Introduction

- Safety traditionally based on accidents
- How many years of waiting? (new-built)
- Traffic conflicts and behavioral observations are useful
- Proactive (preventive) assessment, e.g. during site visit (road safety inspection)
- Case study for the needs of Czech road agency
Traffic conflicts (near-accidents)

- Situations when two road users approach each other to such extent that, if no action is taken, an accident collision occurs
- Evasive action = braking, accelerating, swerving…
- Quantitative (objective) × qualitative (subjective) techniques
- Observation on site or in video

Czech approach

- Traffic conflicts not known in practice
- New guidelines proposed and certified, including on-line applications for training and visualization
- Uses severity of evasive action

<table>
<thead>
<tr>
<th>Severity grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – slight conflict</td>
<td>low</td>
</tr>
<tr>
<td>2 – medium conflict</td>
<td>obstruct</td>
</tr>
<tr>
<td>3 – severe conflict</td>
<td>endanger</td>
</tr>
</tbody>
</table>
Case study

- Practical test of guidelines
- Specific location chosen by road agency
- Newly-built intersection on rural 1st class road (no accidents so far)
- Left turn sight conditions?

Observation

- 5 hour-observation: conflicts, behaviour, traffic volume
- + video record and speed measurement
- also at comparable location without sight restriction
- 10 observed conflicts, mainly left and right turns
- no conflict at comparable location

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Results 1

**Right turns:**
- 5 conflicts
- volume 35 veh/hr
- i.e. 0.14 conflicts per one turning veh/hr

**Left turns:**
- 3 conflicts
- volume 12 veh/hr
- i.e. 0.25 conflicts per one turning veh/hr

0.25/0.14 ~ 1.8 ... **left turn** conflicts are almost twice as critical as **right turn** conflicts

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Example conflict

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Results 2

- Sight condition check according to Czech design standard
- Speed limit 90 km/hr, observed speed 72 km/hr
- Required sight length:
  - **STOP** 170 m
  - 130 m
- Real sight length found to be only 41 m!

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Conclusions 1

- Left turns: the most rare, but the most critical
- Due to insufficient sight length (guard rail)
- Confirmed by measurement and calculation (+ comparable location)
- Treatment: road marking change (shift from the guard rail)
Conclusions 2

- Demonstrated approach may be used on sites without accident data (new-builts!)
- As opposed to 3 years of waiting for accidents before/after the construction
- Conflicts enable proactive assessment

- There is no need to wait for accidents

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Thank you for your attention

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