Road Infrastructure Safety management on TEM network

Road Safety Audit, Road Safety Inspection

GROF ALEXANDR
Ministry of Transport Czech Republic

GENEVA SWITZERLAND
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TEM network / Czech Republic road infrastructure network
The objective of the National Road Safety Strategy 2011-2020 is to reduce by 2020 the number of persons killed in road traffic to the average of European countries and further to reduce by 40% the number of seriously injured.

### ECONOMIC ASPECTS OF ACCIDENTS

<table>
<thead>
<tr>
<th>Type of Injury</th>
<th>Cost (EUR)</th>
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<tbody>
<tr>
<td>Fatal injury</td>
<td>350 000</td>
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<tr>
<td>Serious injury</td>
<td>112 000</td>
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<tr>
<td>Slight injury</td>
<td>12 280</td>
</tr>
<tr>
<td>Property damage only</td>
<td>3400</td>
</tr>
<tr>
<td><strong>Total loss per year</strong></td>
<td><strong>Approx. 1,8 bil</strong></td>
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Fatal injury: 350 000 EUR  
Serious injury: 112 000 EUR  
Slight injury: 12 280 EUR  
Property damage only: 3400 EUR

Total loss per year: Approx. 1,8 bil EUR
Accident causes

- Accident is a result of disruption of the system **DRIVER – ENVIRONMENT – VEHICLE**. It is a random event with multiple causes.
Elements with risk potential for road safety

- Road surface condition
- Horizontal and vertical alignment
- View condition
- Gradient
- Road vicinity utilization
- Traffic signs (horizontal and vertical)
- Approaching roads and crossings
- Street lights
- Intersection parameters
- Speed limits
- Etc.
Road safety in Czech Republic

• Road infrastructure is designed according to the newest Technical Regulations
  - Technical regulations are made for model (pattern) situations and model configurations
  - Single design elements can be safe, but their combination may be not
  - TR are in process of evolving – evaluation process takes some time
  - Project setting has often different priorities, not connected with the road safety (project cost, time of construction, durability, etc.)

• The goal of creating the safe road must be part of the whole process (design → realization)
**Tools for increasing safety aspects of road infrastructure:**

<table>
<thead>
<tr>
<th>Design and construction</th>
<th>Safety evaluation of the preliminary project design</th>
<th>Legal frame:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>- Preliminary design</td>
<td></td>
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<tr>
<td></td>
<td>- Detailed design</td>
<td></td>
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<tr>
<td></td>
<td>- Before the tentative operation</td>
<td></td>
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<tr>
<td></td>
<td>- Before the standard operation</td>
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<tr>
<td>Road safety audit (RSA)</td>
<td>Legal frame:</td>
<td></td>
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<tr>
<td></td>
<td>- Act no. 13/1997 Coll.</td>
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<tr>
<td></td>
<td>- Decree no. 104/1997 Coll.</td>
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<td>RSA Guidelines (approved by Ministry)</td>
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<th>Standard operation</th>
<th>Road safety inspection (RSI)</th>
<th>Legal frame:</th>
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<tbody>
<tr>
<td></td>
<td>Periodical inspection of the road network and the evaluation of the safety risk caused by road attributes (5 years)</td>
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<th>Inspection of the road segments in the central registry of roads</th>
<th>Accident frequency analysis of the TEN-T network sections (period 3 years)</th>
<th>Law 13/1997 Coll.</th>
</tr>
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<td></td>
<td>Guidelines in process of approval</td>
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| Special safety inspection |
National legislation and rules on road safety management

The directive of the European parliament and of the council 2008/96/EC on road infrastructure safety management of 19 November 2008 was successfully transpositioned into legal order of Czech Republic (effective since 2012).

- Road safety audit
- Classification and the safety management of road infrastructure network in operation
- Road safety inspection

See the Act no. 13/1997 Coll. on Land Communications and Decree no. 104/1997 Coll., which implements the Act on Land Communications

The directive is applied to the road sections, which are the part of the TEN-T network (In the phase of design, construction and operation).
Road safety audit

- Systematic procedure that brings state of the art knowledge about road safety into the road design process.
- Formal check of road schemes and projects, carried out by an independent and educated road safety auditor.
- The auditor elaborates the RSA report, where the safety risks are identified and recommendations for their eliminations are introduced.
- RSA is mandatory for all roads within the TEN-T network and recommended for the rest of the road network.
- RSA is carried out in four stages:

  - NEW DESIGN
  - PRELIMINARY DESIGN
  - DETAILED DESIGN
  - ROAD IS OPENED FOR TENTATIVE OPERATION
  - ROAD IS APPROVED FOR STANDARD OPERATION
RSA – training and certification of auditors

To become the road safety auditor, a person has to have certain number of years of experience in the field of road safety (the number of years differs according the educational background of the person), has to attend the special training (40 hours course) and has to pass the exam organized by the Ministry of Transport of the Czech Republic.

It is necessary to attend a refreshing course (16 hours) after 3 years after the training.

It is recommended that the auditor divides the risks identified within the RSA into three categories – low, medium and high. It enables the client to prioritize the implementation of auditor’s recommendations.

The client has to react on auditor’s findings by the short written response report. The client clarifies which recommendations will be accepted and in case of no acceptance the client specifies the reasons.
Road safety inspection

• Systematic and formal check of road infrastructure in operation (technical regulation, human factor, traffic situation)
• Focus is to identify the risk factors, which could cause the traffic accidents (operation, maintenance)
• Goal is to propose the adjustment to remove or minimize the identified risk factors
• Guidelines (updated in 2013) are in process of approval by the Ministry of Transport
• Performed by road safety auditor
Examples of adjustments

- Road parameters (alignment, section, surrounding, etc.)
- Traffic organization (right of way, limits, traffic signs - horizontal and vertical)
- Methods of maintenance
Summary

• “Prevention is always more beneficial than cure”
• Minimizing the risk of traffic accidents of the newly designed roads
• Reduction of the whole-society losses
• Reduction of the costs of additional road safety measurements
• Increase of the road safety importance from the user point of view
• Implementation of the conclusions of road safety audits into the Technical regulations
• Contribution to accomplish the National road safety strategy 2011 – 2020 Czech Republic
• Improvement of the knowledge database of the road safety
• Protection of the most vulnerable participants
Thank you for your attention

Contact: alexandr.grof@mdcr.cz

http://www.mdcr.cz
http://www.rsd.cz