



Solution Winter and Summer routine maintenance of motorways in Bulgaria

20.10.2016 Prague

Road Infrastructure Agency Bulgaria



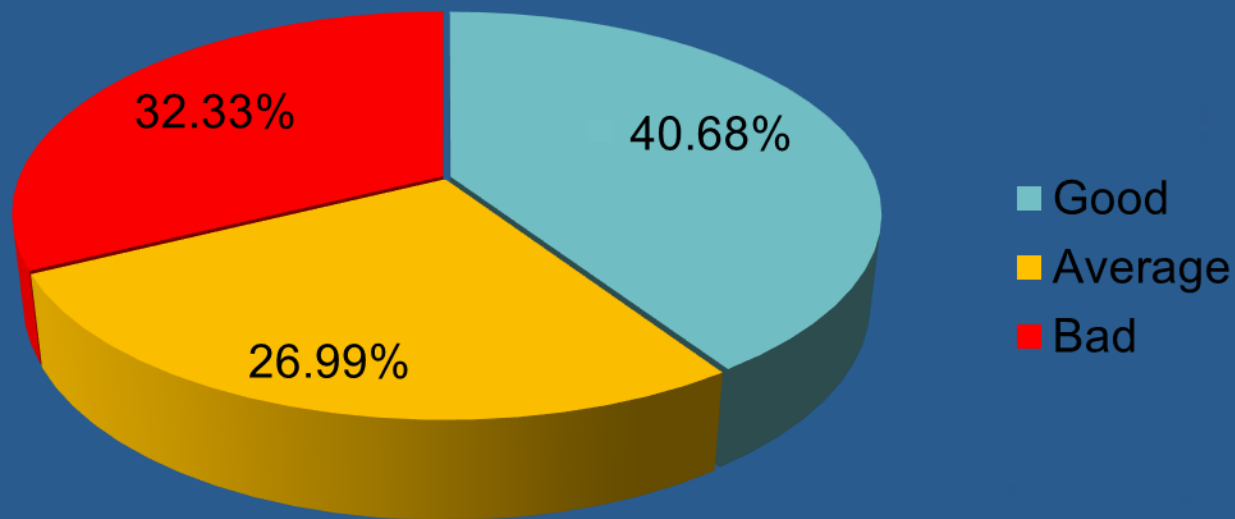
- ✓ 19 850 km - road network
- ✓ 27 regional road departments with separate contracts for maintenance



- ✓ 733 km highways
- ✓ Separate contracts for motorways
- ✓ Area of Bulgaria - 111,000 km²

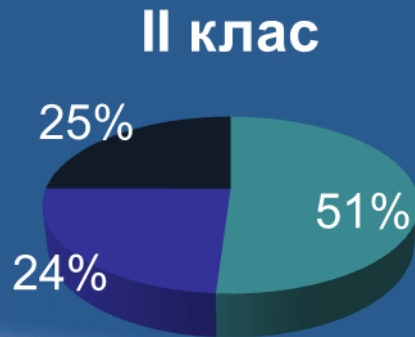
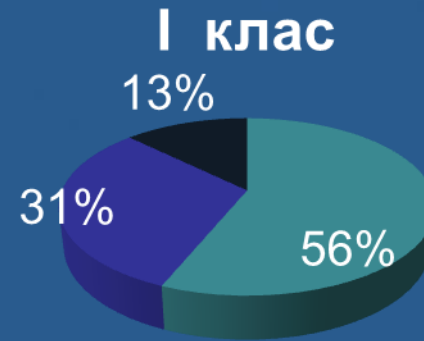
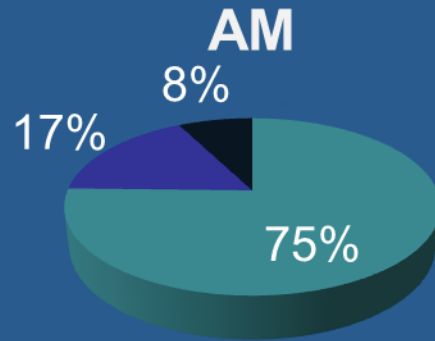


Condition of road network for 2015





Condition of road network for 2015



- Good
- Average
- Bad



Winter maintenance

- ✓ **Level of winter maintenance - depends on traffic intensity**

Traffic Intensity	Level of winter maintenance
over 4,000 vehicles per day	A
between 2000-4000 vehicles per day	B
between 500-2000 vehicles per day	C
less than 500 vehicles per day	D

- ✓ **The motorways - level A**



Level A - over 4,000 vehicles per day for motorways

- ✓ permissible thickness of snow cover:
 - for road with level A of winter maintenance 3 cm
 - for road with level B of winter maintenance 5 cm
 - for road with level C of winter maintenance 7 cm
 - for road with level D of winter maintenance 10 cm

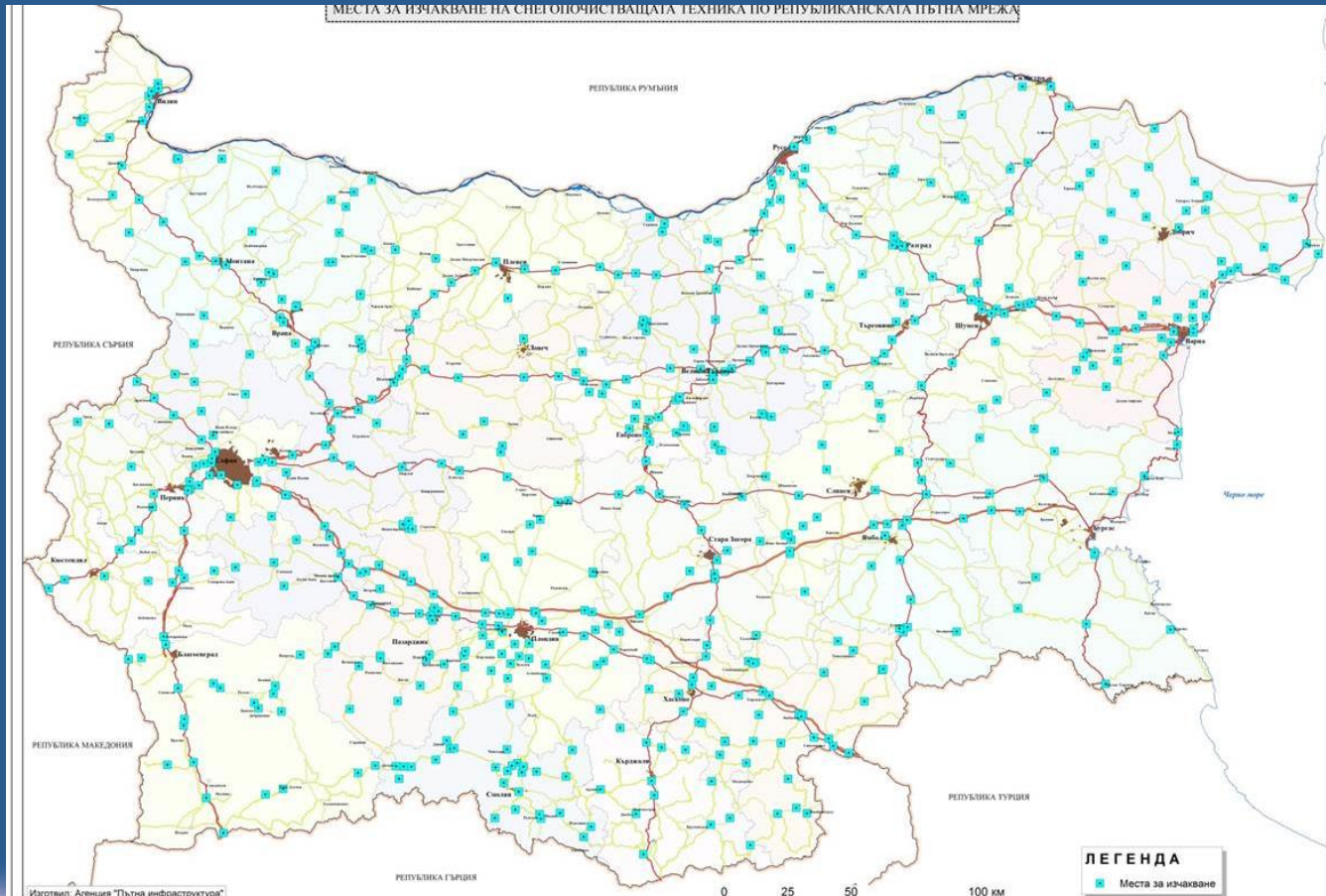
- ✓ For winter maintenance in 2015 we was used:
 - Salt – 105 000 t
 - Sand– 298 000t
 - chemical materials (KCl, CaCl₂) – 2600 t
 - Machines – 3 250



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✓ machines – should be ready two hours before snow fall in place





Contracts for maintenance of highways

- ✓ We use two types of contracts for maintenance of highways
- 1. contract based on performance indicators – we use it for 2 highways. The first contract of this kind was signed on 12.09.2012, with implementation period of 24 months
-for these contracts based on indicators we don't assign activities . Contracts are working with a fixed monthly amount during the summer season



- 2. The other type of contract : We assign activities for different types of work every month
- ✓ We use this types of contracts for maintenance for five highways

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- ✓ **Our budget for maintenance of roads per year is about 130 million leva. For winter maintenance we pay between 55-65 million, which is almost 50% of our budget.**
- ✓ **In 2015, we finished successfully and put into operation new highways and roads as follows: 120,81 km new highways and more 54,36 km first class roads.**



Summer maintenance

- ✓ maintenance of roads - using the methods of recycling - hot recycling or cold recycling

Hot recycling

- ✓ cost effective
- ✓ environmentally friendly
- ✓ solution for damaged asphalt surface courses





Cold recycling

- ✓ cost effective
- ✓ reusing the existing asphalt pavement



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Thank you for your attention!