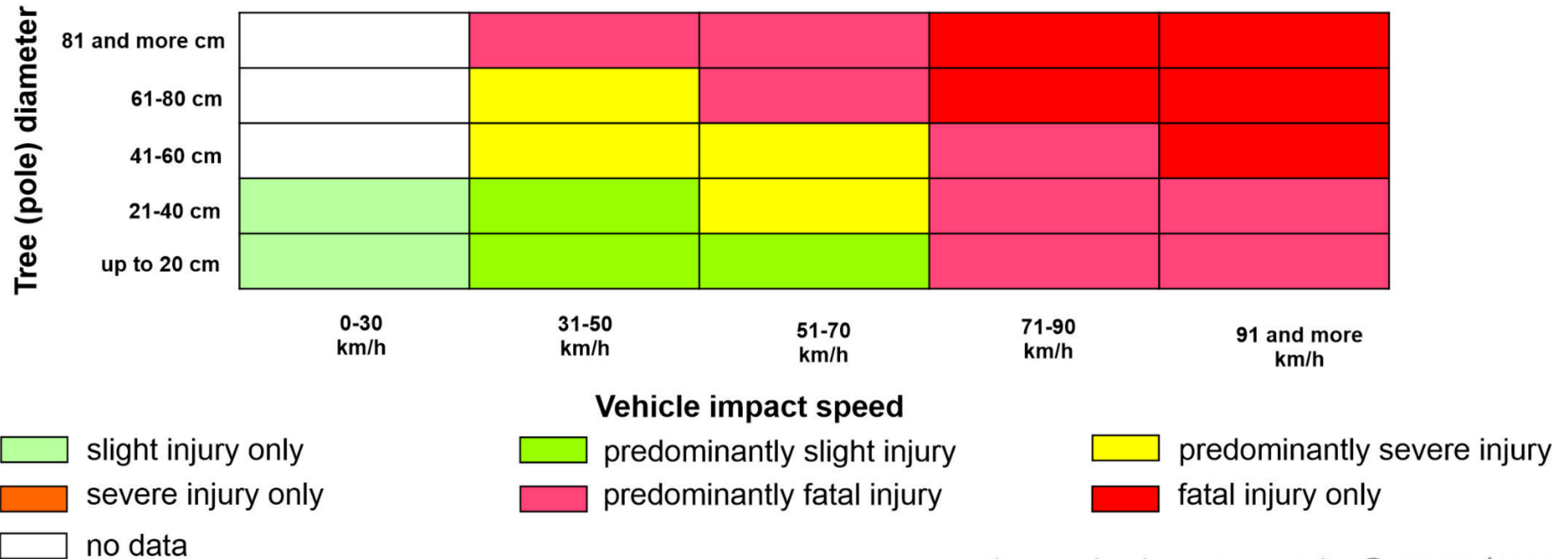
Recovery and clear zones

The space for correction after an error



Obstacles

Severity of vehicle occupants' injuries based on tree (pole) diameter and impact speed



source: vyzkumnehod.cz; Copyright © BESIP/CDV









What should be the further steps?

We have lots of knowledge and experience in the Europe.

We need implementation on all road categories

- Road safety must be an integral part of prioritising investments
- Network wide road safety assessment
- Road safety audits in early stages of road design and in the all phases of road preparation and construction
- Road safety inspections and targeted inspections
- Education of all professionals involved in the process of lifecycle of the roads
- Don't make confusing recommendation
- Don't rely solely on new technologies

We need research in the field of road design

- On the application of new technologies for cost effectiveness of implementation
- For the evaluation of design needs for new types of vehicles (micro mobility, cargo bikes, automated vehicles)
- New materials and devices to prevent and lower consequences of crashes

It is easy to say what not to do.

It is often mistake to apply general recommendation to specific conditions.

2004 (2019)



ROAD SAFETY MANUAL
A MANUAL FOR PRACTITIONERS AND DECISION MAKERS
ON IMPLEMENTING SAFE SYSTEM INFRASTRUCTURE!

1998

European
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FORGIVING ROADSIDES

1.Introduction

Collisions between vehicles leaving the road and unforgiving roadside objects such as trees, poles, road signs and other street furniture are a major road safety problem internationally. Such collisions contribute to between 18 and 42 per cent of fatal accidents in several EU countries. They are typically single vehicle accidents often involving young drivers, excess or inappropriate speed, the use of alcohol or driver fatigue. A further problem with street furniture arises where accidents are caused through visibility restrictions due to poor siting of off-road objects.

Research and experience indicate that the siting and design of off-road objects can play a major role in reducing such collisions and the severe consequences that are typically associated with



We all make mistakes, we all want to go home safely.

Thank you for your attention.

Veronika Valentová

veronika.valentova@cdv.gov.cz

+420 778 888 346

Transport Research Centre

Líšeňská 33a, 636 00 Brno

www.cdv.cz/en

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