

# **MOTORWAYS IN CROATIA**

## **MOTORWAY MANAGEMENT MAINTNANCE SYSTEMS**

**Vilnius, 16.06.2014**



## Road network in Croatia

**MOTORWAYS AND SEMI MOTORWAYS - 1.288,50 km**

**STATE ROADS – 6.929 km**

**COUNTY ROADS – 10.342 km**

**LOCAL ROADS – 10.936 km**

**TOTAL: 29.495,50 km**



# MOTORWAY MANAGEMENT



## Management system of motorways in Croatia

**MOTORWAYS ARE MANAGED BY 4 COMPANIES**

**- 2 STATE OWNED**

**HAC (Croatian Motorways)**

**ARZ (Motorway Rijeka – Zagreb)**

**MAINTANANCE AND TOLL COLLECTING MERGED INTO  
1 NEW COMPANY**

**HAC ONC**

**(Croatian Motorways Maintanance and Tolling)**

**- 2 CONCESSIONARES**

**BINA ISTRRA**

**AZM (Motorway Zagreb – Macelj)**



# Management system of motorways in Croatia

MREŽA AUTOCESTA/MOTORWAY NETWORK

UKUPNO/TOTAL: 1.288,5 km

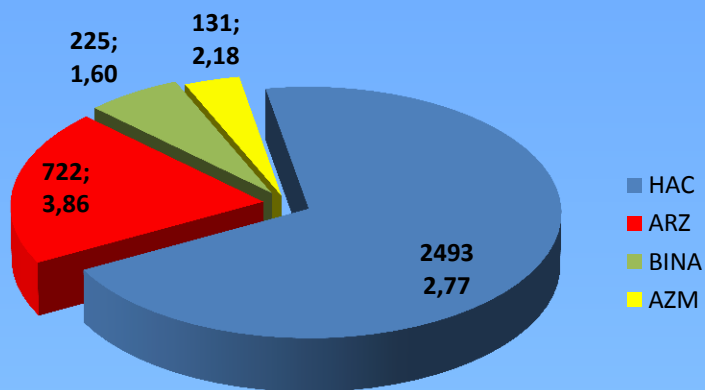


A1\* Dijelom autoceste A1 od Zagreba do Bosiljeva upravlja ARZ/Part of the motorway A1 from Zagreb to Bosiljevo is operated by ARZ

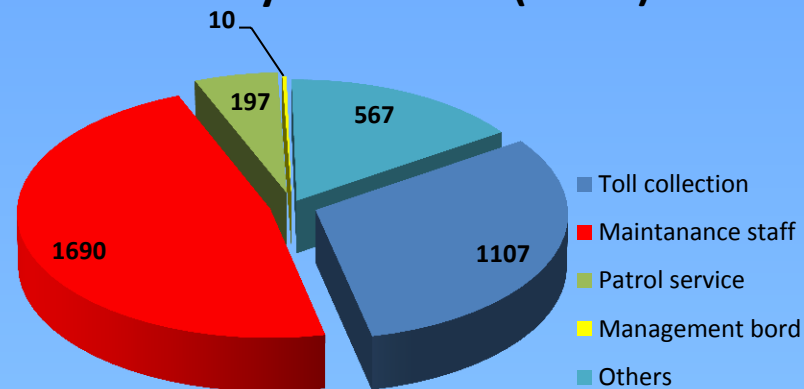


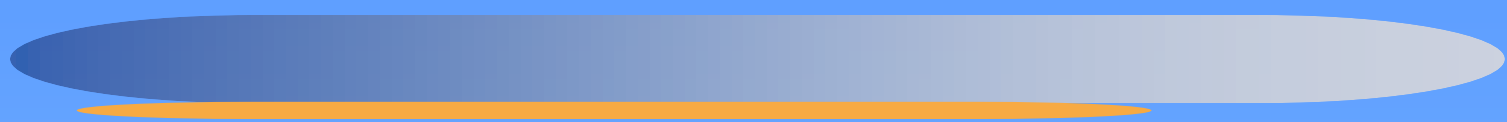
# Management system of motorways in Croatia

## Number of employees per company



## Number of employees on motorways in Croatia (3.571)



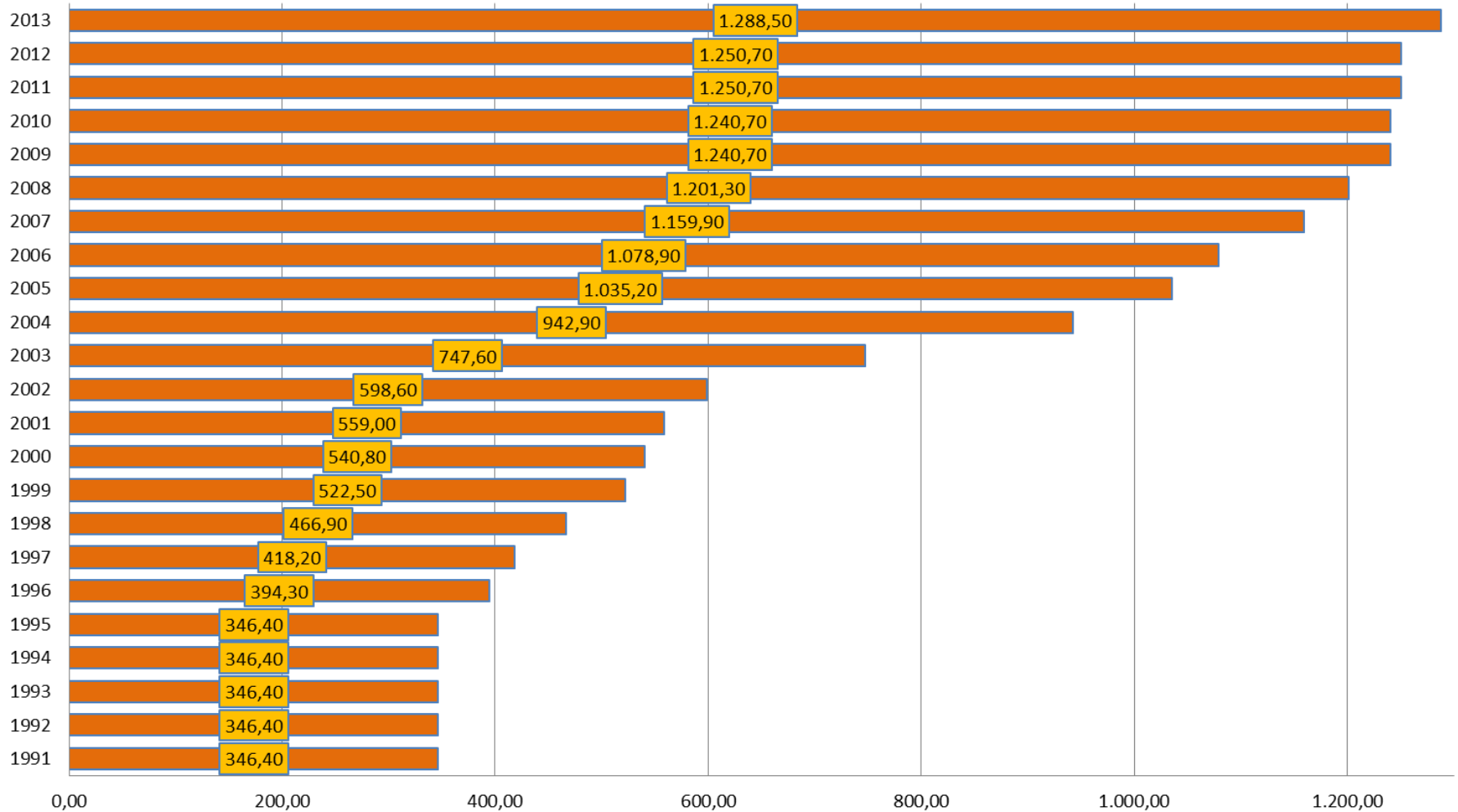


# MOTORWAY MAINTANACE



# Motorways build in Croatia per year

## Kilometers of motorways in Croatia







## Motorway cross section

1.206,5 km of motorways, are built with double carriageway, two lanes with emergency lanes (hard shoulders) on each side and intersections that are grade separated. Carriageways are separated with median and safety guardrails.

61,2 km – single carriageway and 20,8 km double carriageways with 3 lanes)

All motorways are fenced with steel wired fences: height 1,6 m – 2 m





## Traffic on motorways

AADT

2013 – 13.627 vehicles  
(cars + heavy road vehicles)

ASDT

2012 – 20.686 vehicles  
2013 – 21.479 vehicles

(On some motorways ASDT goes up to 50.000)



## Some number



23 MAINTANCE AND TRAFFIC CONTROL CENTERS

149 BRIDGES AND VIADUCTS – TOTAL LENGTH 29,10 km

51 TUNNELS – TOTAL LENGTH 47,30 km

75 FILLING STATIONS (29 KM)

130 VMS – VARIABLE MESSAGE SIGNS

80 CROSSINGS FOR WILD ANIMALS





# Motorway maintenance

- Routine maintenance – surveillance, inspection, cleaning, maintenance of pavement, drainage, road furniture, winter maintenance, etc.



- Periodic maintenance – periodic activities at local improvement of roads, improvement of road safety, ensuring stability and durability of motorways, etc





## Traffic management

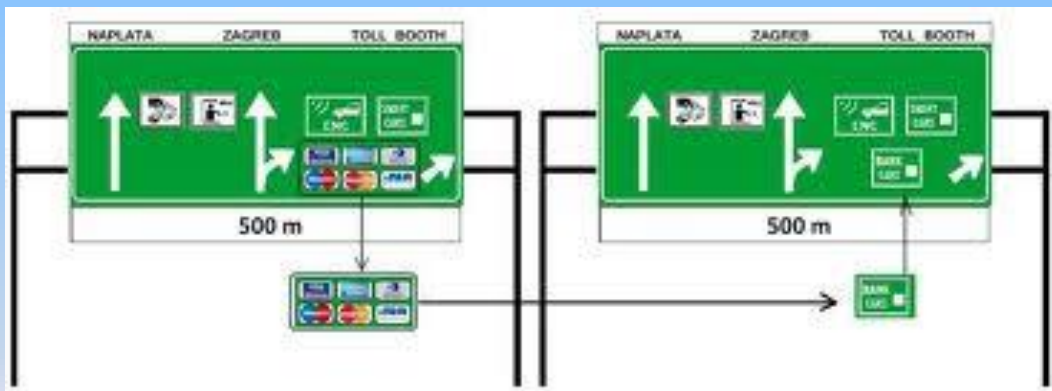
- In line with the intensive construction of motorways in RoC modern Communication-Information System is being developed for the traffic control and management
- Transport – Information System (TIS)
- Remote operation and surveillance – in tunnels only
- Video surveillance on motorways (1548 cameras installed)
- Video detection system
- Toll collection system
- Emergency telephones
- Public address system in tunnels
- Radio broadcast system in tunnels





# Toll collecting

- Closed toll collection system – payable by cash, credit cards and electronic toll collection – ETC (special lanes)
- Open toll collection system (on engineering structures – bridges, tunnels and on shorter motorway sections) – toll station serves as both entry and exit station
- 105 toll plazas
- 686 toll lanes
- 466 ETC lanes
- 1228 km of motorways are covered by ETC (Not entirely compatible)





## Few examples of video surveillance





## Few examples of video surveillance







**Thank you for your attention!**

**TOMISLAV HODAK, M.Eng.**

**[tomislav.hodak@mppi.hr](mailto:tomislav.hodak@mppi.hr)**