



MINISTRY
OF NATIONAL DEVELOPMENT

New Guidelines for the Implementation of the
EU Directive on Road Infrastructure Safety
Management in Hungary

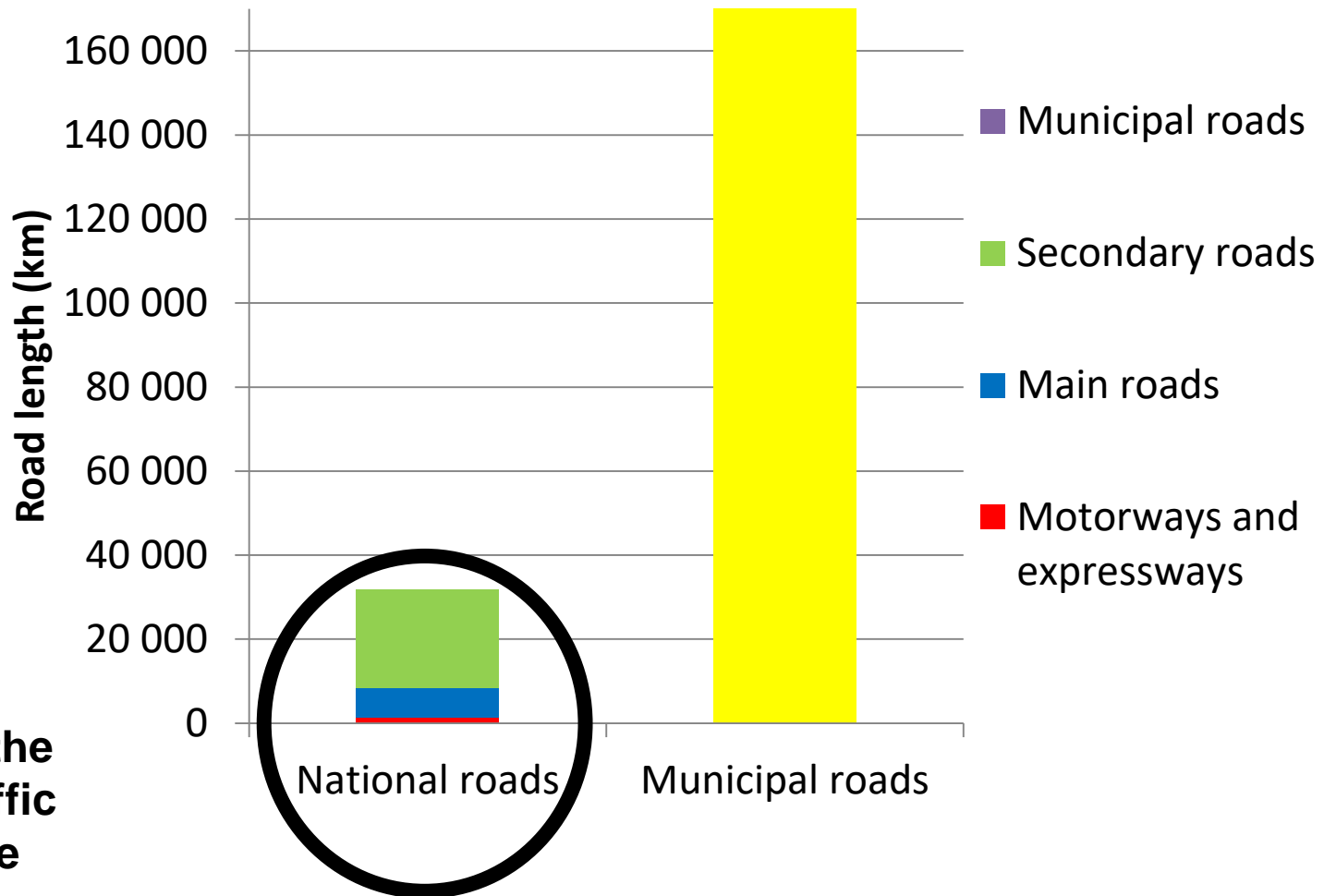
Dr. Csaba Koren professor, Széchenyi István University

Dr. Tibor Mocsári, Ministry of National Development

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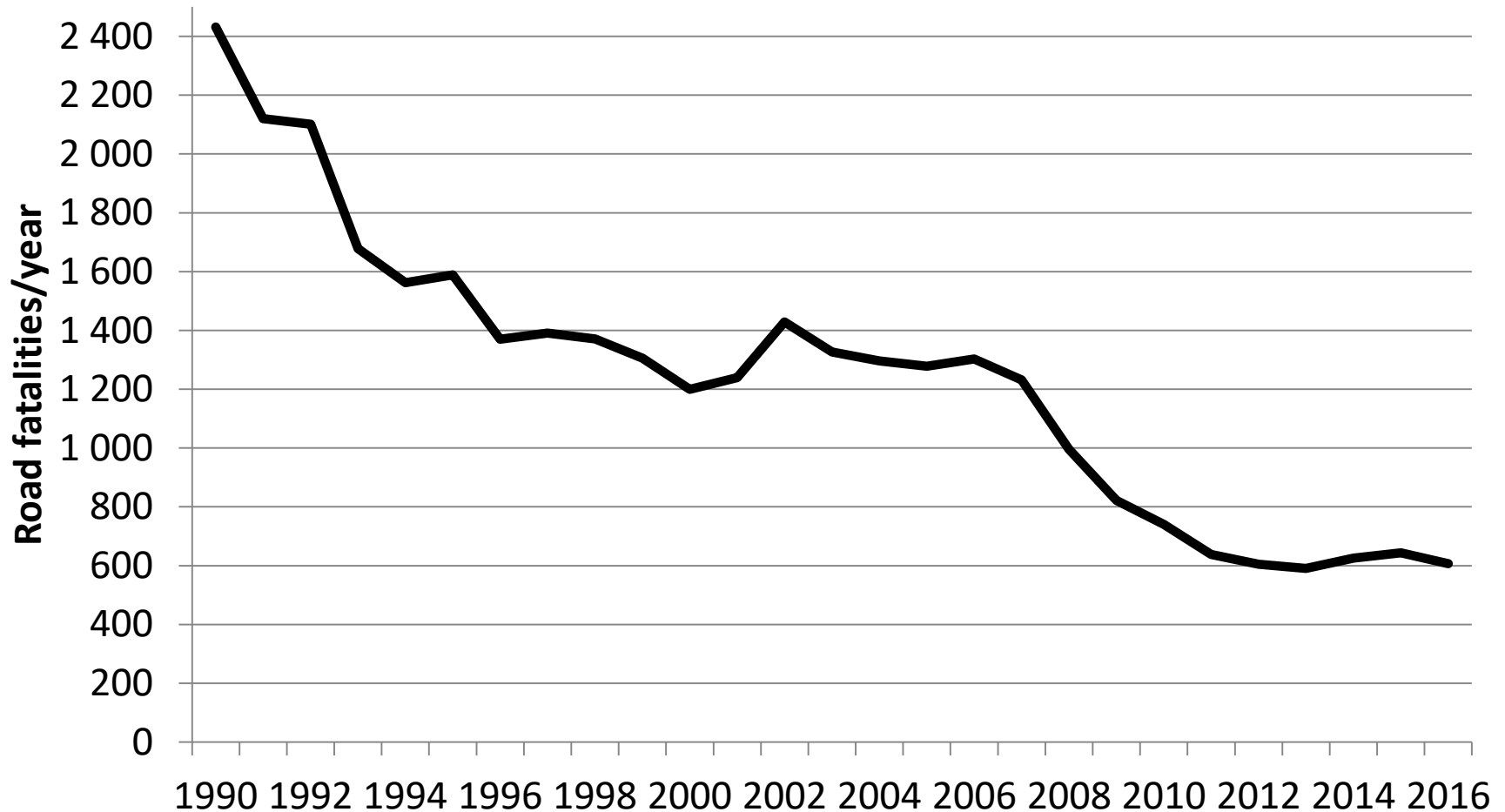
1. Road network and safety trends

Road categories and their lengths



75% of the total traffic volume

Road fatalities in Hungary



2. Legal implementation of the Directive

1. The European Parliament and the Council of the European Union have adopted the directive on road infrastructure safety management (RISM) in 2008.
2. In Hungary, an amendment of the Law on Road Transport was adopted by the Parliament in December 2010. Based on this amendment the Government has adopted a decree on road infrastructure safety management in August 2011.
3. The European RISM directive applies to roads which are part of the trans-European road network.
4. The Hungarian legal regulations defined a wider scope:
2011: trans-European road network, motorways and expressways
2014: national main roads
2015: traffic volume over 10 000 pcu./day, including municipal roads.

- When and who? - legal regulations
- How? - road safety related technical guidelines

In 2015 the Hungarian Transport Authority (KKK) contracted the Hungarian Road and Railway Society (MAUT) to update the related existing RISM guidelines as well as to elaborate the missing ones.

MAUT organised this task as usual, in a working group:

1. draft versions were completed by May 2016,
2. extensive public consultation took place by November 2016,
3. working group prepared the final versions by February 2017.

3.1 Guidelines for Road Safety Impact Assessments (RSIA)

1. According to the Directive, the RSIA shall indicate the road safety considerations which contribute to the choice of the proposed solution.
2. The National Development Agency commissioned in 2010 the Hungarian Road Society to prepare RSIA provisional guideline.
3. A calculation of the expected number of casualties is required based on average relative casualty figures of the various road categories (number of fatalities, severe and light injuries per 10^9 vehkm).
4. These relative casualty figures are calculated for larger bulks of roads and they are not fully appropriate to reflect the impacts of individual design solutions.
5. The final assessment comes from the combination of the calculation and the verbal assessment.

3.1 Guidelines for Road Safety Impact Assessments (RSIA)

From its publication in 2010 until 2015 the provisional guideline has been used in about 40 real life cases, so practical experiences were existing. The main changes are summarized in the followings.

1. The former guideline used accident figures from 2008, while the new guideline is based on five years acc. data (2010-2014).
2. The classification of roads is more detailed and also there are estimates for a still non-existing but planned road categories.
3. The importance of verbal evaluation was stressed more in the new guideline, especially for very small projects.
4. The estimation of expected accident figures on existing roads has changed.

1. Road safety audit means an independent detailed systematic and technical safety check relating to the design characteristics of a road infrastructure project.
2. The first Hungarian guideline of RSA was developed in 2004. Several foreign guidelines were studied in advance.
3. Using the experiences of the early audits, the guideline was updated in 2009 with clarification of several details. The guideline reached the “Road Technical Specification” status. About 50 projects were audited by 2010.

Based on previous audits, the working group recommended changes in the guideline in 2016:

1. A complete list of the main terms with definitions.
2. The role of the client, the designer and the auditor was explained in more detail. A template of the closing consultation between the client and the auditor was added.
3. Differences between types of problems and recommendations in different planning phases were stressed. The importance of illustrations, sketches in the audit report were more emphasized.
4. Additional check-list questions concerning safety of pedestrians and cyclists were added.

3.2 Road Safety Audits (RSA)

Taking the idea from the recent Irish RSA guidelines (NRA 2015), the risk level of each problem has to be assessed by the auditors.

A risk matrix takes account of both likelihood of occurrence and likely severity of outcome.

		Likelihood of occurrence		
		Probable (3)	Possible (2)	Not likely (1)
Severity of outcome	Severe (2)	High (6)	Medium (4)	Low (2)
	Minor (1)	Medium (3)	Low (2)	Low (1)



1. Safety inspection means an ordinary periodical verification of the characteristics and defects that require maintenance work for reasons of safety.
2. In Hungary, a similar procedure has been used for many years, called “Traffic Engineering Supervision (TES)”. The new regulations require conducting RSI and TES simultaneously, in every 5 years.
3. Initially in the absence of RSI guidelines, the audit guideline was used to help RSI staff. Since 2013 a special guideline is used for road safety inspections on national main roads.
4. Data on geometry, traffic, accidents have to be gathered by local road administration, while the inspection itself is conducted by road administration staff from other parts of the country.

The new guideline (2016) is more detailed than the previous one:

1. The recommended method is based on checking longer continuous sections. Observers have to travel along the road in both directions, during daylight.
2. Nighttime checks are only needed if accidents happened at night.
3. The main idea of the inspection is to ensure a possibly uniform safety level along longer stretches of roads,
4. At junctions the check has to be taken from the minor road as well.
5. Video recording is recommended but it is not compulsory.
6. Similarly to the audit procedure, besides registering the problems, RSI teams also have to make recommendations to tackle them.

3.4 Ranking of high accident concentration road sections

1. Ranking of high accident concentration sections is a method to identify, analyze and rank sections of the road network upon which a large number of fatal accidents in proportion to the traffic flow have occurred.
2. This activity has already been conducted in Hungary for more than 20 years with the help of a database and appropriate software with a complex procedure, requiring skills and expertise in accident analysis.
3. The previous guideline for this activity was elaborated in 2005, it was updated in 2016.

3.4 Ranking of high accident concentration road sections

According to the new guideline the following steps have to be taken:

1. Collecting and ranking suspected high accident concentration sections by various methods.
2. Checking accident data of the above sections.
3. Merging lists from various methods.
4. Calculating improvement potentials (IP) at the sites on the list.
5. Site survey at the sites with improvement potential.
6. Defining alternatives (measures) at selected locations.

3.4 Ranking of high accident concentration road sections

Furthermore, the spatial evaluation has also two options :

1. The conventional way is to use the “sliding window” method.
2. Site identification is based on street name and house number and recently also on GPS coordinates.

The above calculations can only define potential black spots.

Real black spots are only those sites, where similarities among accidents and infrastructure-related deficiencies can be identified.



2 serious and 4 slight
(run off road) accidents
on road no. 6505
(Jan. 2016. – Febr. 2017.)
in a 160 metres road section

1. It means a method for identifying, analyzing and classifying parts of the existing road network according to their potential for safety development and accident cost savings.
2. According to the new guideline, having identified measures at selected locations, the following steps have to be taken:
 7. Estimating safety impacts of measures
 8. Calculating cost of measures and accident cost savings
 9. Ranking of alternatives based on cost-benefit analysis.
 10. Documentation
3. Ranking alternatives according to their First Year Rate of Return (FYRR). It is also recommended to rank low-cost and high cost measures separately.
4. The results have always to be checked by engineering judgement and RSA-related considerations.

4. Trainings of RISM staff

1. Audit training courses were organized in Hungary well before the EU directive. Commissioned by the Hungarian Transport Administration, Széchenyi István University organized five courses from 2004 to 2010.
2. Several foreign experts (Cracow University of Technology, Dutch Ministry of Transport, Royal Haskoning) were invited for certain parts of the trainings.
3. Since the adoption of the EU directive, course providers and course requirements have to be approved by the National Transport Authority. This organization also supervises the exams.
4. The new courses are covering not only the audit itself, but also the other pillars of the RISM directive, i.e. RSIA, RSI and network safety ranking.

4. Trainings of RISM staff

1. Altogether about 150 participants attended the training (10 days plus an exam day) and took exam.
2. Also retraining courses were organized as each auditor has to participate in 5 years.
3. Participants came from local and central road administration, local and central road authorities, consulting companies, research institutes, universities.
4. Road safety auditors should have an MSc or BSc degree in the field of civil or transportation engineering
 - + at least five-year long experience in the field of road design, traffic engineering or road safety.
 - + they have to attend a course, pass the exam
 - + register at the Hungarian Chamber of Engineers.

5. Conclusions

1. Not all the successful training participants will be conducting audits; so many auditors are not required. However, completing the course might be useful for all stakeholders, who have a role in building or maintenance of roads.
2. It is hoped that the application of the new guidelines will help road engineers to better fulfil their safety-related tasks and to contribute to the reduction of accidents in the future.

Thank you very much for your attention!



koren@sze.hu



tibor.mocsari@nfm.gov.hu