International Transport Forum

IRTAD
International Traffic Safety Data and Analysis Group

OECD

Evaluating road safety and safety effects using Empirical Bayesian method

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4th IRTAD CONFERENCE
Road safety data: collection and analysis
for target setting and monitoring performances and progress

Seoul, 16-17 September 2009

VTT

FINLAND

5,3 million inhabitants

16 persons/km^2

Kimi Räikkönen

Heikki Kovalainen

Marcus Grönholm

Aki Kaurismäki

Jean Sibelius

Alvar Aalto

Kalle Palander

Forests

Nokia

Father Christmas

Karita Mattila

Santa Claus

Linus Torvalds

Tarja Halonen

Sauna

Republic

In road traffic in 2008:

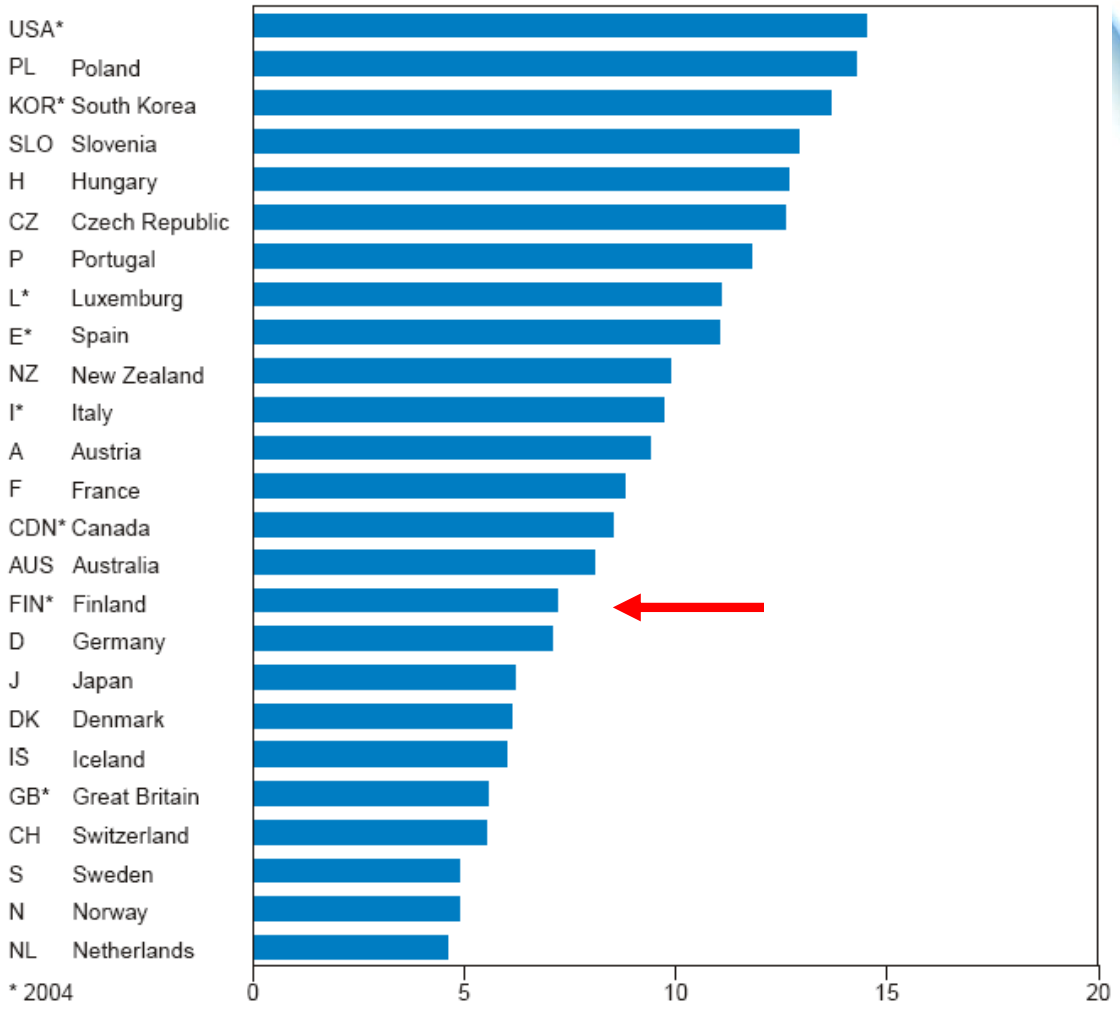
65 killed/million inhabitants

0,6 killed/100 million automobile kilometres

Relative numbers of road fatalities

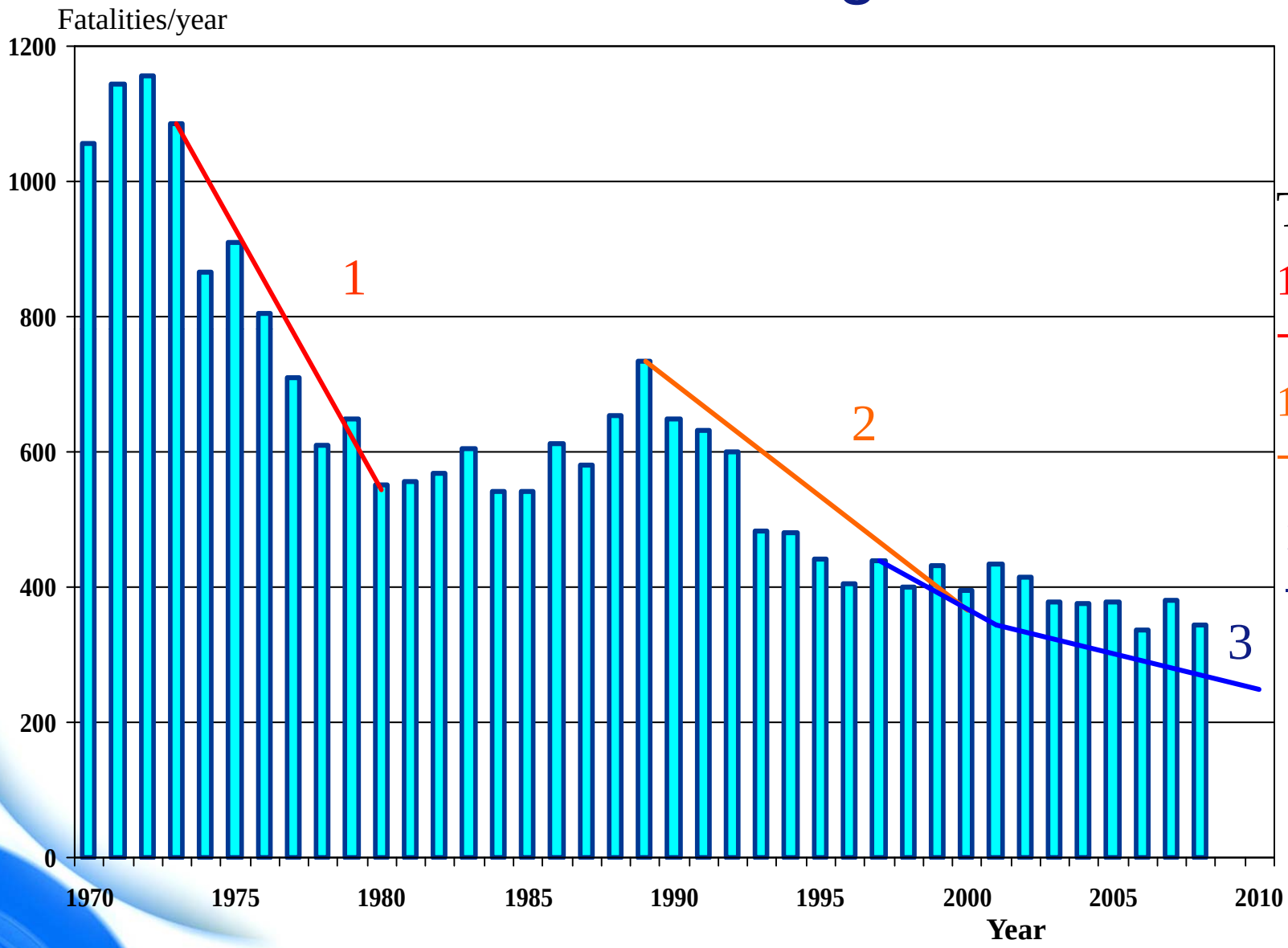
Per billion vehicle kilometres in 2006

Per 100 000 population in 2005



Source: IRTAD

Road traffic fatalities and targets in Finland



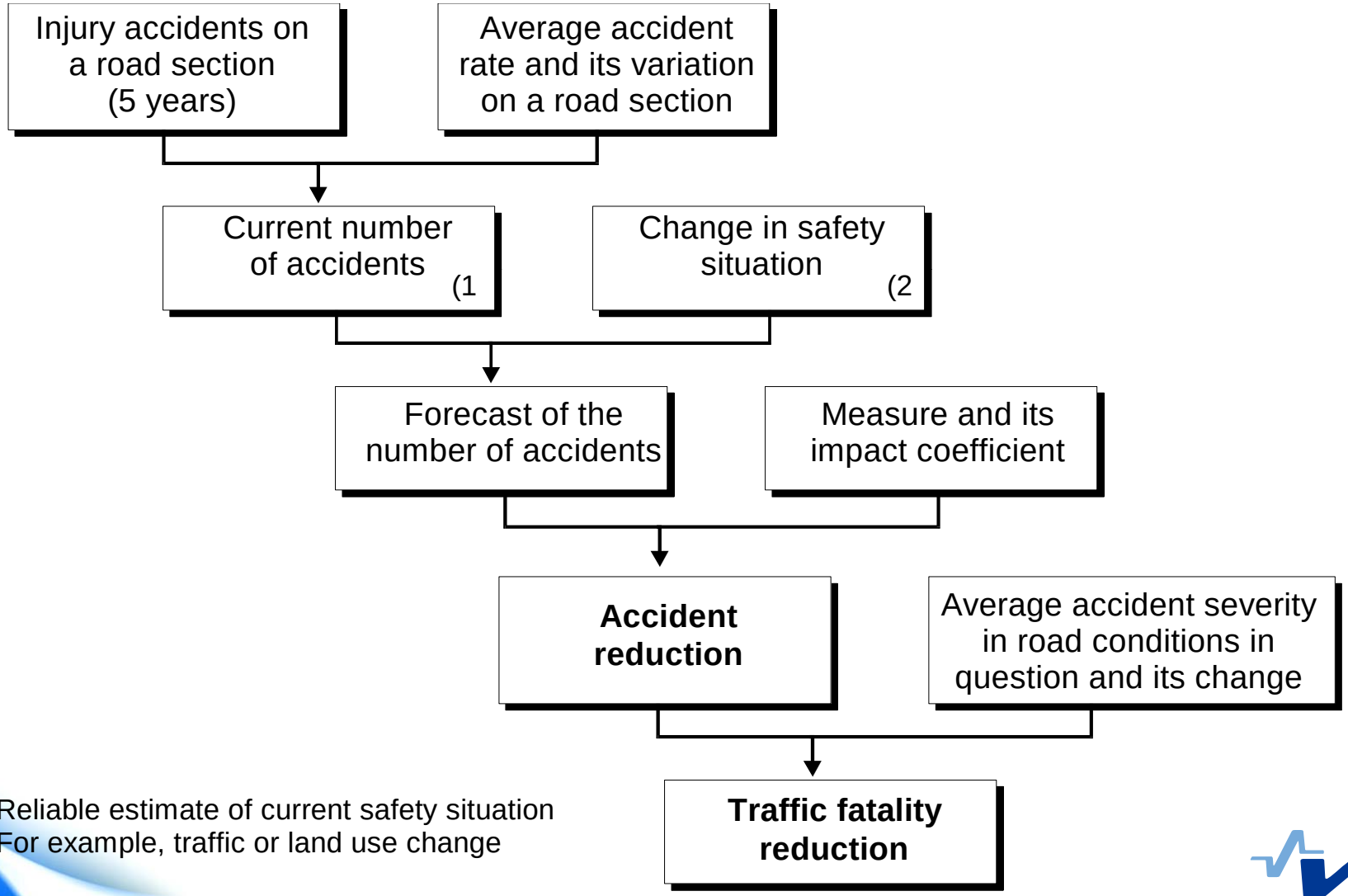
Targets:

1973:
-50% in 8 years

1989:
-50% in 10 years

1997:
-43% in 13 years

Evaluation of safety effects of road improvements



1) Reliable estimate of current safety situation
2) For example, traffic or land use change

Evaluating safety effects

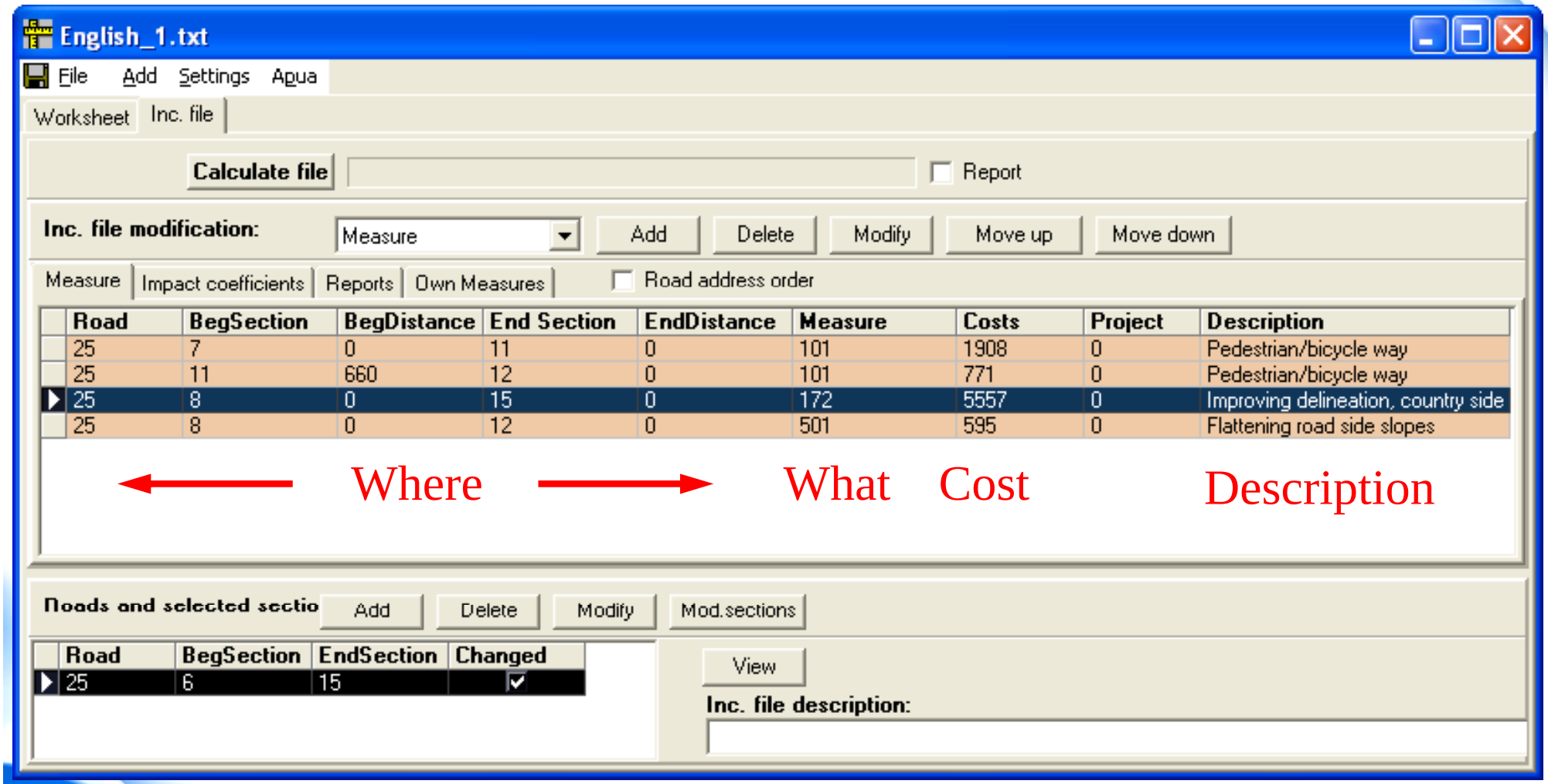
Principles

- History and model combined using Empirical Bayesian method
- Injury accident coefficients + change in accident severity
- Overlapping measures taken into consideration

Details

- Road sections and crossings modelled separately
- Accident models for vehicle, animal and light traffic accidents
- Accident history from five years used
- Average implementation costs for measures allow easy effectiveness estimates

Using the safety evaluation programme, TARVA



Results from the safety evaluation programme

Current safety situation: injury accidents, fatalities

Safety situation after the measures

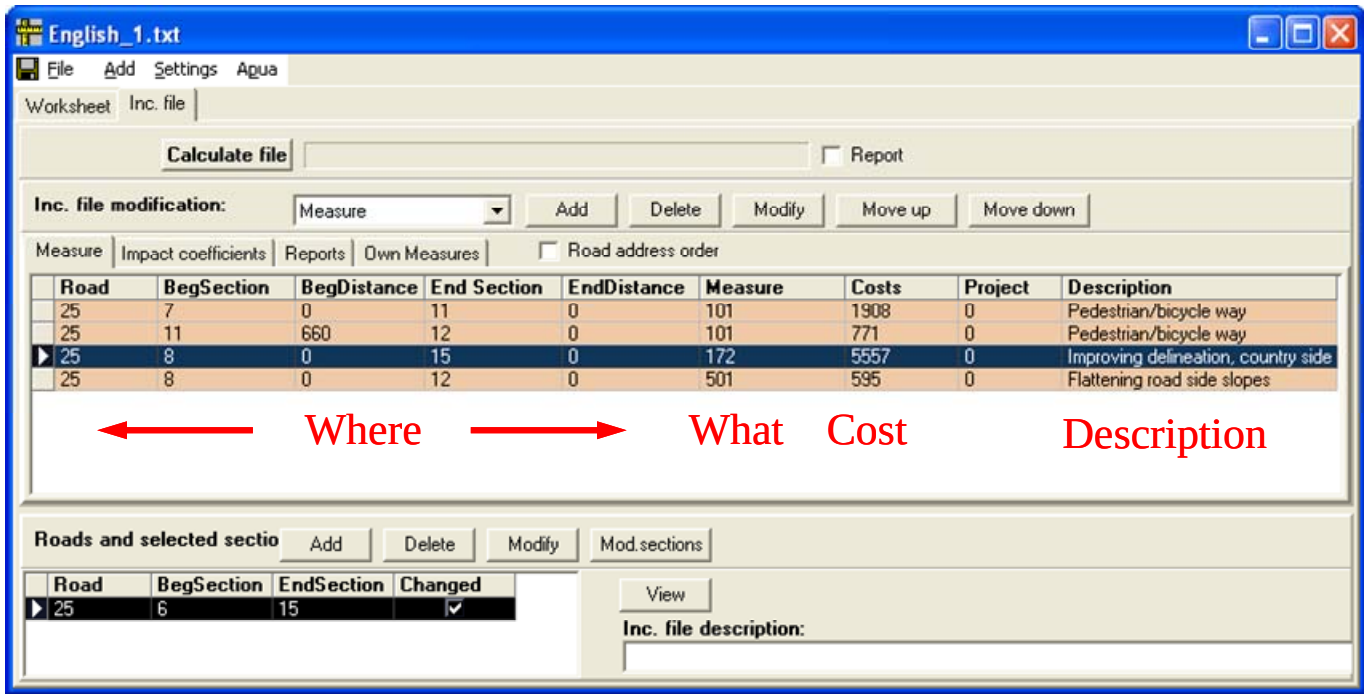
Safety effects of each measure and measures all together

Costs of the road improvements

Effectiveness of each measure and measures all together

Yearly avoided injury accidents by measures implemented in 2005 - evaluated by TARVA

Measure	Reduced injury accidents /year	Proportion (%)
Automatic speed camera enforcement	13,7	38,5
Renovation of road lightning	4,6	12,8
Rumbling road markings	3,1	8,6
New lightning with breakable poles	2,5	7,0
Building new road side railings	1,8	5,1
More effective crossing markings	1,2	3,4
Improvement of winter maintenance	1,1	2,9
Reflective road side poles	0,9	2,5
Intensified attention to speed limits	0,9	2,5
Speed reducing humps etc.	0,4	1,2
Other measures	4,8	13,6
All measures in total	34,9	100,0



Thank you!

More information...

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The development of TARVA has been commissioned by the Finnish Road Administration.

Thanks to FINRA!