MEASURES FOR IMPROVING ROAD SAFETY ON RURAL ROADS IN GERMANY – “AOSI”

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• accidents with fatalities in Germany

- Urban area: 31%
- Rural area: 59%
- Motorway: 11%

• types of accidents
  - Around 50% driving accidents
  - Around 25% accidents related to overtaking
Introduction

• establishment of a task force:
  ▫ “AOSI” (acronym for “Außerortsstraßensicherheit”)

• aim:
  ▫ short-term up to medium term-measure for road safety improvement
  ▫ testing in a large scale research programme

• methodology:
  ▫ before/after-study of implemented measures
Introduction

measure against driving accidents:
- speed camera enforcement

measure against overtaking accidents:
- passing lanes
- overtaking bans
Introduction

- road equipment speed enforcement

Δ ~ 2.5 km

speed camera
induction loop
built-up area

“Measures for Improving Road Safety on Rural Roads in Germany”
Introduction

- road equipment safeguard overtaking

“Measures for Improving Road Safety on Rural Roads in Germany”
Result – Speed camera enforcement

- main aspects
  - velocities
  - accidents

“Measures for Improving Road Safety on Rural Roads in Germany”
Result – Speed camera enforcement

• main hypotheses to speed camera enforcement measure:
  ▫ contribute to keeping the speed limit
  ▫ strategy to reduce driving accidents
Result – Speed camera enforcement

- before: violation of speed limit ~ 65%
- after: speed reduction of -53% (-13 kph)
Result – Speed camera enforcement

• before: violation of speed limit ~ 25%
• speed reduction at ~5%
Result – Speed camera enforcement

- 22 → 13 accidents with fatalities (-41%)
- 244 → 162 accidents with personal injury (-34%)

**Efficiency:**

- Driving accidents: -31%
- All accidents: -24%

(compared to the global trend of accident development)
Result – Passing lanes and overtaking restrictions

- main aspects
  - accidents
  - traffic flow
Result – Passing lanes and overtaking restrictions

- main hypotheses:
  - safeguard overtaking avoid overtaking accidents
  - short passing lanes of < 800m contribute to dissolving platoons as well
Result – Passing lanes and overtaking restrictions

- 9 → 7 accidents with fatalities (-22%)
- 105 → 76 accidents with personal injury (-28%)

**Efficiency:**
- Accidents in longitudinal direction: -75%
- All accidents: -16%

(Compared to the global trend of accident development)
Result – Passing lanes and overtaking restrictions

- after 1.7km restriction on passing:
  - 92% more vehicles in platoons behind HGV
  - platoon length shorter

ADT before: 6.136 veh/d
ADT after: 7.829 veh/d
Result – Passing lanes and overtaking restrictions

- after 350m passing lane:
  - 89% less vehicles in platoons behind HGV
  - platoon length shorter

ADT before : 6.136 veh/d
ADT after : 7.829 veh/d
Result – Passing lanes and overtaking restrictions

- after 700m passing lane:
  - 63% less vehicles in platoons behind HGV
  - platoon length shorter

ADT before: 6.136 veh/d
ADT after: 7.829 veh/d
Conclusion

- **Speed camera enforcement**
  - significant speed reduction
    - at camera controlled cross sections
    - in between camera sections
  - significant road safety improvement
    - reduction of driving accidents (-31%)
    - reduction of overtaking accidents
Conclusion

- Passing lanes & Restriction on overtaking
  - road safety improvement
    - reduction of accidents related to head-on and rear-end crashes (-75%)
  - tested passing lane length suitable to
    - dissolve platoons
    - reduce the number of platoons
    - lowering pressure on overtaking
Recommendations

• Speed camera enforcement

- at road sections where excessive speed contributes to poor road safety
- camera site distance up to 2,5 km at straight horizontal alignment
- signage “camera controlled section” for better acceptance
Recommendations

• **Passing lanes & Restriction on overtaking**
  
  ▪ at road sections with bad overtaking sight distance and high pressure on overtaking
  
  ▪ passing lanes not shorter than 600 m; non-overtaking sections not longer than 4 km
  
  ▪ signage about the distance to the next passing lane section to increase acceptance
Thank you for your attention!

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