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CZECH REPUBLIC - NATIONAL REPORT

STRATEGIC DIRECTION SESSION ST C

A STRATEGIC APPROACH FOR SAFETY: PUTTING KNOWLEDGE INTO PRACTICE

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ABSTRACT

Czech National Report about Strategy Direction C – Safety covers the information about the development in road safety after the last World Road Congress in Paris in year 2007. The information covers the general overview of Czech traffic figures including volumes and modal share, length of infrastructure, accident records, development of road network, position of Czech Republic in the European comparison, action plans for safety and main safety deficits on the Czech road network. Pictures shows the typical safety deficits on the road network, which needs to be eliminated to achieve the better star rating in the EuroRAP safety assessment programme.

A STRATEGIC APPROACH FOR SAFETY – CZECH NATIONAL REPORT

1. GENERAL INFORMATION

Czech Republic area covers 79 thousand square km and has population of 10.5 million inhabitants. Prague is capital of Czech Republic with 1,249 million inhabitants. Number of registered cars is 4.4 million, motorcycles 0.4 million, heavy trucks 0.7 million, total 5.5 million vehicles.

Average rate of motorisation in Czech Republic is 566 motor vehicles per thousand inhabitants (in Prague it is 732), average rate of personal cars per thousand inhabitants is 422 (in Prague 547)

Total length of road network is 55.6 thousand km, which means density of 0.7 km/km^2, but length of motorways and expressways is 1,050 km only, what means 13 m/km^2 or, 1 m per inhabitant.

There are 24 tunnels of 16.4 km in length, but the number is quickly increasing due to conditions of environmentalists to use underground solution for new road scheme.

The road safety is influenced by 2,583 railway level crossings, from which 220 is on 1st class roads.

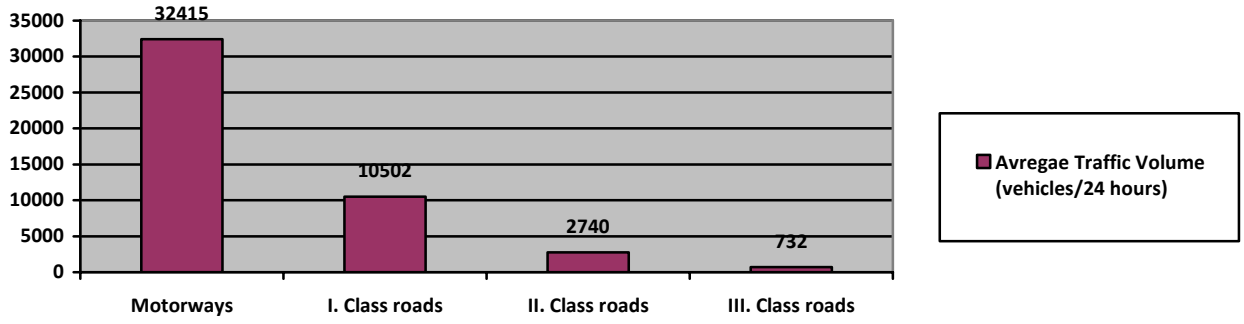


Figure 1: Average Traffic Volume per Class of Road – vehicles //24 hours CZ 2008

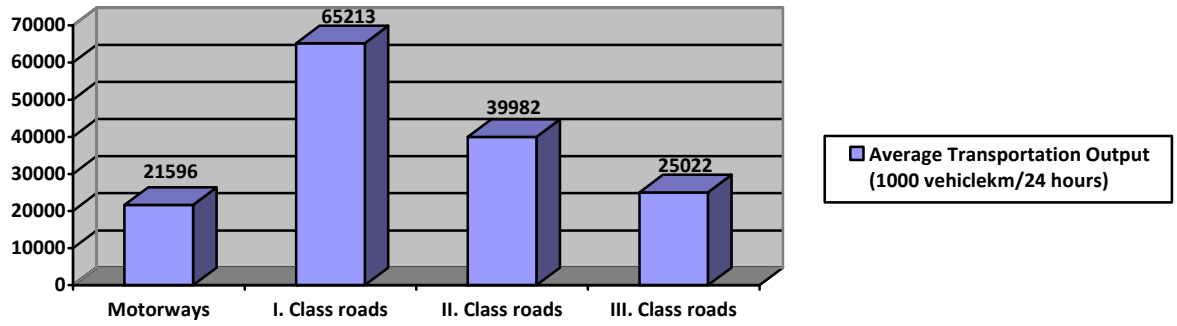


Figure 2: Average Transportation Output per Class of Road – 1000vehicle km/24 hours CZ 2008

Average daily traffic performance in workdays is 169,3 mill. vehiclekilometres.

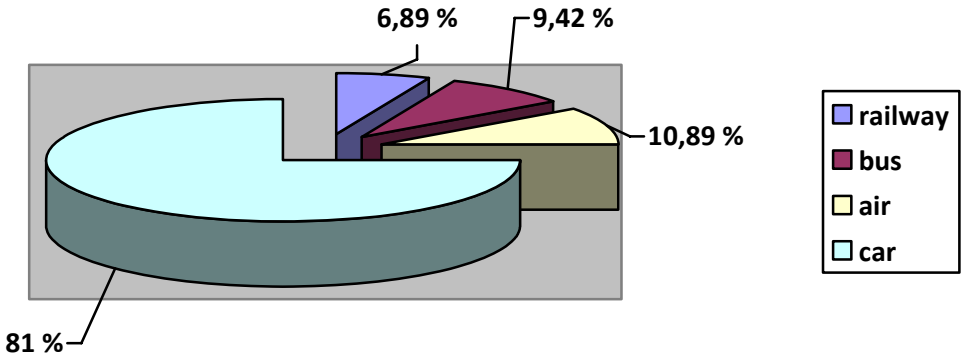


Figure 3: Shares on Transportation Outputs (based on bill. personkm) CZ 2008

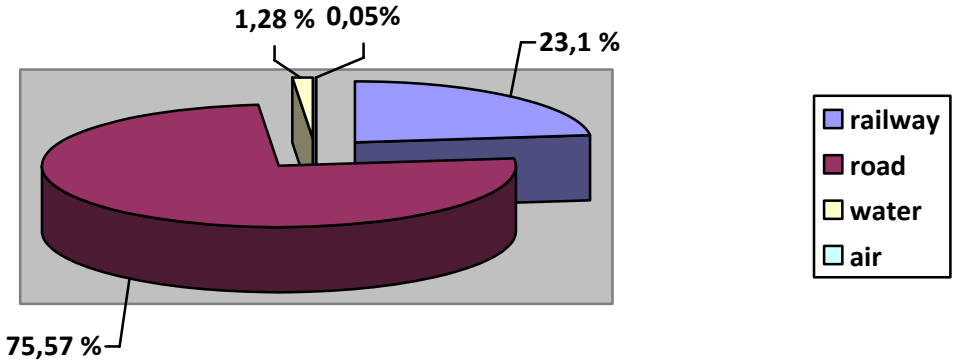


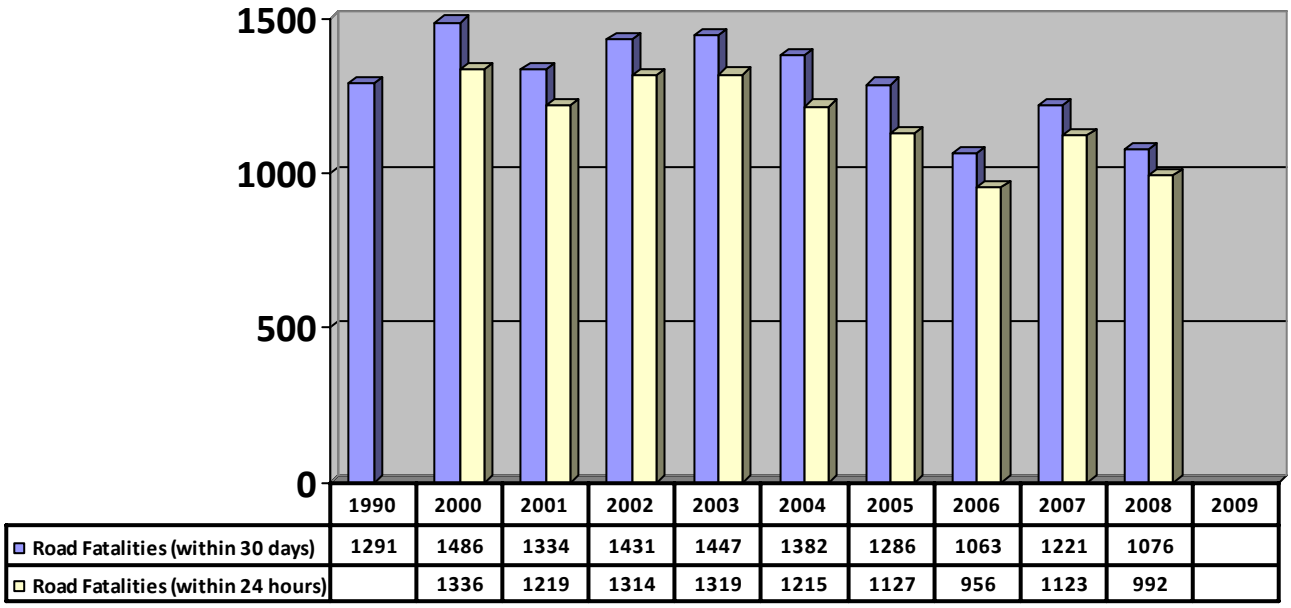
Figure 4: Shares on Freight Transportation Outputs (based on bill. tonskm) CZ 2008

Road transport performance is dominant in passenger and freight transport with more than 75 %.

2. EXISTING SITUATION IN ROAD SAFETY – ACCIDENT RECORDS

Accident statistic is led by State Police, where in the year 2009 totally 74.815 accidents was recorded by Police. This figure is influenced by change of rule, where till the end year 2008 all accidents with the damage higher than 50.000 CZK (2038 EUR or 2820 USD), which were registered mandatory, was doubled to 100.000 CZK (4077 EUR or 5641 USD). The same year 832 people were victims of accidents within 24 hours. Difference between 24 hours limit and 30 days limit is identified in statistics for year 2008: 992 + 84 = 1076.
Other 3536 people were seriously injured and 23.777 was slightly injured.
91% of all accidents were mannered by driver of motor vehicle. Most unsafe is motorcycle with 38 dead per 1000 accidents, than bicycle with 20 dead per 1000 accidents, compared with car accidents with 13 dead only. The most dangerous age group are drivers between 25 to 34 years with 166 dead. 15 % of victims were killed with influence of alcohol. Totally 151 pedestrians were victims, from which 65,6% in night time, most of them on the Ist class road – 58, from which 70,7% in night. From the number of 151 victims pedestrians, 39% were on I. class roads, 24% on the II. class roads, 18% on III. class roads and only 2,9% on expressways. Distribution according to place, 295 people was killed in the urban area, 537 in the rural area and 24 on the expressways. On the railway crossings, there were 23 victims.
According to groups of killed, there were 436 drivers, 167 passengers, 157 pedestrians and 72 cyclists.
According to type of collision, they were 347 people killed by collision with another car, 226 killed by collision with rigid obstacle along the road and 151 at the collision with pedestrian. High speed was identified like a trigger of accident in 50 % cases.

A comparison of relative accident rate clearly shows that motorways are in average 3.6x safer than I. class roads, 4.8x safer than II. class roads and 6.8x safer than III. class roads. Long-term comparison shows that in relation to fatalities within 24 hours, motorways are 2.4 safer than I. class roads, 2.2x safer than II. class roads and 2.7x safer than III. class roads.
In the City of Prague, there was 15.583 accidents with 40 people killed, 347 seriously injured and 2082 slightly injured.
Motorcyclists, particularly powerful ones, became very popular in recent years as a part of social image. Speeding and ignorance of traffic rules are the typical features of their traffic behaviour, when they are primary victims of road accidents.



	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Road Fatalities (within 30 days)	1291	1486	1334	1431	1447	1382	1286	1063	1221	1076	
Road Fatalities (within 24 hours)		1336	1219	1314	1319	1215	1127	956	1123	992	

Figure 5: Czech road fatalities up to 24 hours and within 30 days (1990 – 2008)

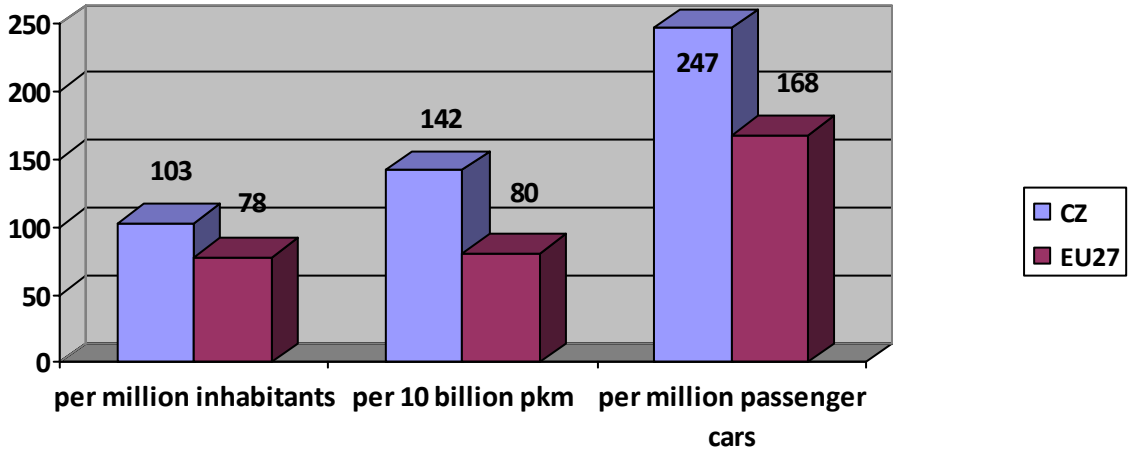


Figure 6: Road fatalities Country Rankings 2008

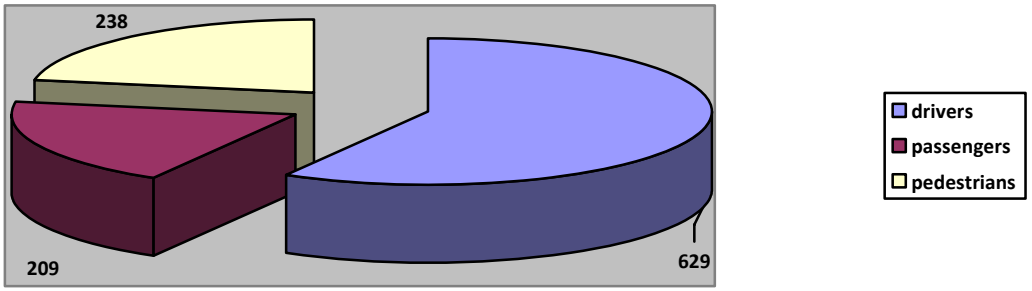


Figure 7: Road fatalities by Type of User CZ 2008

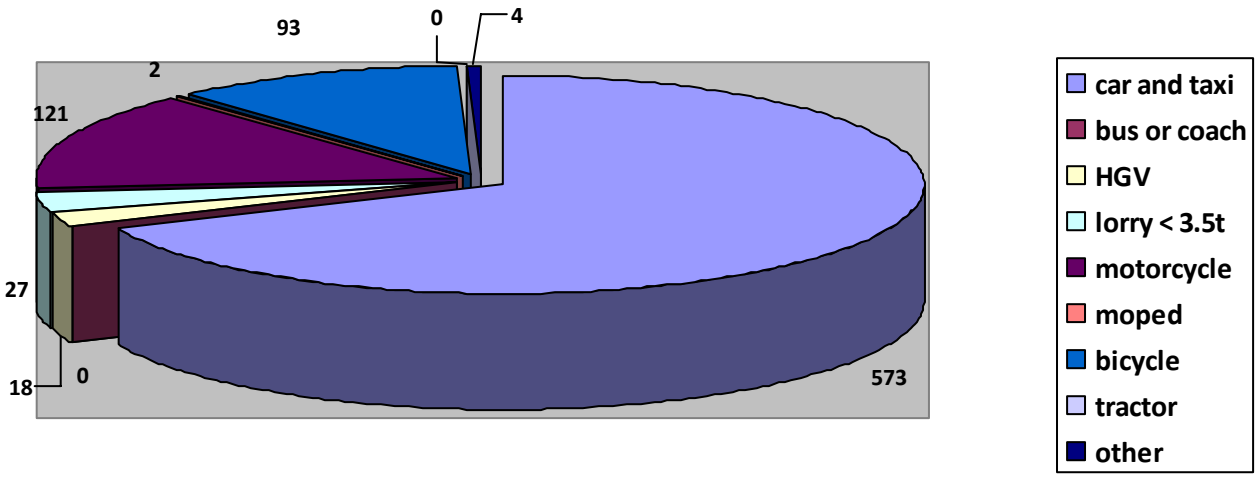


Figure 8: Road fatalities of vehicle occupants by Type of Vehicle CZ 2008

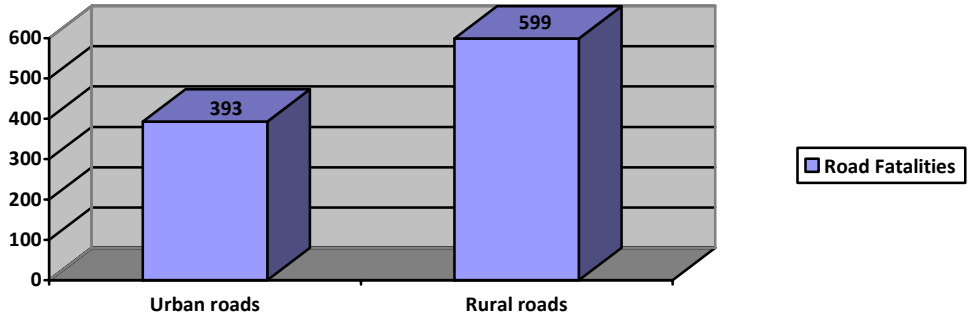


Figure 9: Road fatalities distribution Urban/Rural CZ 2008

3. BASIC COMPARISON OF CZECH ROAD SAFETY WITHIN EUROPE

Czech accident rate is one of the worst in Europe with around 1000 people killed on the road each year. But Czech Republic reached the steady decrease of road fatalities from the year 2003. The comparison of 27 EU members shows, that average rate for EU 27 is 78 killed per million inhabitants per year, where the best are Malta, Nederland, Sweden and Great Britain with less than 50, Czech Republic is with 104 on the 20th position and the club of 7 worst are countries from east south Europe with record till 140 killed per million inhabitants per year..

4. ACCESSIBILITY OF ACCIDENT RECORD DATA FOR THE SAFETY PREVENTION

Accident statistics (report) is available on the www.policie.cz and www.jdvm.cz/pcr.
Police adopted generally the accident location method with GPS from 1.7.2006. Having reliable accident data is the key to the prevention to crashes and reduction of crashes severity. Data should be available not only to police, but also to professionals and decision

makers. Statistics is good for strategy and programmes, but accident details are necessary for effective prevention. On the police web sites, statistics is now available till the end of august 2010. Czech Road Safety Observatory solved the research project to develop publicly available database of the accident location. On the www.jdvm.cz/pcr is the full line of 64 items per each accident available including detailed location on the map. Different filters are available to select different locations, roads, period and circumstances of accident in the selected time period. Each selection is limited by 100 records of accidents, it means, that selection should be made carefully. This tool is very helpful for the prevention and safety analysis.

Figure 10: Road fatalities and accident information localised in vector map www.jdvm.cz/pcr

Basic accident data are often not sufficient for understanding to circumstances of an accident and identification of the trigger.
Actually, there is an existence of other different databases: Police database, road administration, hospitals (accident death after 30 days), insurance companies, IRTAD – International Road Traffic Accident Database, BESIP etc.

5. ACTIVE AND PASSIVE ROAD SAFETY POLICY

A tough penalty system intended to improve road safety was introduced in year 2006. The system had only temporary effect and number of fatalities soon returned to previous levels. Czech Transport Research Centre developed methodology to identify accident spots by number of accidents in the following schemes:

- More than 9 accidents on the same km within year;
- More than 1 killed in accidents on the same km within year;
- More than 2 seriously injured in accidents on the same km within year;
- More than 4 slightly injured in accidents on the same km within year;
- More than 10 million CZK economic loss in accidents on the same km within year;

Human Factor in safety starts to be taken into consideration mostly indirectly at the case of Czech design standards revision.

Czech Republic (former Czechoslovakia) is member of PIARC from the very beginning. There is active participation of the Czech Professionals in the in the PIARC Technical Committees. In the Strategic direction C - Safety of the Road System, are working following professionals:
C1 - Safer Road Infrastructure – Jindrich Fric, Jiri Landa;
C2 - Safer Road Operations – Josef Mikulik;
C3 - Managing Operational Risk – Lenka Petrova;
C4 – Road Tunnel Operations – Pavel Pribyl, Ludvik Sajtar, Miroslav Cermak;

For the higher safety, there are more and more fixed speed cameras, red light cameras, police radars, lasers and mobile speed cameras locations and accident black spots, which are localized by GPS coordinates and their list and locations are available for 16 basic types of car navigation. First section of linear traffic management was opened on the Prague expressway ring in the September 2010. Lot of safety improvements was realised on the through roads and entrances to the willages.

6. CAMPAIGNS

It has to be stated, that the goal of the National Road Safety Strategy to halve by 2010 the fatality number compared to 2002 will not be achieved. The road accident indicators in the Czech Republic are below the average level in the EU and are more than twofold compared with the best performing European countries.
The Ministry of Transport wants to shock drivers commissioning a series of TV spots with realistic images of serious road crashes. Shocking scenes are advertised by motto: “If you don’t think, you will pay”, oriented to young un-experienced drivers between 18 and 25. Main topic is drink driving, seatbelts and baby seats.
Czech Republic has already had 57 signatories of the European Road Safety Charter.
Czech NGO’s ÚAMK and CityPlan are active participants in the Campaign for Global Road Safety “Make Roads Safe”, and in the EuroRAP Road Assessment Programme including Risk mapping and Road safety star rating. Non-governmental organisations are organising yearly conference under the motto “Safe roads save lives”.

7. ACTION PLANS

The first National Strategy for the Road Safety was approved by government already in April 2004. The National Strategy was updated on 16.12. 2008 in the Revision and Actualization of Strategy for years 2008 – 2012, with the goal of reducing the number of fatalities (base year 2002) by year 2010 to 50 % according to European transport policy for 2010 (White book). The target shall not to be achieved. The strategy shall be updated for years 2011 to 2020. It contains lot of actions oriented to drivers (education, campaigns, penalties), but also to the safe road. The goal shall be very ambitious “Towards Zero”. The long term document shall be monitored yearly by the National Road Safety Observatory.
The Czech Governmental Council for Road Safety “BESIP” is an advisory and co-ordinating body of Czech Government on road safety issues. It coordinates the activities of Ministry of Transport, Ministry of Interior, BESIP regional Representatives, Directorate of the Traffic Police of the Police Presidium and Regional Traffic Inspectorates. Last session available on internet was held on 15.4.2010
The European Directive 2008/96/ES about the Trans European Road Safety Management shall be implemented into Czech law till the end of year 2010. The traffic specialists

recommend to extent very effective tools like safety audits and safety inspections on the road network with the higher accident record and the death penalty. Unfortunately, there is very low understanding from the side of Ministry of Transport. Fortunately, some regions under the influence of European Directive and National Strategy adopted regional document “Strategy of road traffic safety for years 2010 – 2013”, which is the action plan for implementation of monitoring road accidents, inspection of roads including the safety improvements, application of safety audits at the new projects and road schemes oriented on railway crossings, roundabouts, pedestrian safety, elimination of accident spots, traffic calming, education of users especially children and youngsters.

8. ROADS AND TUNNELS SAFETY

There are big differences in safety level of users and roads, indicated by different accident rates for motorways, divided roads, I. class undivided roads, II. class roads, III. class roads and urban streets.
A comparison of relative accident rate clearly shows that motorways are in average 3.6x safer than I. class roads, 4.8x safer than II. class roads and 6.8x safer than III. class roads. Long-term comparison shows that related to fatalities within 24 hours, motorways are 2.4x safer than I. class roads, 2.2x safer than II. class roads and 2.7x safer than III. class roads.

Czech Republic implemented successfully the EU Directive about the minimum safety requirements for tunnels in the Trans European Road Network. Mostly newly built tunnels are equipped with the latest safety and control technologies, which are recommended by the Directive. For example the tunnel Mrázovka on the Prague City Ring was tested in year 2007 by ADAC EuroTAP. The safety test resulted “very good with medium risk potential”. Motorway tunnel Panenska was tested by ADAC EuroTAP safety test in year 2010 receiving very good rating in 6 categories and a good one in 2 categories. Two brand new tunnels with the highest safety technology standard were opened on Prague road ring in September 2010 with the average traffic volume round 60 000 cars/24hours.

9. SAFETY AUDITS AND INSPECTIONS

Some of road infrastructure owners and operators are progressive to order safety audits to road projects co-financed by EU Funds. Some of them ordered safety inspections of the most important part of network in their responsibility. Inspection reports are basis for the road rehabilitation plans and funds planning. Safety audits very often help to small or bigger improvements of design. This progress is led by EU Document “Toward a European road safety area – policy orientation on road safety 2011 – 2020”, which asks to ensure that European funds will only be granted to infrastructure compliant with the road safety and tunnel safety Directives, and to promote the application of the relevant principles on infrastructure safety management to secondary roads of Member States, in particular through the exchange of best practice.

Inspections and audits are made by certified independent private bodies. For example consulting company CityPlan executed the road inspection with specially equipped inspection car on more than 2 500 km roads of different categories and importance in both directions of inspections (over 5 000 km of recording). Detail reports were delivered to the infrastructure owners with the recommendation of priorities. Unfortunately lack of money and lack of priority into safety issues resulted into the long term outlasting of identified safety deficits.

10.MAIN SAFETY DEFICITS

Maintenance and modernization of roads do not keep the pace with the increase of traffic volumes and performance, especially from the point of safety. The target to make roads safe, forgiving and self-explaining is till now the initiative from bottom-up with too small echo from the road authorities. Big help offer the European directive about the road safety management, introducing audits, inspections and accident black spots treatment into practise.

Most frequent safety deficits of Czech Roads are:

- obstacles in the recovery zone,
- no obstacle free zones (trees, poles),
- no "forgiving" road sides,
- unprotected supports for advertisements along high speed roads, motorways,
- lack of consistency of alignment and environment,
- deficits in "self - explaining" roads,
- poor left turning equipment,
- Un-effective or missing guard rails etc.

Actually, there is a big difference in safety standard between the latest expressways and older high speed roads, both with the speed limit of 130 km/h. New sections have very high safety standard, but the older ones have a lot of deficiencies, mostly related to unprotected advertisements, very short or missing guardrails at overpass supports, short or missing acceleration and deceleration lanes. There is no systematic modernisation of these older high speed roads. Specific items are trees along roads. It is identified, that roughly 20% of serious accidents are related to rigid obstacles – trees along roads. Next 10 to 15% of accidents are due to un-sufficient sight distance due to growth of green along roads. Other safety deficits are deep ditches with concrete walls of culverts. Following pictures shows the typical deficits.

Figure 11: Confusing road alignment – road actually turning to the right to by-pass, straight on old road scheme. Overtaking is very hazardous.

Figure 12: Information overload

Figure 13: Expressway interchange without acceleration lane

Figure 14: Tragic accident on the newly opened motorway D47 – impact to bridge pier

Figure 15: Two lives lost in two accidents at the older motorway not equipped with guard rails at the bridge columns

Figure 16: First class road (I/30) of European importance equipped by boulders instead of delineators.

Figure 17: Gas tank close to motorway traffic lanes (D8)

Figure 18: Completely missing shoulder along the busy road in Prague suburb

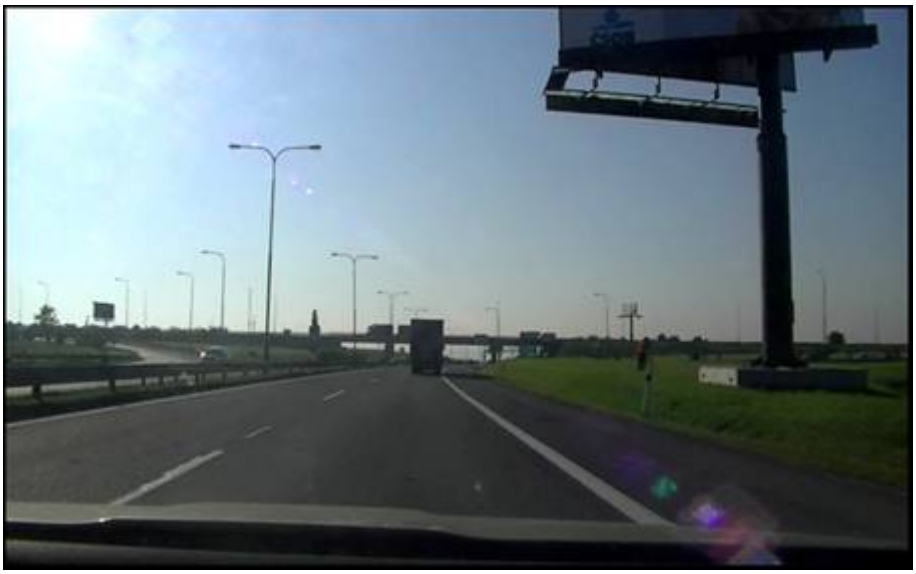


Figure 19: Advertisement “Mega-board” structure close to motorway round Prague (SOKP 516)

Figure 20: Mega board and billboard advertisement structures close to first class international road I/48.

11.EURORAP, RISK MAPPING AND STAR RATING

A lot of activities and initiatives in road safety are more bottom-up than top down. Such activity is membership of Czech Motor-club ÚAMK in the EuroRAP – European Road Assessment Programme from year 2005. Main goal – getting organised to make roads safe – shall be achieved by risk mapping and star rating. Under the technical support of CityPlan consulting company several sets of risk maps for three-year period were produced to show the most risky sections of Czech core network. Following star rating is based on road inspection oriented on identified safety deficits. Both products are understandable to wide public, attractive to journalists and they create the public opinion and demand for safer roads, as well.

12. CONCLUSIONS

In the Czech Republic, there is the gap between the dynamic increase of traffic volumes and building new modern infrastructure. It is resulting in the unsatisfactory number of serious traffic accidents including killed and seriously injured. There is also gap between theory and real care about safe road, gap between newly build and older roads. Both initiatives of EU Charters and Directives, EuroRAP project and non-governmental activities shall force the central, regional and local governments to emphasize the care about the road safety. Access to the accident statistics is importantly improving, police activity and campaigns for safe behaviour are on the very good level.

13. REFERENCES

Tesarik Police Presidium (04/2010). Road accident statistics in Czech Republic in year 2009
Official documents of EU and Czech Ministry of Transport
Results of authors road safety inspections including photos