

RISM – NETWORK SAFETY ASSESSMENT

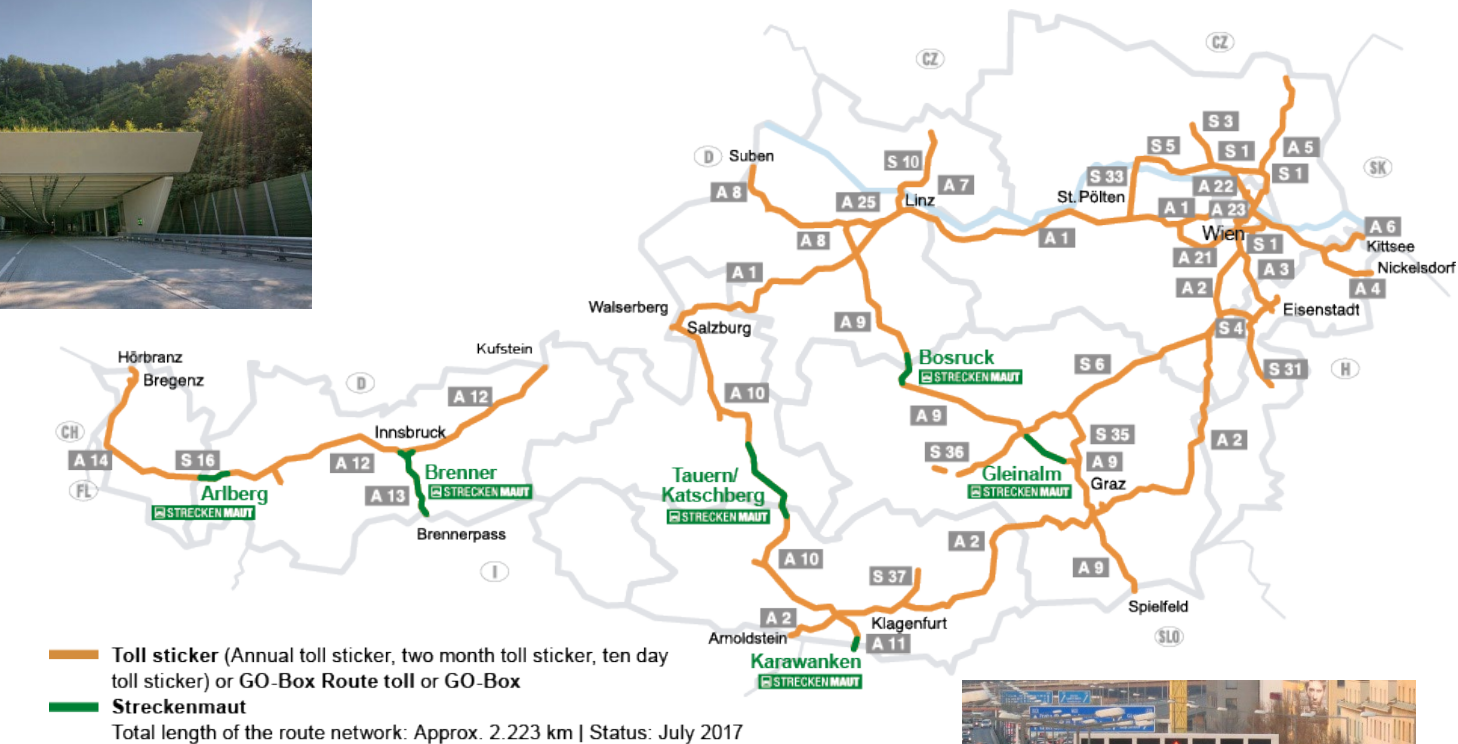
ASECAP Road Safety Event
Cascais
11/03/2025
Bernhard Lautner



A|S|F|i|N|A|G

HAVE A SAFE TRIP, AUSTRIA!

AUSTRIA – 2.250 KM MOTORWAYS IN DIFFERENT AND CHANGING ENVIRONMENT





5.818
Bridges

166
Tunnels

31.7 BILLION
km of total traffic
per year

2,249
kilometres of
road network

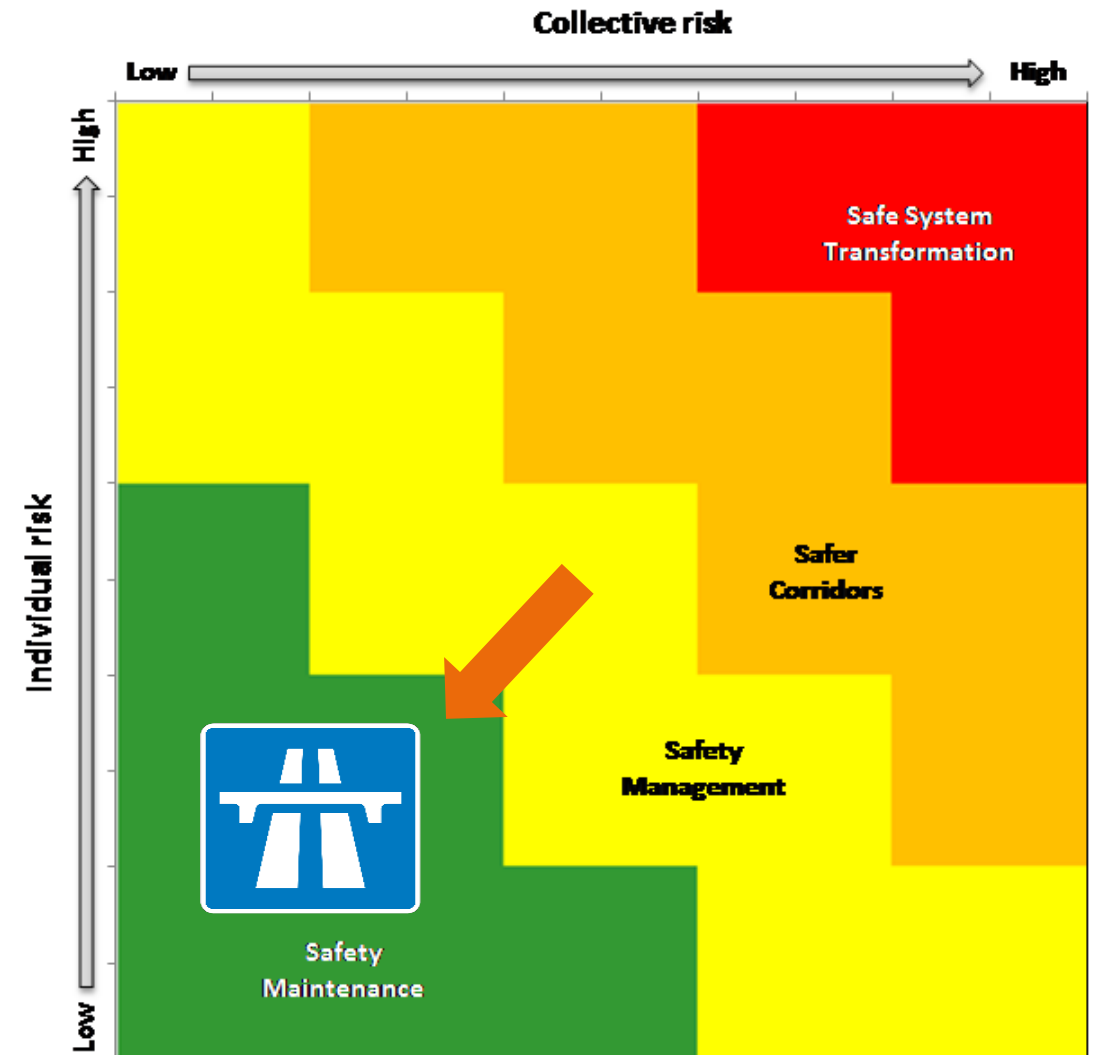
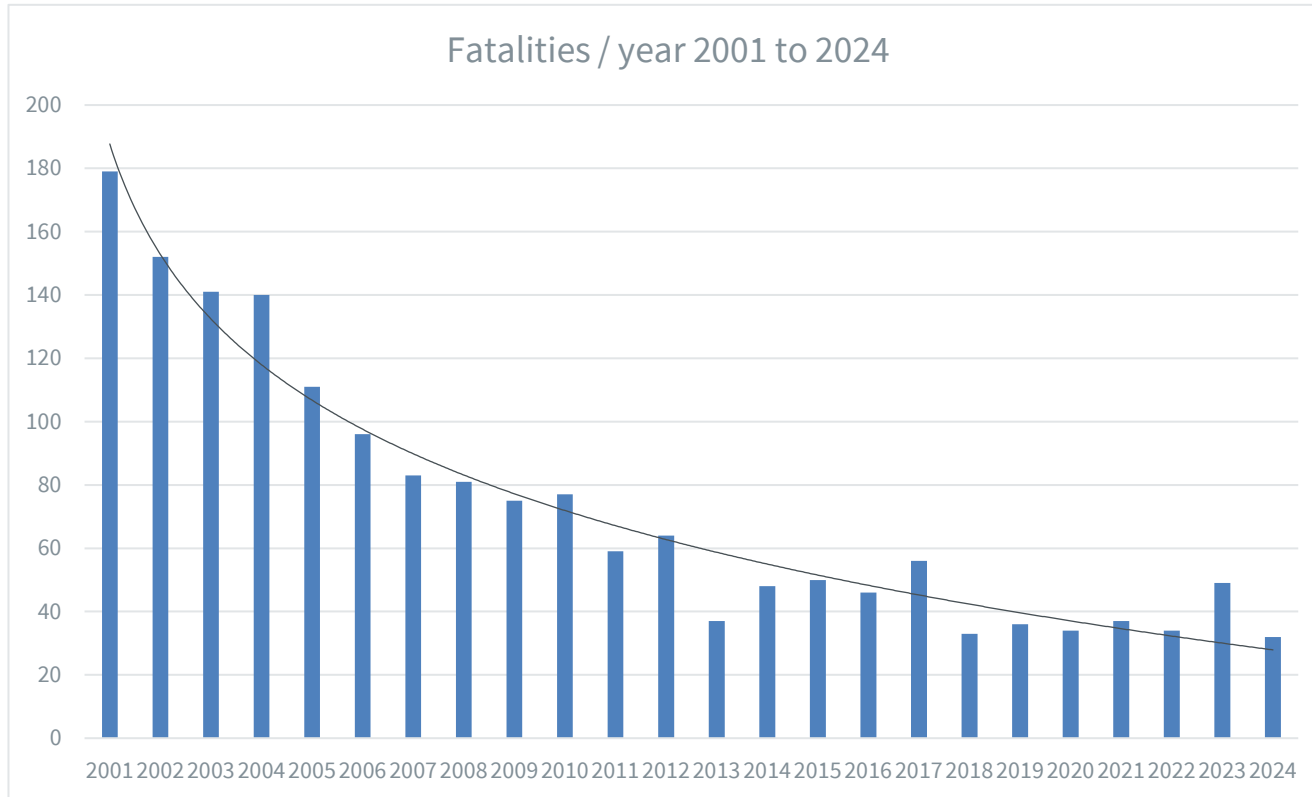
42
Motorway operation
and maintenance
facilities

9
Traffic management
centres

SAFETY DEVELOPMENT - RESULTS

> 20 years of Road Safety Management

Fatalities / year 2001 to 2024



PIARC Road Safety Manual

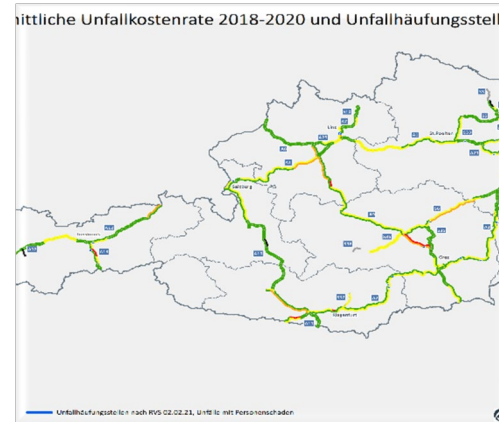
LEVEL OF INTERVENTION

Strategic



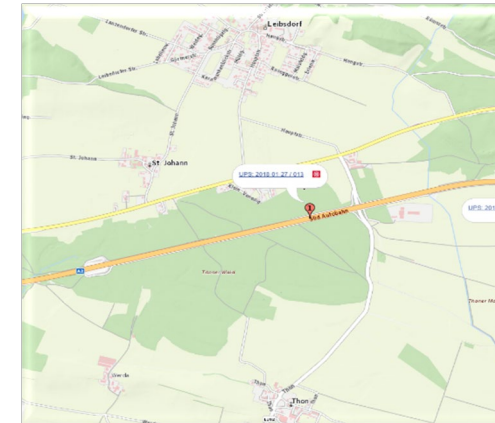
- KPIs
- MbO
- National-
/Company
Programme
Management

Macroscopic



- Network Safety Management
- Network-Investment Programme
- Road Network Safety Assessment

Microscopic



- Road Safety Audit
- Road Safety Inspection
- Black Spot Management

ROAD INFRASTRUCTURE SAFETY MANAGEMENT INSTRUMENTS – HISTORY IN AUSTRIA

BEFORE

2005

RSA - first experience on major projects based on international guidelines
RSI – Development of standardisation on motorways

2005 - 2012

Voluntary usage of RSA on all major motorway projects and about 100 km/year RSI on motorway sections

2012

Obligatory RSA and RSI on TEN network regarding EU Directive 2008/96

2019

Revision of Directive 2008/96 -> 2019/1936 – mandatory on all federal roads in Austria (motorways and expressways)

2022

EC guideline on Road Network Safety Assessment with proactive approach

2023

Joint RSI with Tunnel administration

HISTORICAL STEP IN ACCIDENT DATA REPORTING

On January 1st, 2012, the digital and online traffic accident data management (UDM) was implemented at the Austrian Federal Police and replaced Statistics Austria's traffic accident statistics sheet.

OSTAT - Abt. 4
Straßenverkehrsunfälle
Personenschaden/Sachschaden

Ortliche Zuordnung: 306011, 2534 Alland

Unfall-Datum: 24.02.1999

Unfallzeitpunkt: 06:00

Unfallort: 2534 Alland, 2534 Alland

Unfallortskarte

Kriminalpolizei | SWSPADON/WEH10

Ereignis "Unfall: 08.03.2022 10:00; Türkenstraße 22-22A/Rosau Kaserne, 1090 Wien, AU" bearbeiten

Bestehende Ereignisse: Unfall

Zeit: Am/Von: 08.03.2022, Uhrzeit: 10:00:00

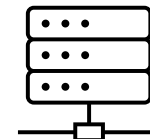
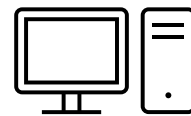
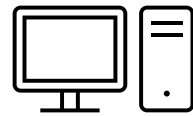
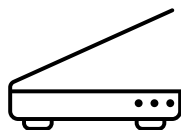
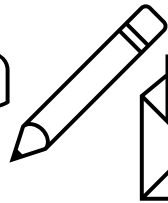
Ort: Bestehende Orte: U-Bahn, Station

Adresssuche: Türkenstraße, 1090 Wien, Aberggrund W

Postleitzahl: 1090, Bezirk: Wien - Aberggrund, Staat: Österreich, A

Map: UMS 2016-01, UMS 2016-12

STATISTIK AUSTRIA
Die Informationsmanager



AUSTRIAN ROAD NETWORK SAFETY ASSESSMENT

SOURCES, DEVELOPMENT AND PRINCIPLES

Information, Experience and guidelines:

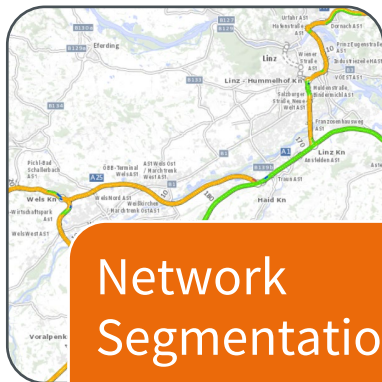
- NSM Austria 2012
- RISM/EGRIS discussions and guideline
- ASECAP in-depth study on the Road Safety Assessment Methodology for Motorways
- PIARC Road Safety Manual
- Road Safety Inspection Handbook
- RVS – Austrian Standards for Road Design
-

Main Principles and guiding acts:

- further **development** of the already implemented Network Safety Ranking (according to (13), whereas Directive 2019/1936)
- **Risk based** and prioritize road segments for follow-up procedures like RSI (road safety inspections) (according to (12), whereas Directive 2019/1936)
- requirements and elements of Art. 5, Directive 2019/1936
 - evaluate accident and **impact severity risk**
 - large number of serious accidents in proportion to the **traffic flow**
 - no fewer than three categories according to their **level of safety**
- Indicative elements in Annex 3 of Directive 2019/1936

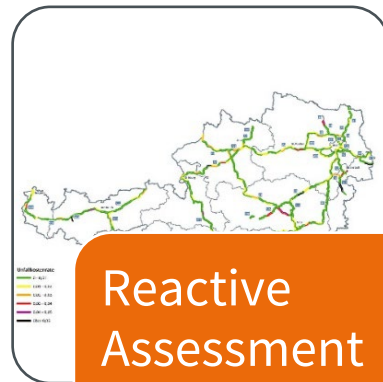
AUSTRIAN NETWORK-WIDE ROAD SAFETY ASSESSMENT APPROACH

STRUCTURE



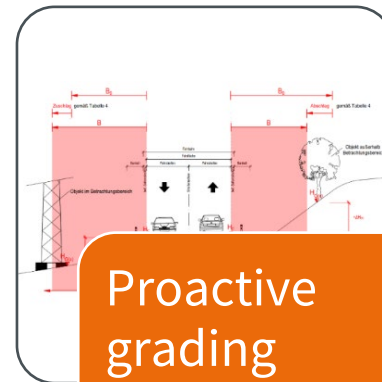
Network Segmentation

- Homogenous sections of in-built characters



Reactive Assessment

- Accident Cost Rates



Proactive grading

- 10 parameters
- Up/downgrade



Priority ranking

- 6 classes of priority

NETWORK SEGMENTATION

Change in in-built parameters:

- 📍 Cross section (number of lanes, carriageway separation, ...)
 - 📍 Longitude grade, radii,..
 - 📍 Speed limits
 - 📍 Traffic Volumes
-
- 📍 Intersections and network nodes, tunnels
 - 📍 Minimum length: 3 km
 - 📍 Target length of segments average 10km
- > 431 segments



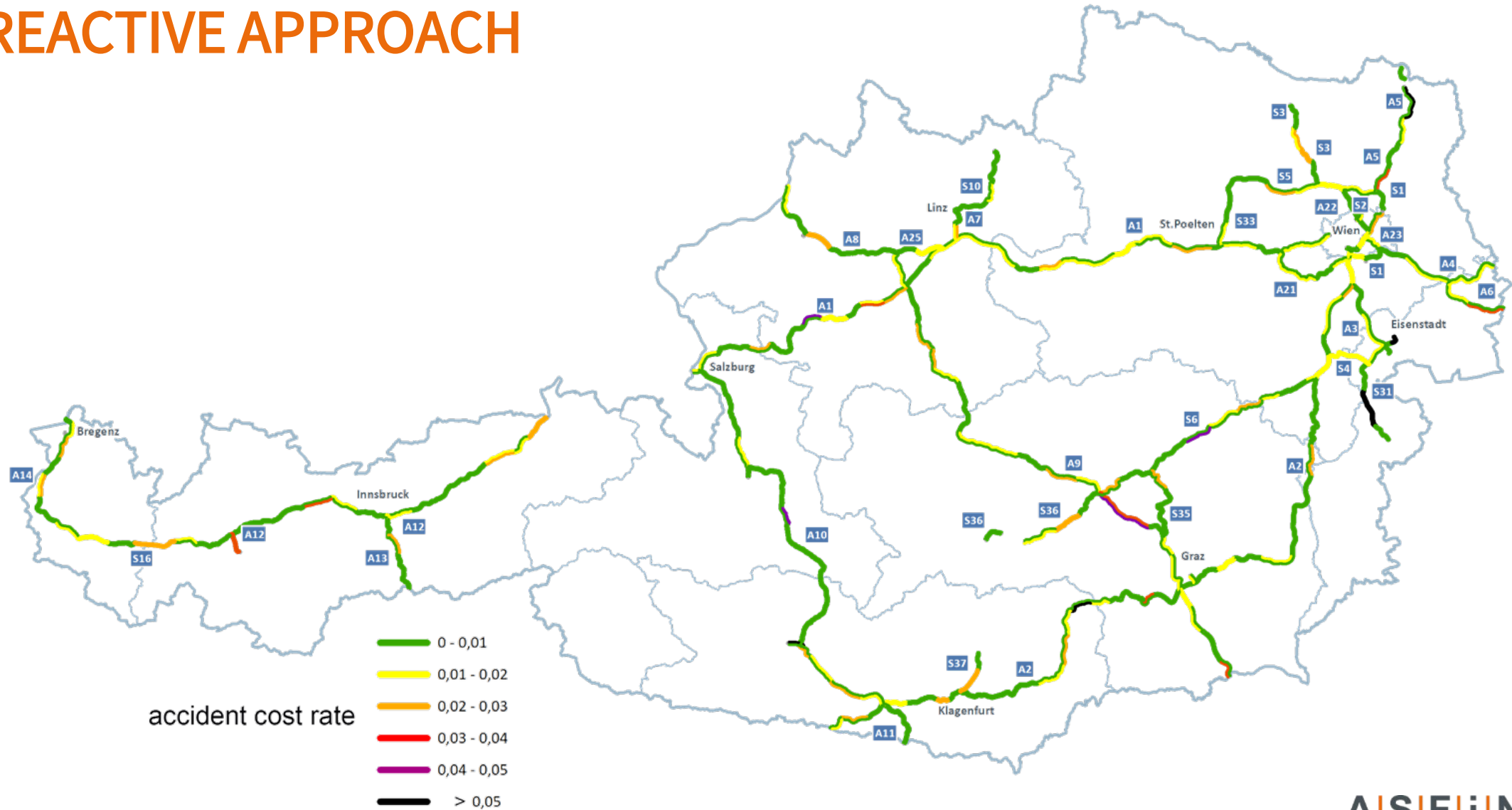
REACTIVE APPROACH -> ACCIDENT COST RATES

Decision: Remaining use of accident cost rates for homogenous segments with slight improvements in segmentations

- 📍 existing high quality accident data and traffic volumes
- 📍 accident costs are determined in a public funded project every 5 years published:
<https://www.bmk.gv.at/themen/verkehr/strasse/verkehrssicherheit/unfaelle/ukr2017.html>
- 📍 accident costs determine accident and severity risks
- 📍 accident cost calculation enables evaluation of traffic safety measures in the comparison of costs (of the measure) and benefits (reduced accident costs).

ROAD NETWORK SAFETY ASSESSMENT 2022

REACTIVE APPROACH

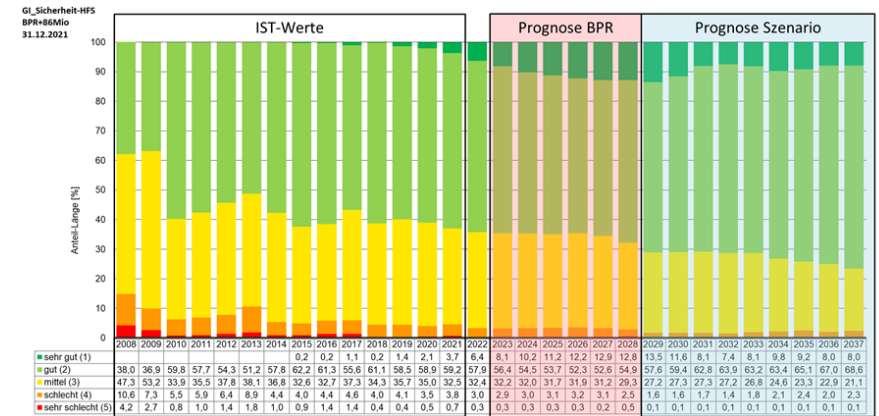


ROAD NETWORK SAFETY ASSESSMENT 2022

PROACTIVE GRADING

proposed 10 elements of the proactive Network-wide Road Safety Assessment:

1. Condition of the road surface/pavement (skid resistance and rutting, “Gebrauchswert Sicherheit”)
2. Accordance of minimum curve radius and maximum longitudinal gradient (slope) regarding national technical requirements.
3. Minimum width of the first road lane.
4. Density of junctions or entrances and exits (< 1500 m threshold value).
5. Presence of central separation/reserve.



6.2 Ermittlung

Die Projektierungsgeschwindigkeit V_p ist aufgrund der angegebenen Zusammenhänge zwischen Bogenradius (R) und Geschwindigkeit gemäß Abbildung 3 sowie zwischen Geradenlängen und Geschwindigkeit gemäß Tabelle 2 bzw. Tabelle 3 zu ermitteln.

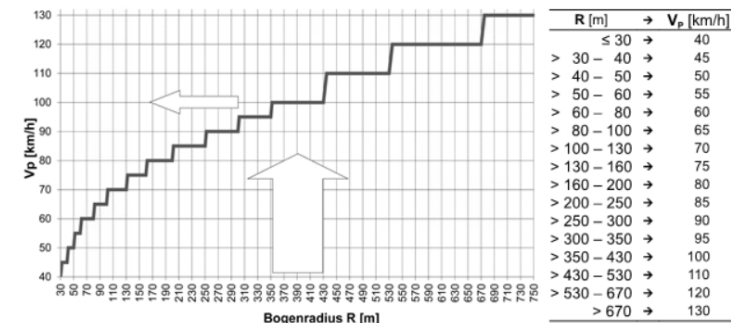


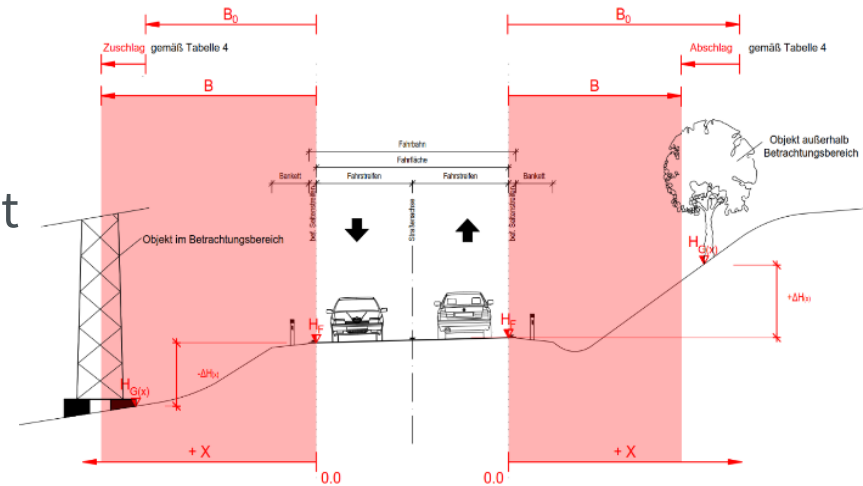
Abbildung 3: Projektierungsgeschwindigkeit V_p in Abhängigkeit vom Bogenradius R

ROAD NETWORK SAFETY ASSESSMENT 2022

PROACTIVE GRADING

6. Heavy **obstacles** on the road side regarding distance and road restraint systems.

- Regarding speed limit
- FRS = Full Restraint Systems -> +0



	0	+1	+2
130 km/h	≥12m bzw. FRS	12-8,5m bzw. teilw. FRS	<8,5m
100 km/h	≥8,5m bzw. FRS	8,5-6m bzw. teilw. FRS	<6m
80 km/h	≥6m bzw. FRS	6-3,5m bzw. teilw. FRS	<3,5m



Example of downgrading <12.5m



Example of double downgrading <8.5m

ROAD NETWORK SAFETY ASSESSMENT 2022

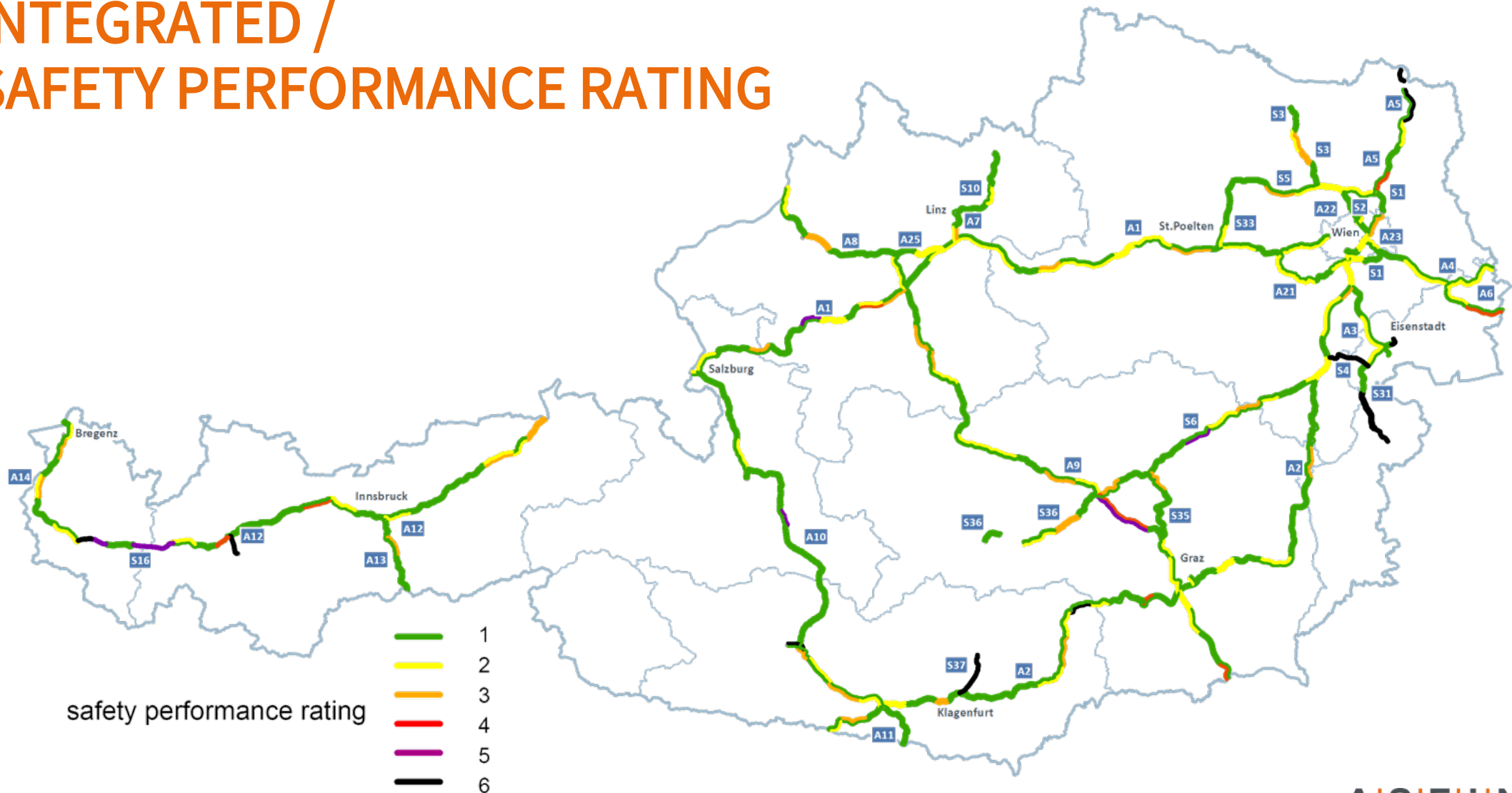
PROACTIVE GRADING

7. Presence and width of **breakdown lanes** <math>< 2.5\text{m}</math>.
8. **Capacity** of the road section
9. Presence of an **operational monitoring** (24/7)
10. Presence of **ITS and speed monitoring** (Section Control, Traffic Control System).



ROAD NETWORK SAFETY ASSESSMENT 2022

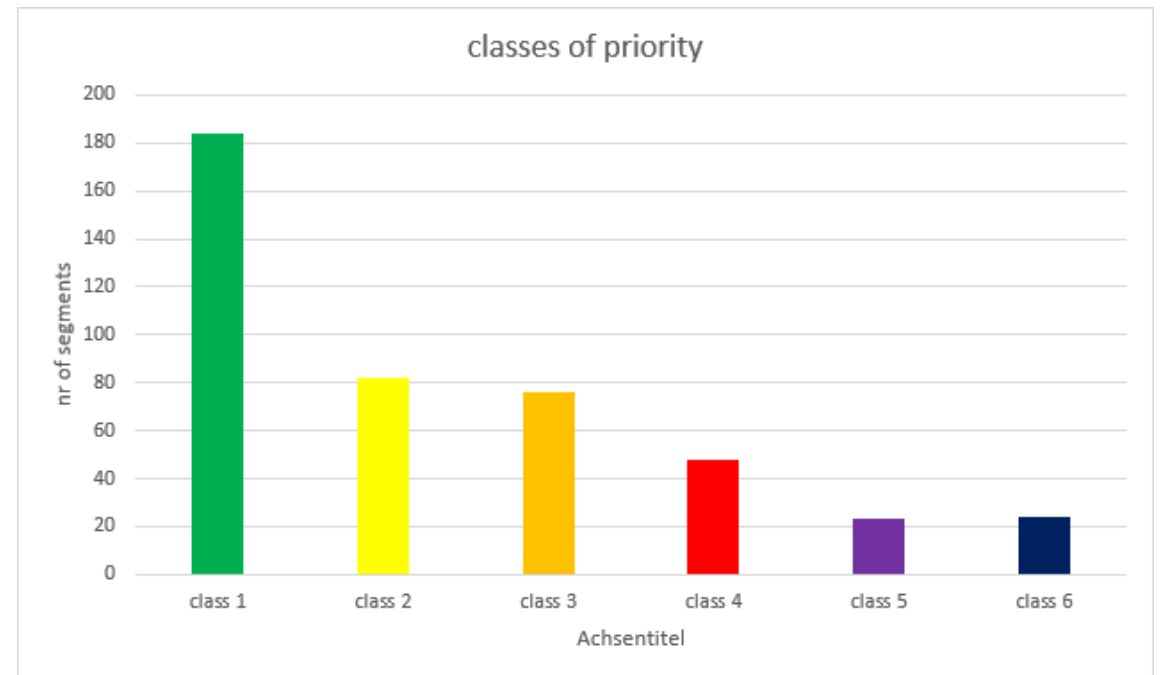
INTEGRATED / SAFETY PERFORMANCE RATING



PRIORITY RANKING

6 classes of „priority“

- 📍 Class 1 – best class, lowest priority
- 📍
- 📍 Class 6 – highest priority and potential for risk reduction



CONCLUSION

AUSTRIAN METHODOLOGY ON NETWORK SAFETY ASSESSMENT

- ✓ In progress with existing instruments and framework
- ✓ Efficient in costs and time
- ✓ In accordance with EU Directive
- ✓ Integrated in Road operation (management) and Austrian regulatory

Ready to run!

ANY QUESTIONS?
WE ARE THERE FOR YOU!

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asfinag.at



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