

Road infrastructure safety management in Croatia

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ROAD INFRASTRUCTURE SAFETY MANAGEMENT

- BASIC INFO
- KEY STAKEHOLDERS
- LEGISLATIVE FRAMEWORK
- IMPLEMENTATION OF DIRECTIVE
- EXPERIENCE ON BSM
- CONCLUSION

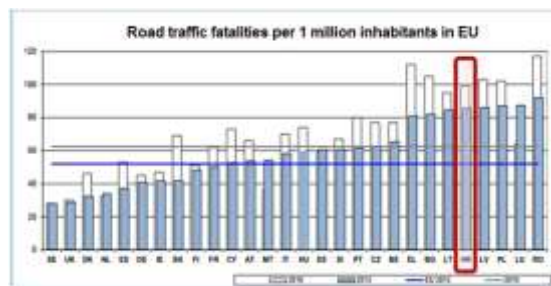
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BASIC INFO:



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BASIC INFO:



Number of fatalities in road traffic per million inhabitants for all member states.

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BASIC INFO: National road safety program 2010-2020



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KEY STAKEHOLDERS:

- Ministry of maritime affairs, transport and infrastructure
- Ministry of interior – Police
- Road inspection
- Croatian association of drivers and vehicle owners (HAK)
- Faculty of transport and traffic sciences (FPZ)
- Road management authorities (HC, HAC, ARZ, etc...)

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ROAD INFRASTRUCTURE SAFETY LEGISLATIVE:

- „The Directive 2008/96/EC on road infrastructure safety management”,
- „Roads Act” from 2013. requires implementation of the Directive on TEN-T roads,
- The Directive is applied through „Regulation on activities to improve TEN-T roads safety” and „Regulation on road safety audit and education of auditors”
- „National road safety programme of the republic of Croatia 2011-2020”,
- and „Road Traffic Safety Act”.

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SCOPE OF IMPLEMENTATION:

- On TEN-T roads obligatory,
- On other roads is optional upon government decision,
- Tunnels are covered with tunnel safety directive,
- BSM and NSM on TEN-T network and state roads,
- Other activities and processes.

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SCOPE OF IMPLEMENTATION:



Trans-European road network of the Republic of Croatia

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AUDITORS EDUCATION AND CERTIFICATION:

- Education of auditors:
 - Institution certified by Ministry,
 - Lectors (10 years experience),
 - Basic education (36 h, exam)
 - Periodical education (every 5 years, 18 h)
- Basic conditions for certification:
 - Degree with 300 ECTS or equivalent,
 - 10 years of experience,
 - Experience in design, revision of traffic or road projects,
 - Successfully passed auditor program and insurance.

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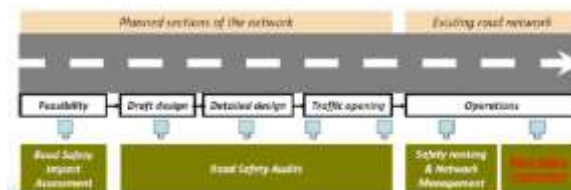
AUDITORS EDUCATION AND CERTIFICATION:

Obligations by Ministry:

- Audit committee,
- Certification of education program and institution,
- Certification of auditors,
- Second instance audit body,
- Register of auditors and education programs,
- Control of system.

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RSIA, RSA, RSI and NSM:



- Audit is performed according to the guidelines,
- Education program is inline with guidelines,

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EXPERIENCE ON BLACK SPOT MANAGEMENT

- Key institution: Croatian road Ltd.
- State roads network covered: 6.913 Km
- Implementation since 1998.

METHODOLOGY OF BSM:

- **Black spots** - an intersection or section of road length up to 300 m,
- or **dangerous section** – a section of road length of 300 m to 1000 m,

AND if in the previous 3 years at the monitoring location occurred:

- 12 or more accidents with injured people,
- or 15 or more accidents, regardless of the consequences or,
- or 3 or more of the same traffic accident, involving the same group of participants, with the same direction of movement, and the same conflict areas and others.

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DYNAMICS OF BLACK SPOT SANATION

YEAR	SANATIONS	DIED	YEAR	SANATIONS	DIED
up to 2001	4	-	2008	15	664
2001	15	647	2009	7	548
2002	34	627	2010	10	426
2003	49	701	2011	15	418
2004	27	608	2012	9	393
2005	15	597	2013	19	368
2006	13	614	2014		308
2007	18	619			

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BLACK SPOT MANAGEMENT IN YEAR 2012

	Before	After	%
Traffic accidents	135	59	56,3
Killed	2	3	50,0
Seriously injured	20	10	50,0
Lightly injured	76	34	55,26

*Traffic accidents for 3 year period before and after black spot reconstruction

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RESULT OF BSM ON STATE ROADS

- During 15 years 250 spots were rehabilitated,
- Around 35 mil. EUR were invested,

FINAL RESULTS (3 year prior vs. 3 years after)

	Prior	After	Difference
Total number of accidents	6.560	1.595	75,6 %
Died people	138	15	89,1 %
Hard injured	585	152	74,0 %
Light injured	2.055	557	72,8 %

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Example I.: State road DC 1 PEĆANI – JOŠANI

**Final result:**

- Total number of accidents: from 130 to 6
- Total number of injured: from 66 to 0
- Total number of died people: from 8 to 0

Example II.: State road DC 20 ČAKOVEC – NEDELIŠĆE

**FINAL RESULT:**

- Total number of accidents: from 115 to 3
- Total number of injured: from 34 to 1
- Total number of died people: from 6 to 0

Example I.: State road DC 30 VELIKA GORICA

**FINAL RESULT:**

- Total number of accidents: from 149 to 29
- Total number of injured: from 41 to 6
- Total number of died people: from 2 to 0

CONCLUSION:

- Adoption of regulation on auditors and guidelines,
- Better cooperation between main stakeholders,
- Roads, traffic and accident databases improvement,
- Increase of road safety based on modern technologies (ITS),
- The Directive implementation on whole road network,
- Involvement of auditors in all road safety processes,
- Exchange of experience between neighboring countries.

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THANK YOU FOR YOUR ATENTION!

QUESTIONS?

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