

# Software-based road safety analysis in Germany

presented by:

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## Content

Road Infrastructure Safety Management based on transportation planning tools to support road safety experts

- > Policies and methods in Germany for road infrastructure safety management
- > Applications based on PTV Software:
  - > Network safety management (NSM)
  - > Black spot safety management (BSM)

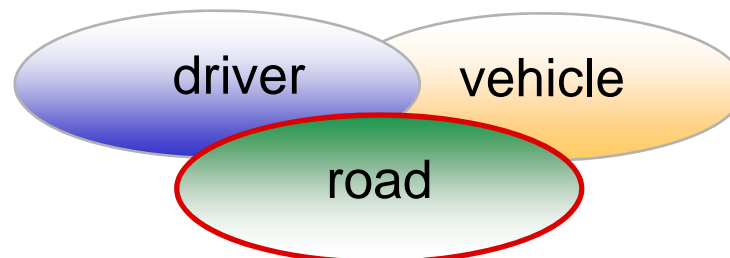
## Saving lives – avoid road accident fatalities

In 2001 the European Union itself set the ambitious objective of halving the number of fatalities on European roads by 2010 (from 50 000 to 25 000).

While progress has been made, road accidents have still resulted in 41,600 deaths on EU roads in 2005.

This large number of accident-related deaths causes high costs to society.

Besides activities on driver behaviour and vehicles, infrastructure is the third pillar of the EU road safety action programme.



## Road Infrastructure Safety Management in EU

The **Directive 2008/96/EC** of the European Parliament and the Council of November 19<sup>th</sup>, 2008 on Road Infrastructure Safety Management defines the need of requirements for network safety management on Trans-European Road Network (TERN) in the following areas:

- > evaluation of safety effects of infrastructure projects
- > road safety audit for infrastructure projects
- > safety classifications and safety management in the existing road network
- > safety inspections of roads

The member states are obliged to implement suitable measures until 2010.

## Road Infrastructure Safety Management on Trans-European Networks

...Many lives could be saved and many accidents avoided, if the existing road infrastructure was managed according to the best practice of safety engineering. Action needs to be taken on the selection of **high risk road sections** or **black spots** on the basis of local accident records.

EUROPEAN COMMISSION

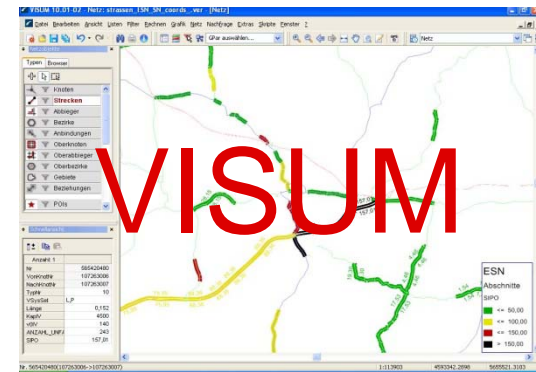
DIRECTORATE-GENERAL FOR ENERGY AND TRANSPORT

Brussels, 12 April 2006

## PTV supports Road Infrastructure Safety Management

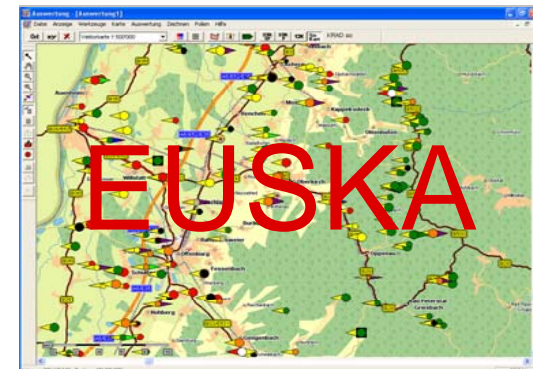
### > Macro level (NSM) / high risk road sections road network level

Safety analysis of road network  
determine high risk road sections  
based on traffic volumes  
and accident data (ESN results mapping)

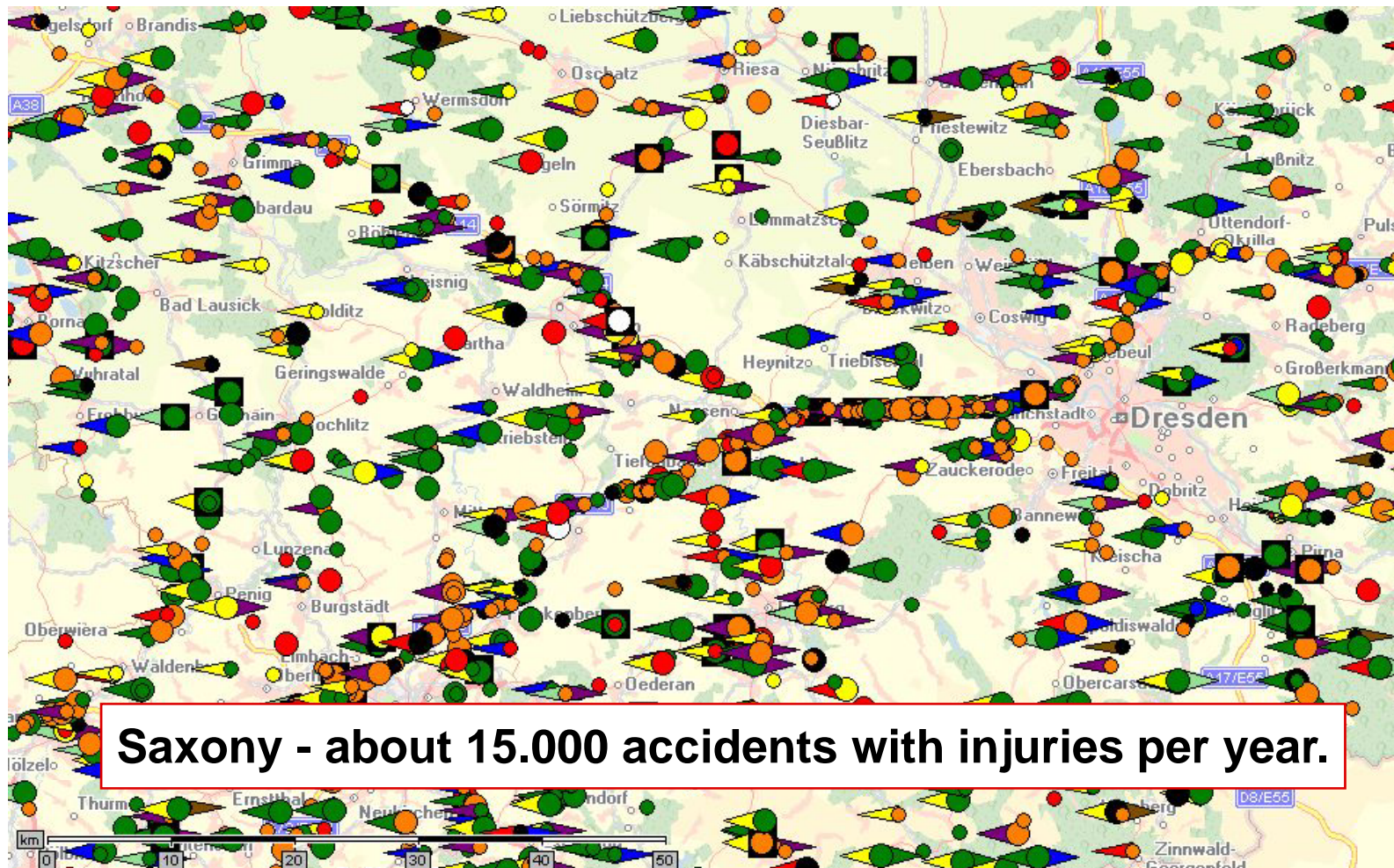


### > Micro level (BSM) / black spots street segment or intersection

Sophisticated accident data examination  
due black spot analysis for police and road  
authorities.



## View of accidents rural area with injuries in 2006



## NSM based on ESN mapping showing safety potentials in the network

-Development in co-operation with GDV (Association of German insurance companies)

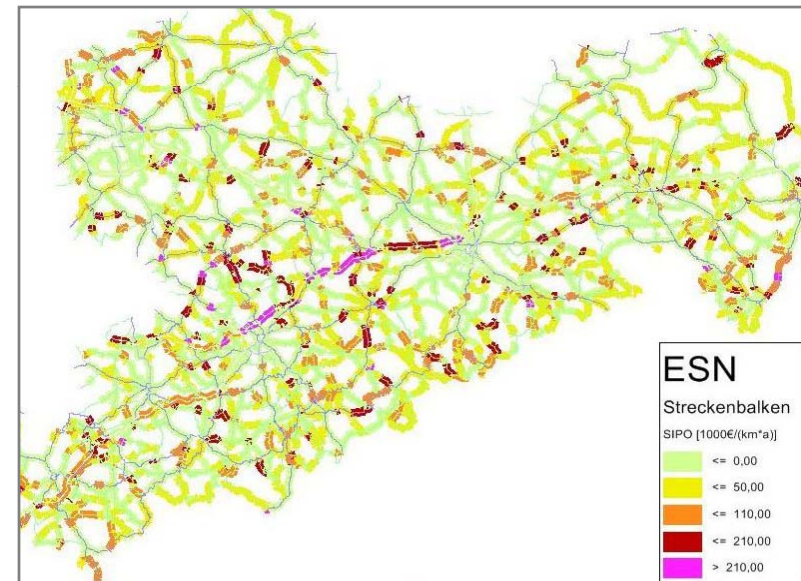
**ESN mapping** based on:

- road accident data (EUSKA)
- assumed accident costs
- actual accident costs
- digital road network (VISUM)
- traffic volumes

**Goal:**

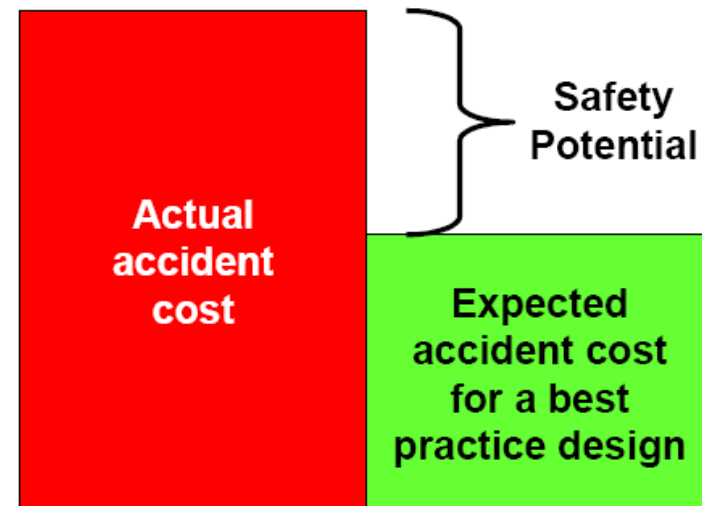
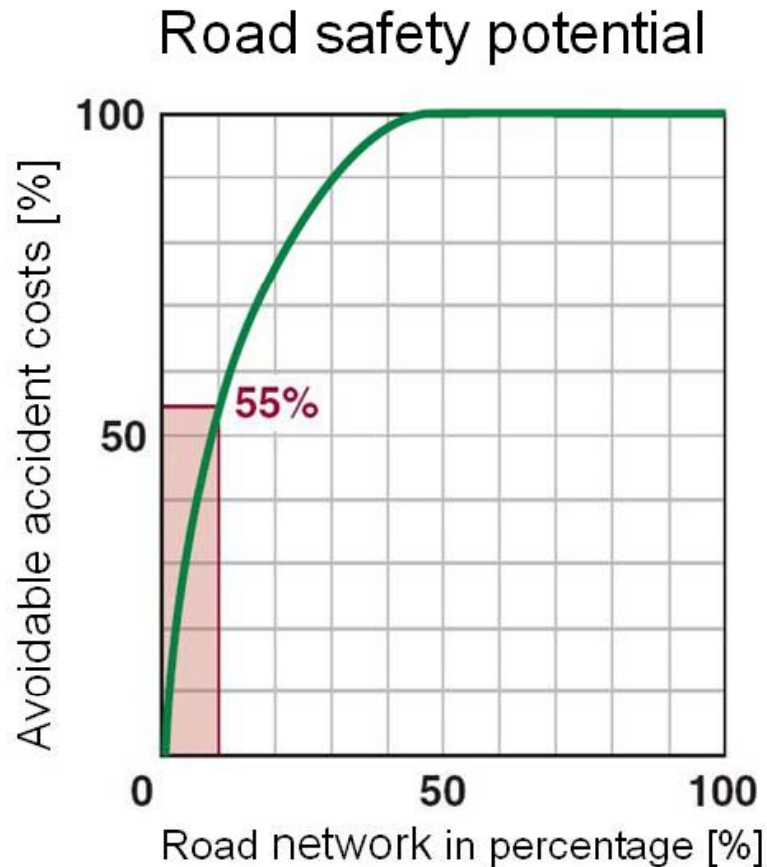
**Calculation of the safety potential.**

The safety potential identifies network sections on which safety improvement measures are expected to have the **greatest effect**.





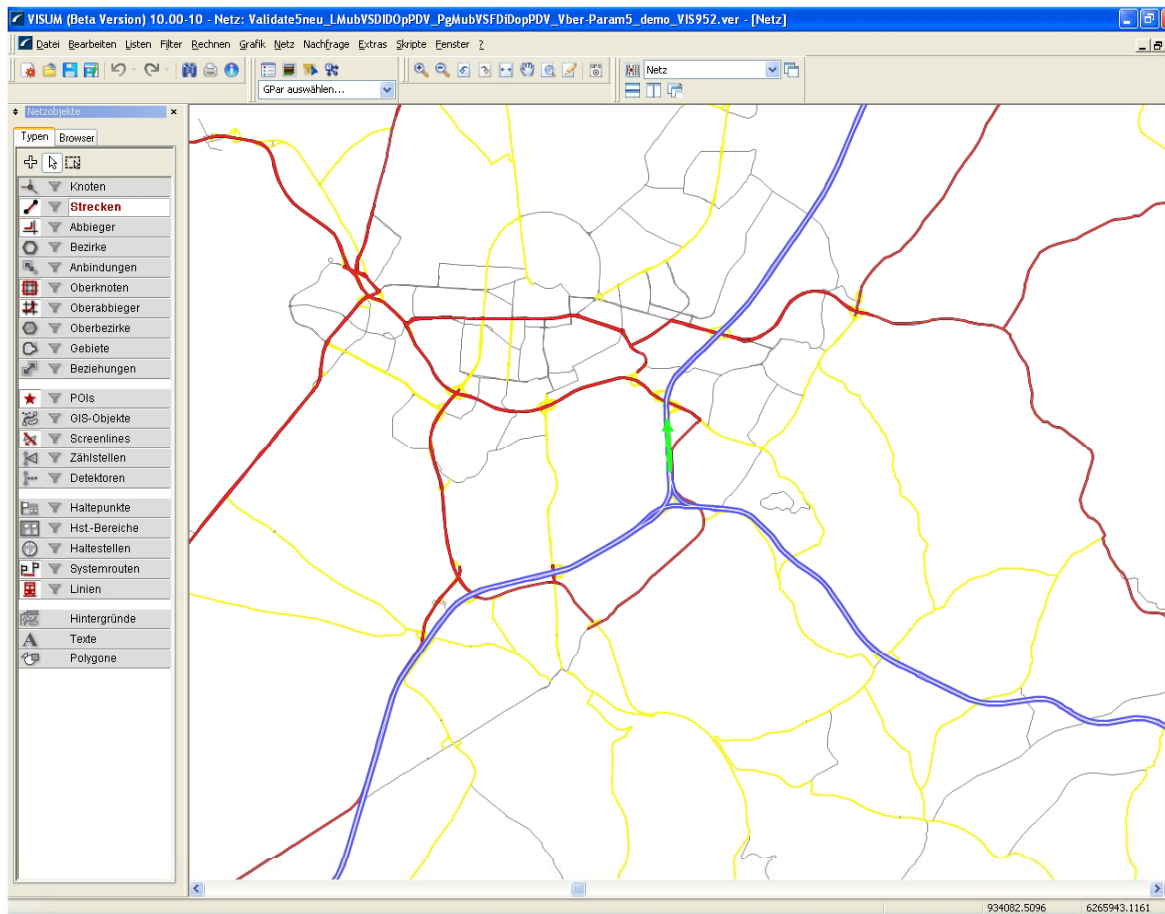
## ESN results of pilot tests in Germany:



Source: Transport Research Arena Europe 2006,  
Kerstin Lemke BAST, Germany,

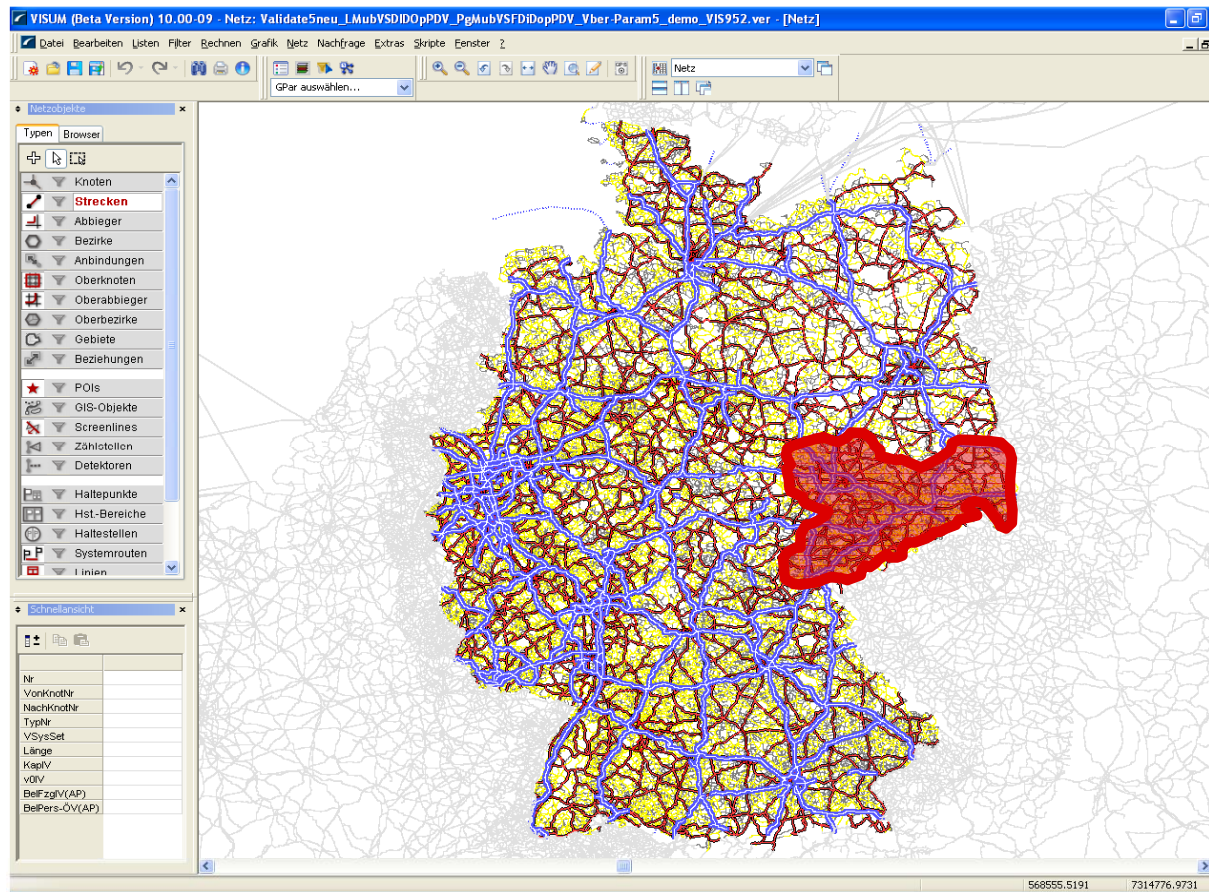
For example: More than **50 % of avoidable accident costs** occur on only **10% of the road network**.

## ESN mapping based on traffic planning tool VISUM



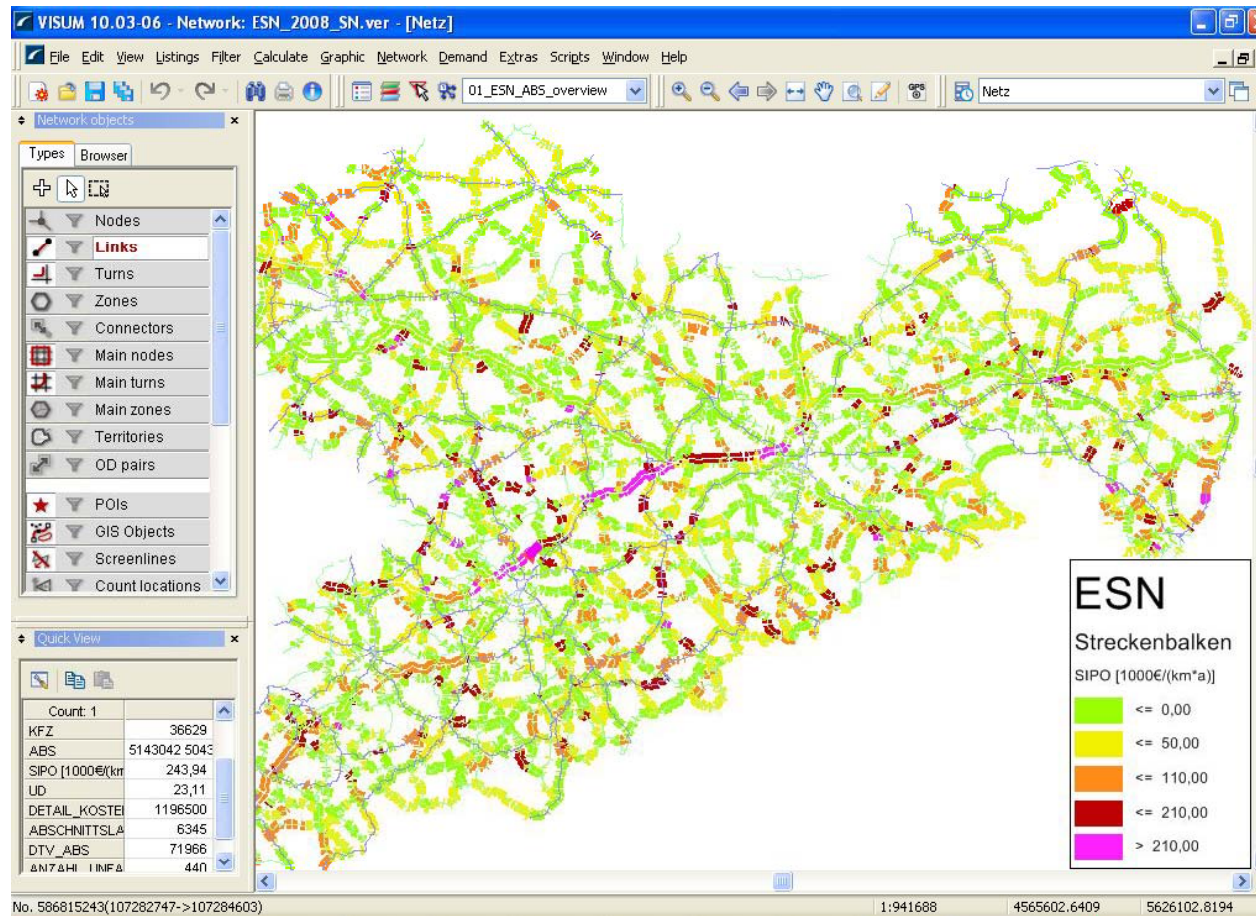
digitized  
road network  
+  
daily traffic  
(model based)  
+  
accident data

# ESN mapping based on VISUM and VALIDATE

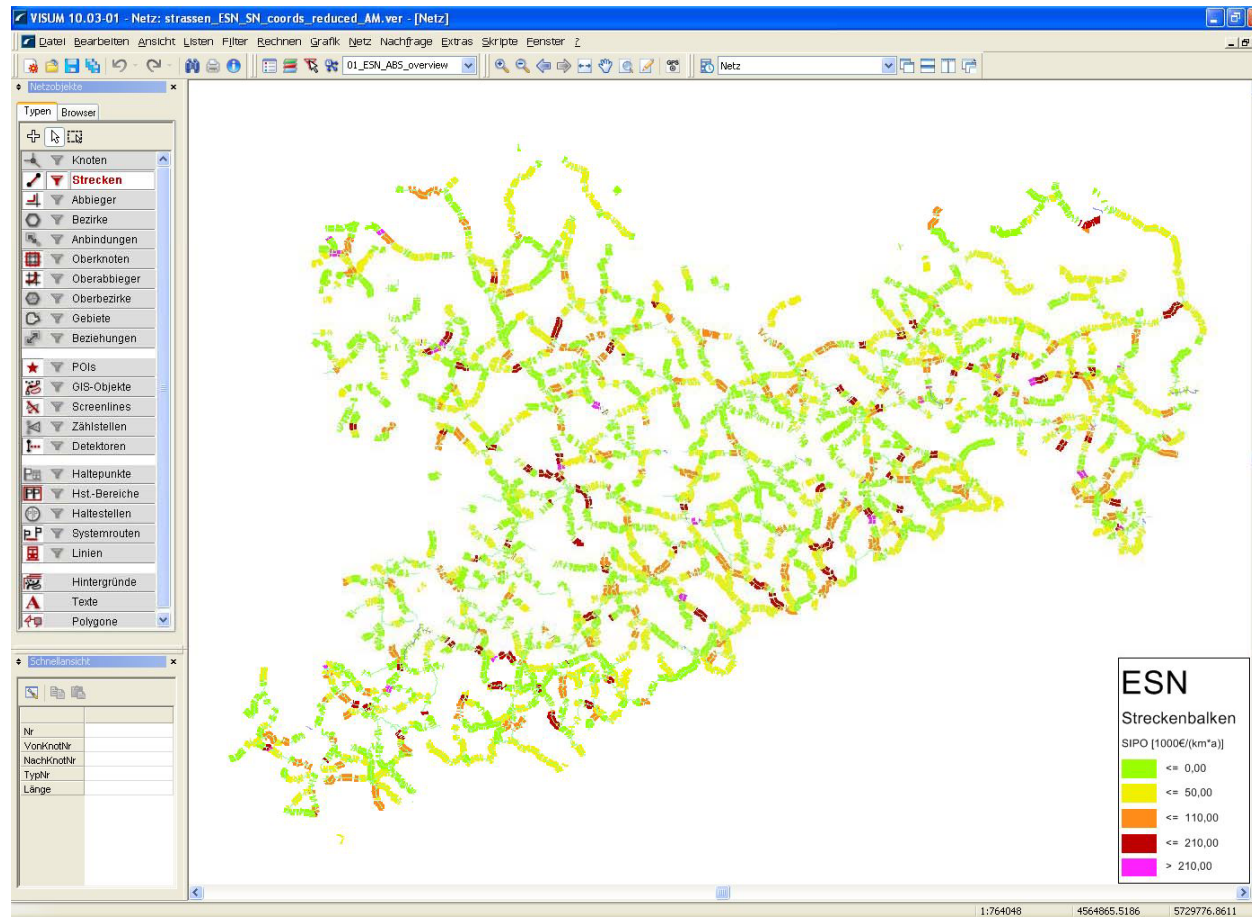


safety analysis  
of road network  
e.g. Saxony

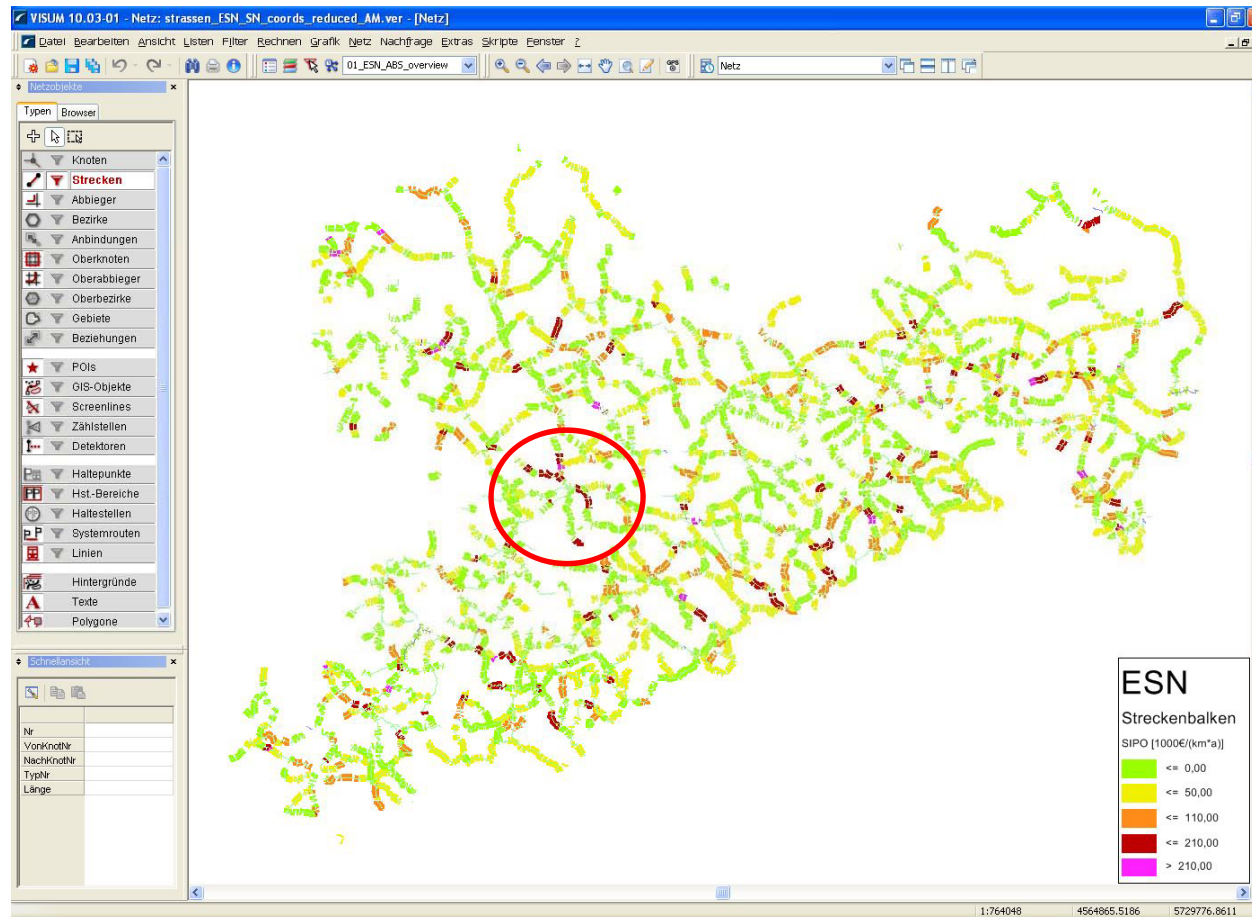
# ESN results mapping in the Free State of Saxony



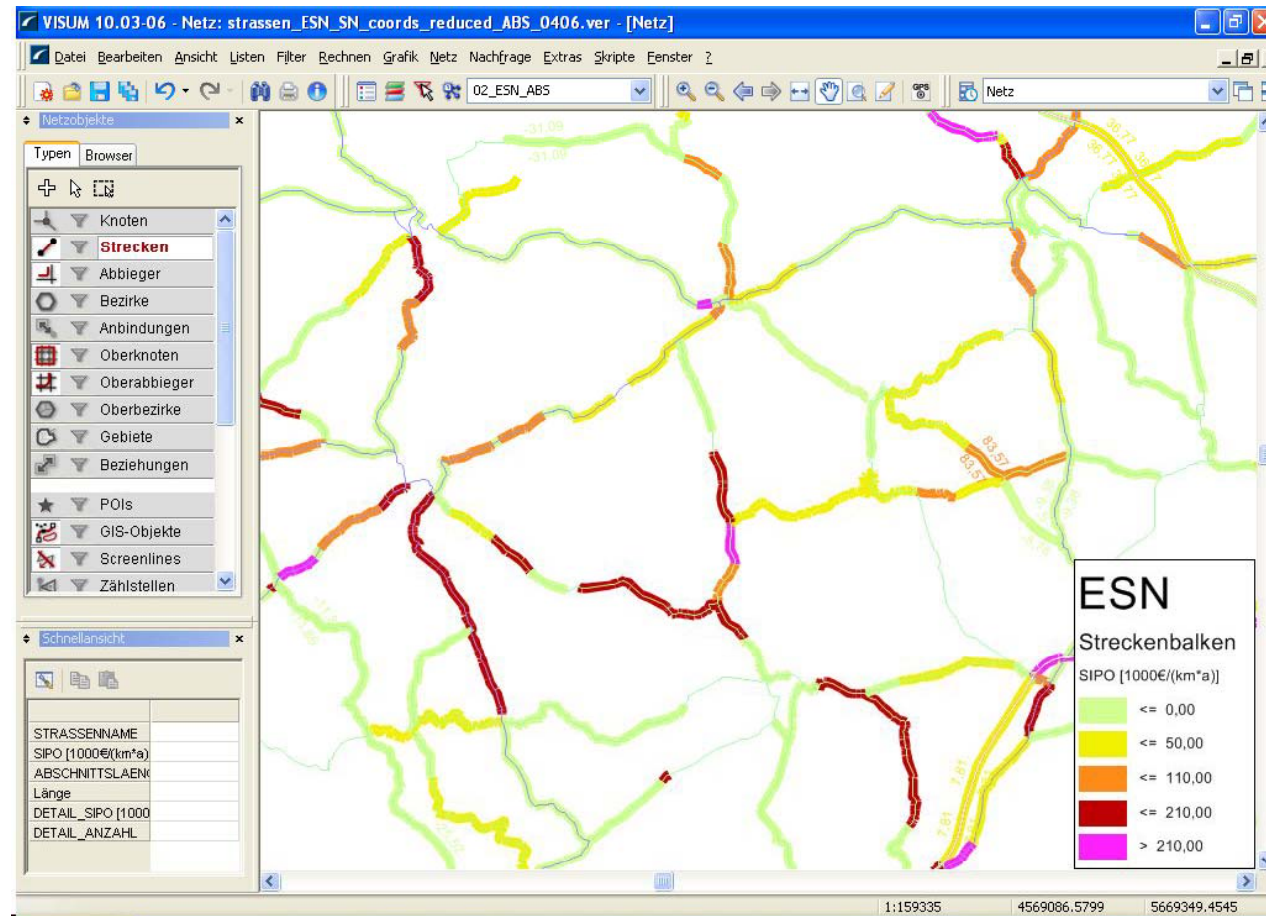
## Saxony: ESN results filter federal roads



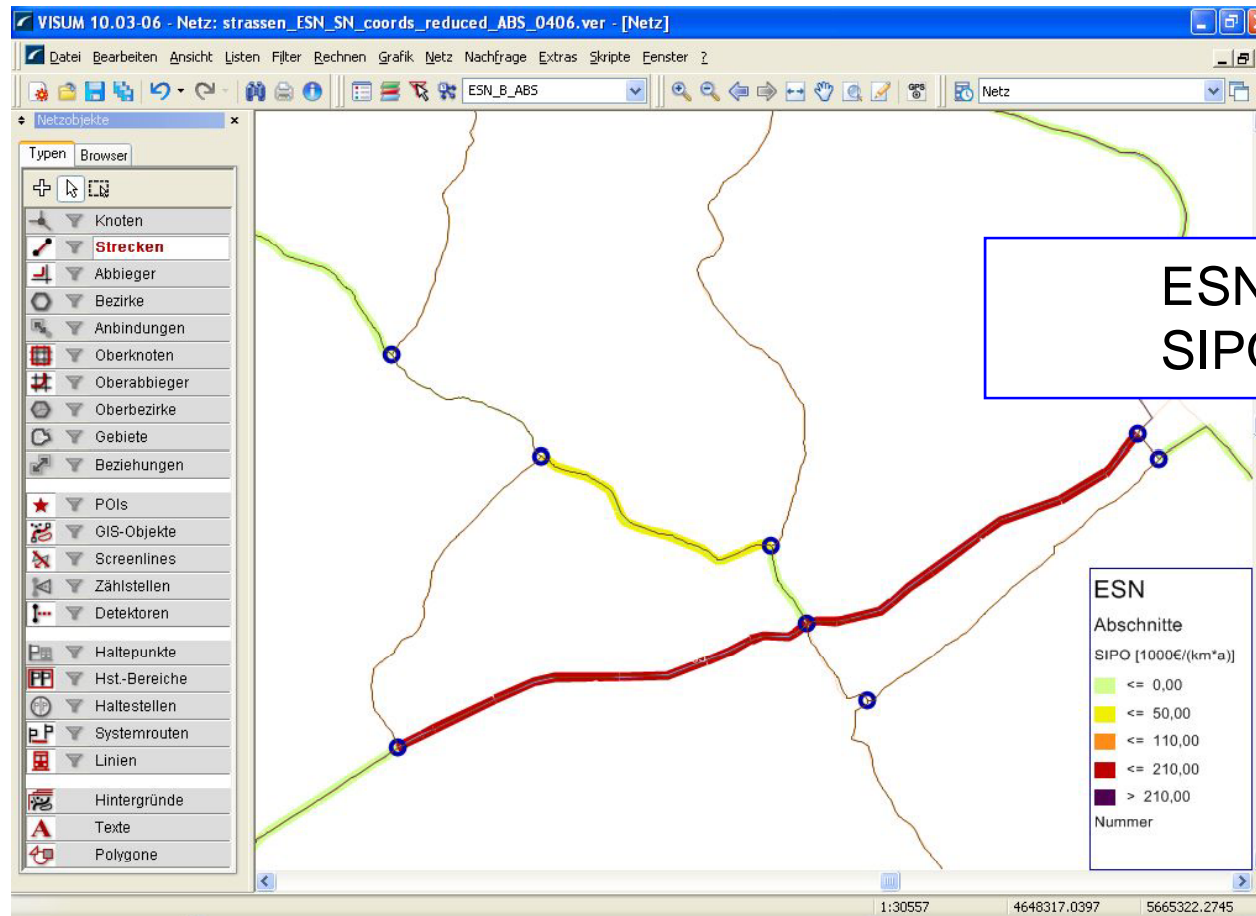
## Saxony: ESN results filter federal roads



## Saxony: ESN results in a detailed level

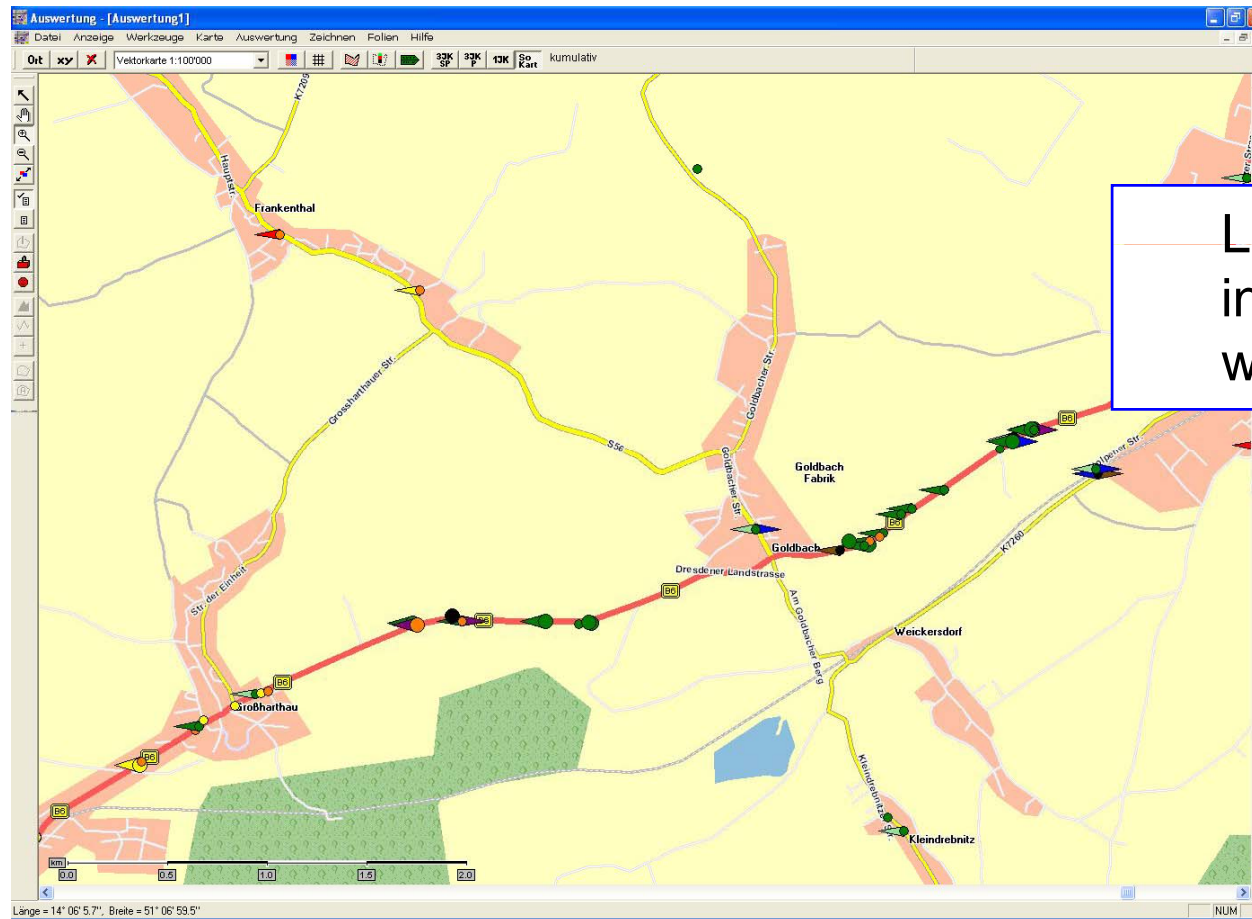


## ESN-analysis: zoom in

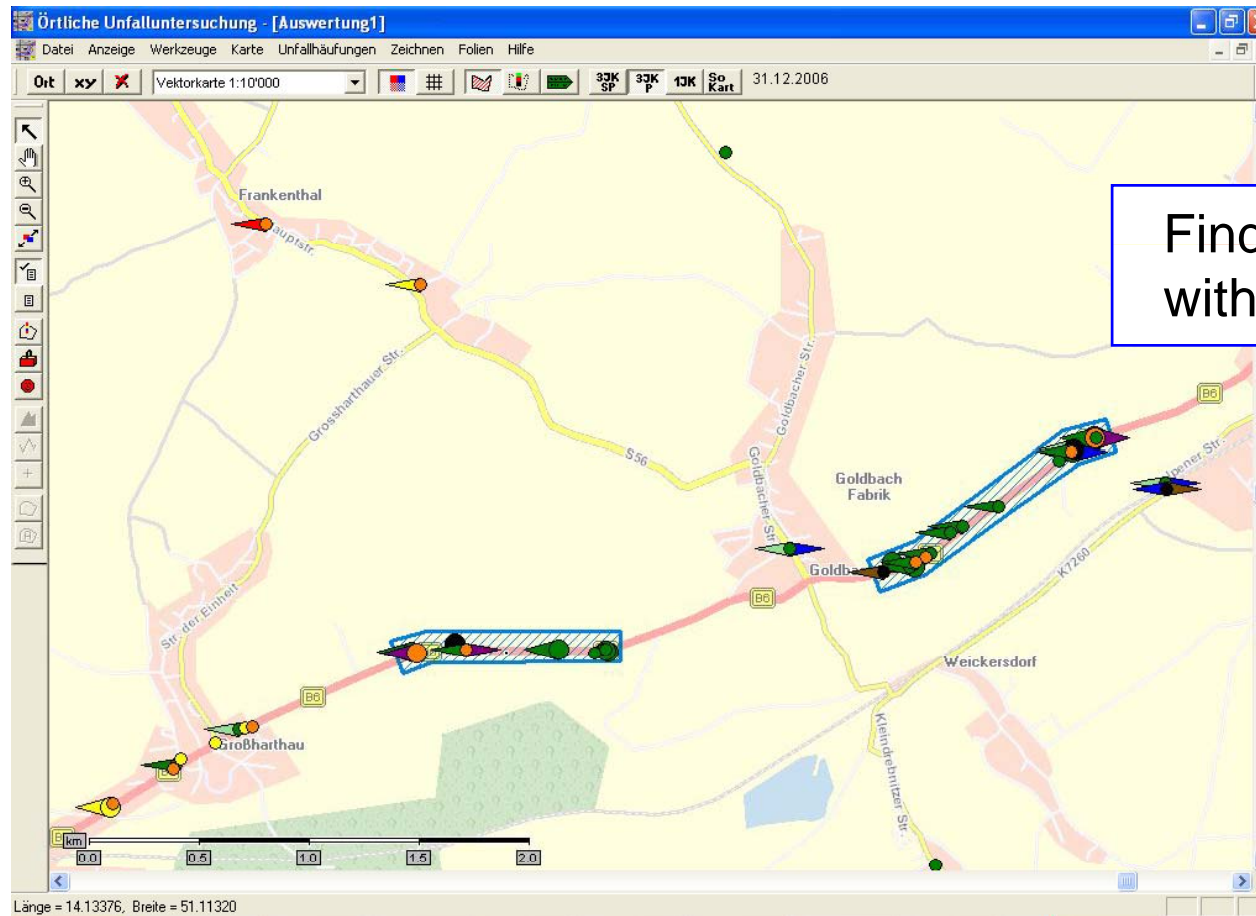




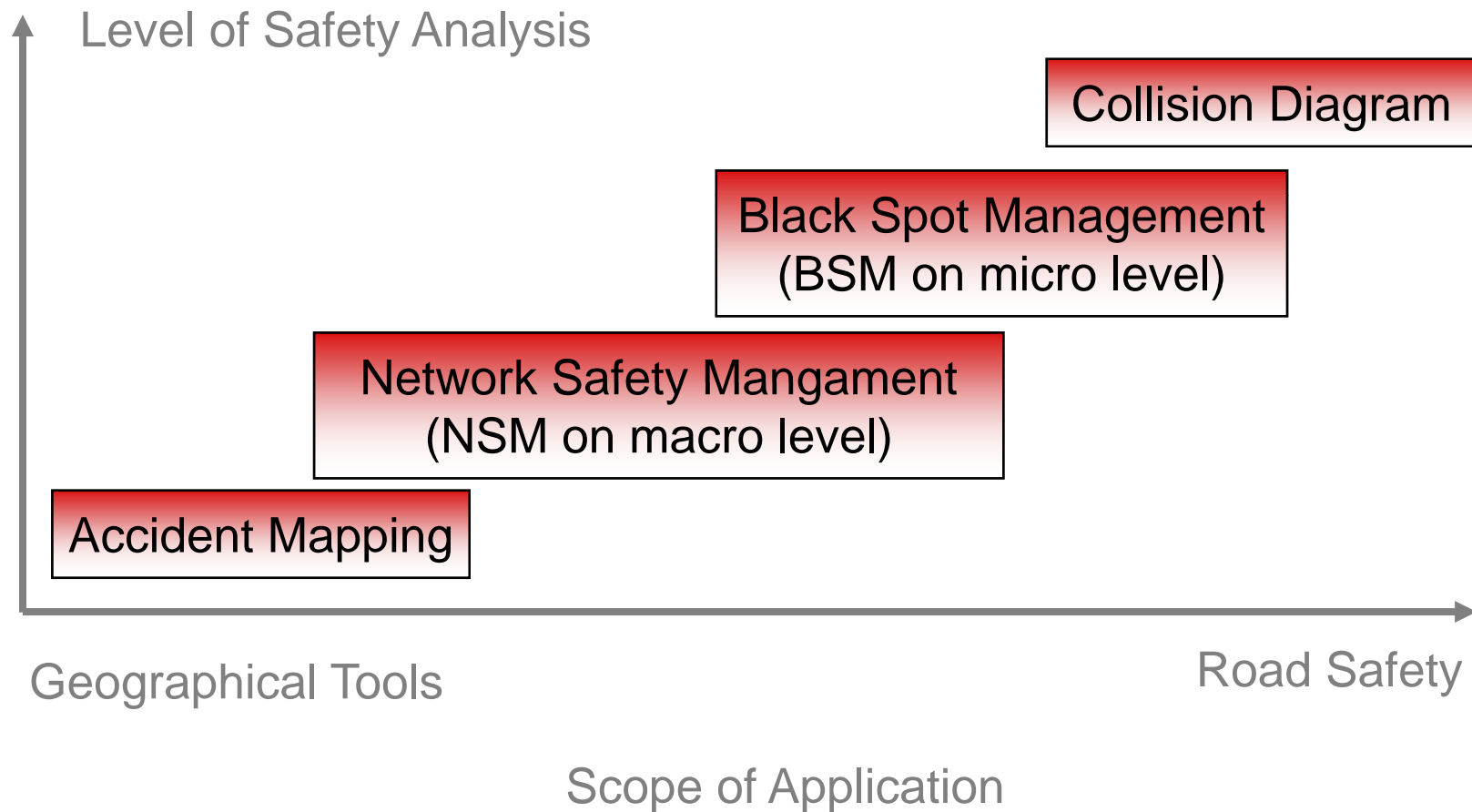
## Micro-level analysis: accident type map



## BSM-analysis: accident type map



# Road Safety Analysis Applications



## Conclusion

In Europe the directive 2008/96/EC requires the establishment and implementation of procedures relating to road safety impact assessments, road safety audits, the management of road network safety and safety inspections by the Member States for roads of the Trans European Road Network (TERN).

The presented examples serve as a model case of what other countries can expect from these solutions for their Road Infrastructure Safety Management. PTV will support road safety institutions and authorities in road safety work and join cooperation based on PTV tools to improve road safety.

# Safer Roads with VPT at BUW and PTV Company

**Thank you!**

**For more information, please visit:**

[www.vpt-weimar.de](http://www.vpt-weimar.de)

see also: [www.nice-roads.com](http://www.nice-roads.com) (EU Asia Link Programme)

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