

# Development of brine spreading in Vienna

Dr. Peter NUTZ

**Stadt  
Wien**



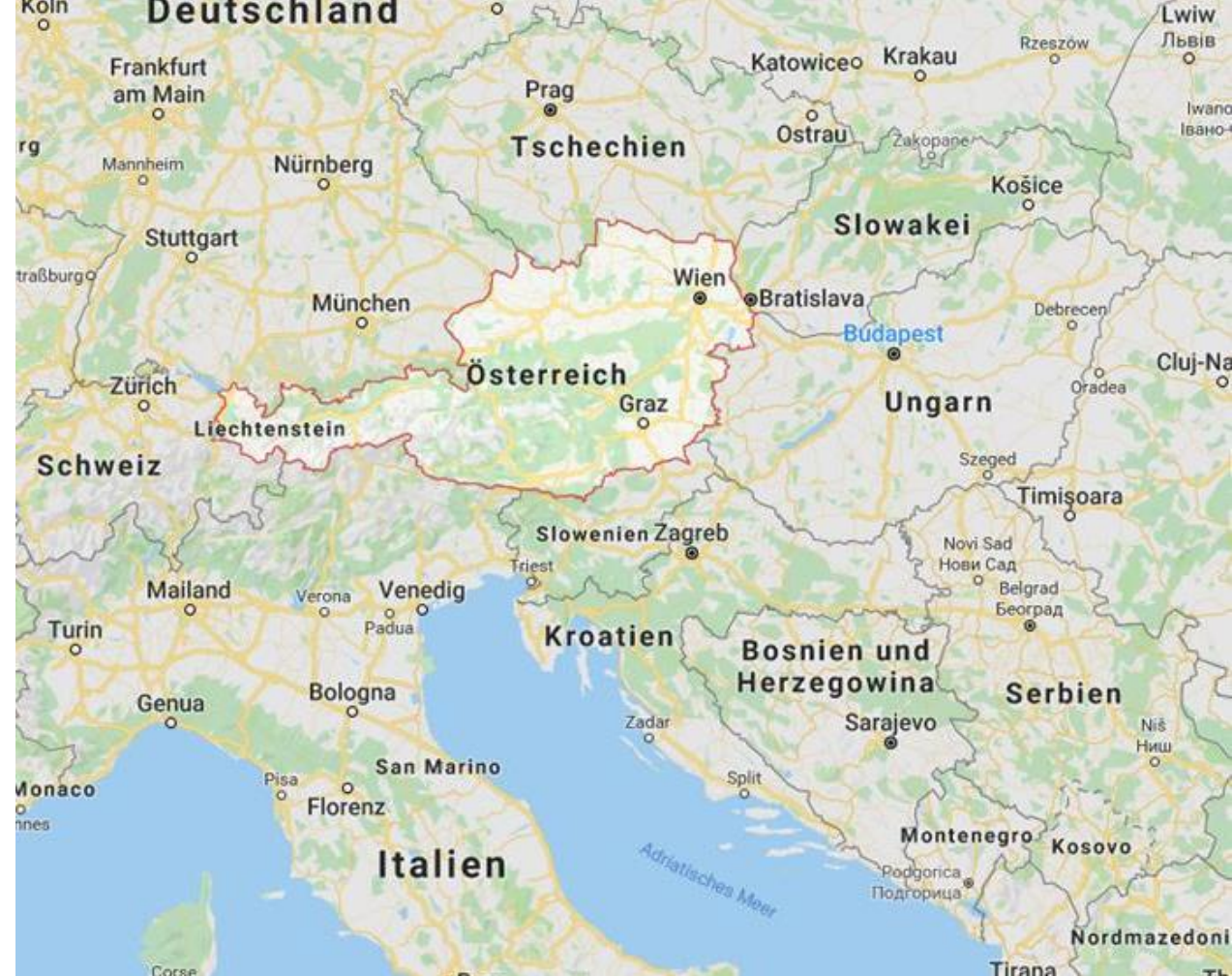
Abfallwirtschaft,  
Straßenreinigung  
und Fuhrpark



## Facts about Vienna

## City of Vienna

Population (01.10.2023)	2,002,821
Altitude	151–542 m above sea level
Area	414,87 km <sup>2</sup>
Annual snowfall	1 cm – 229 cm (Ø 68 cm)
Temperatures	Around 0°C (January)



## Facts about winter maintenance in Vienna

### Resources MA 48

Winter maintenance staff	Around 1,400 employees
Vehicles (company and private)	280 trucks or utility vehicles
Area under management	24 Mio. m <sup>2</sup>
Managed road network	2,800 km
Pedestrian crossings	Around 24,000
Salt storage capacity	56,900 tonnes of salt and 1.9 million litres of brine



Wet salt spreading - brine spreading  
Terms

## Dry salt spreading

Dry salt is spread via the spreader disc

**No longer state of the art!!**



## Wet salt spreading - brine spreading Terms

### Wet salt spreading

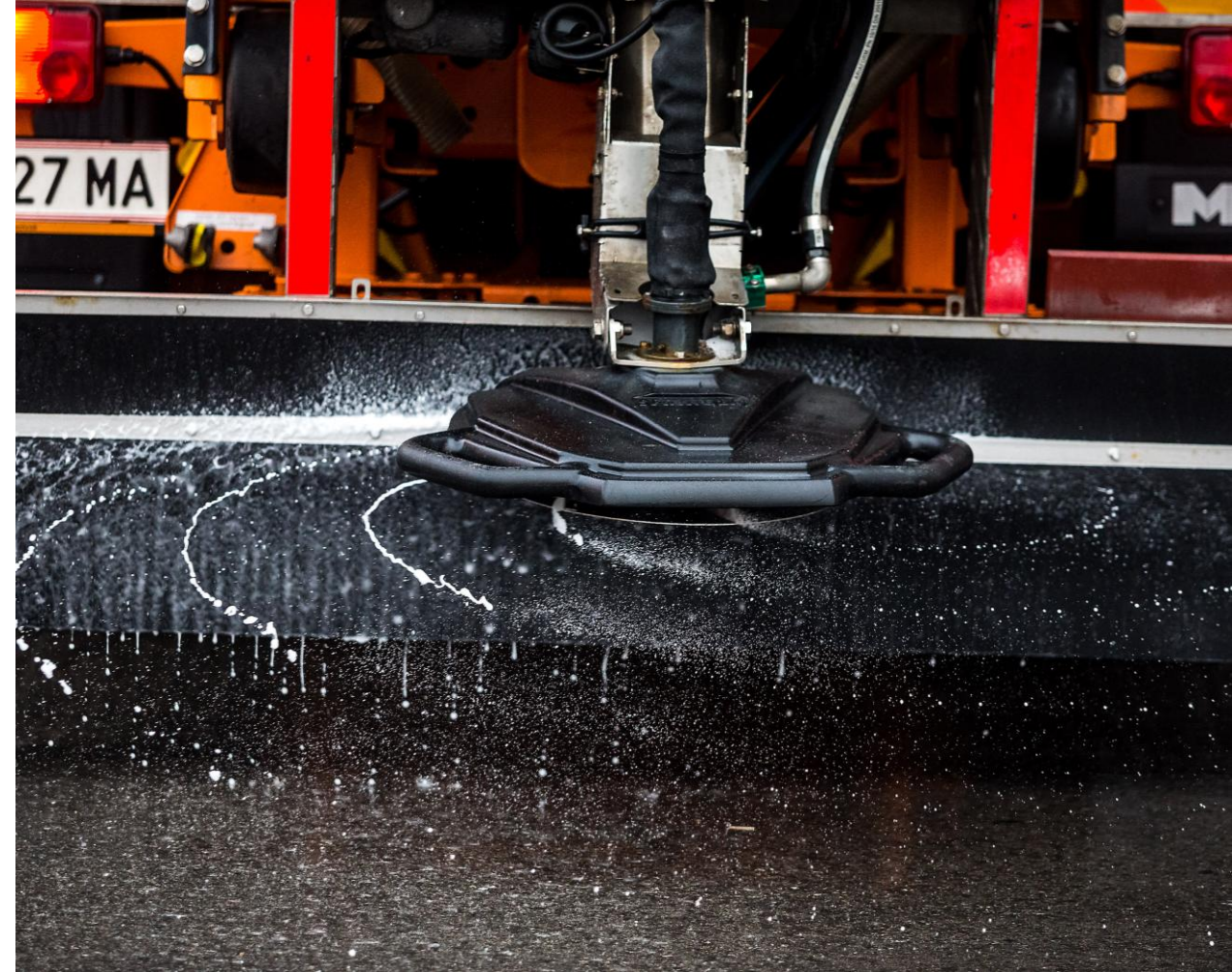
Dry salt is moistened with brine at the spreading disc

Standard FS30 = 70% salt, 30% brine

New FS50 = 50% salt, 50% brine

New FS100 = 0% salt, 100% brine

**Lower losses = Less salt for the same effect**



Wet salt spreading - brine spreading  
Terms

## Brine spreading

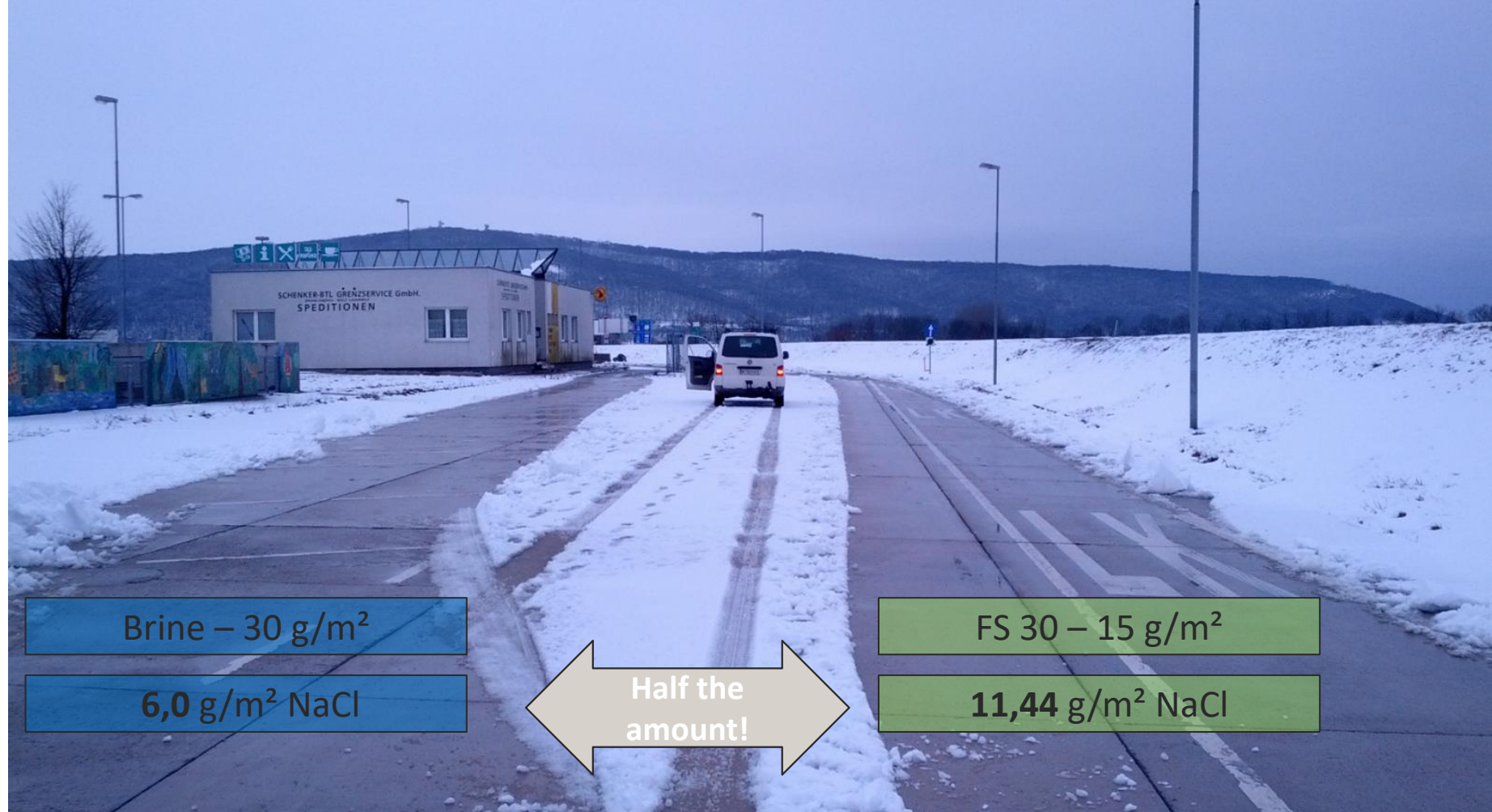
Immediate coverage, no losses, the most economical method

Definitely use it for preventive spreading!!



# Salt spreading Effect

Same effect with half the  
salt!



# Spread rates

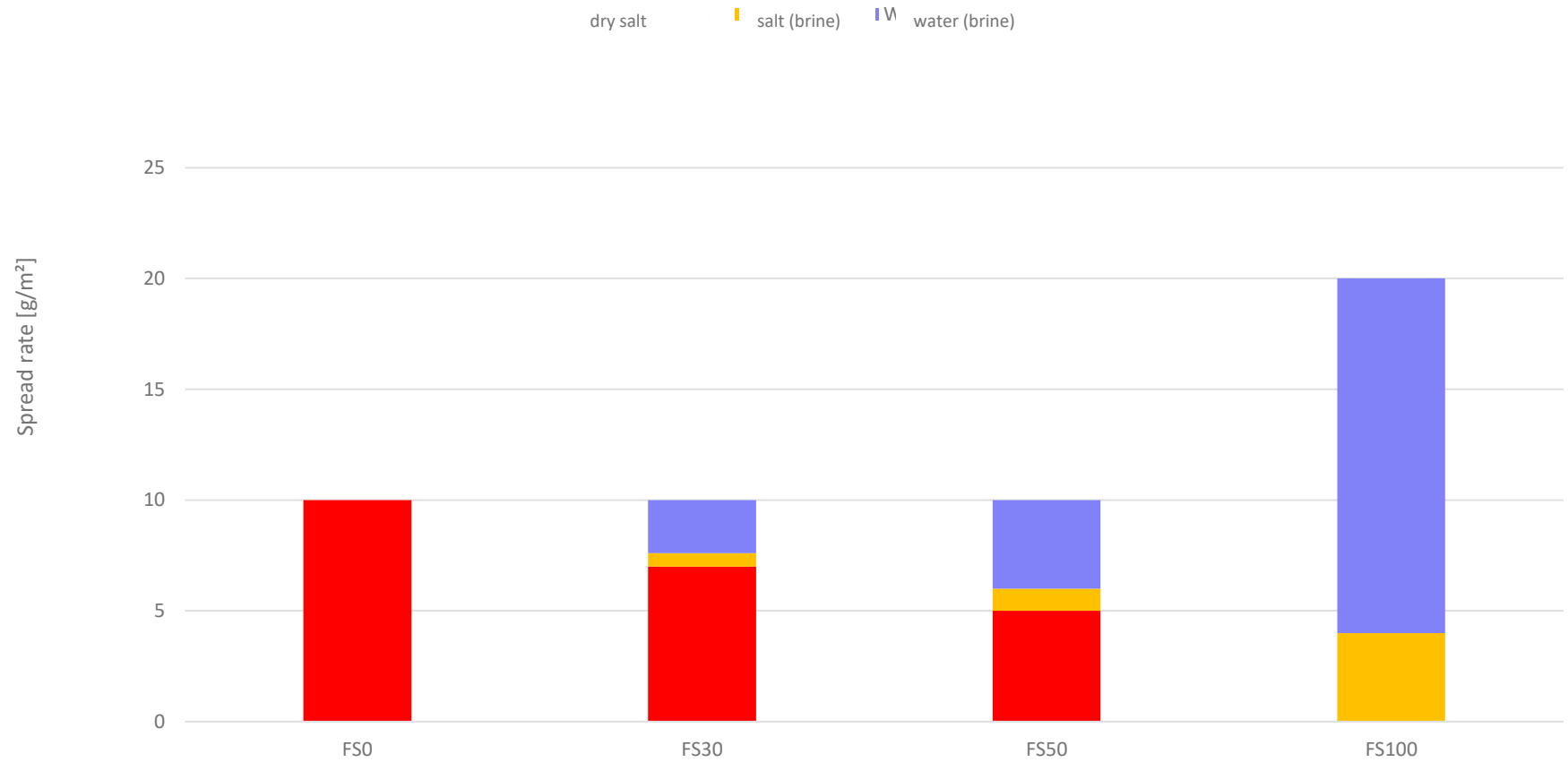
Reduction through technology

Set spread rate

And effective NaCl

FS 0	10g/m <sup>2</sup>	→	10g/m <sup>2</sup>
FS 30	10g/m <sup>2</sup>	→	7,5g/m <sup>2</sup>
FS 50	10g/m <sup>2</sup>	→	6g/m <sup>2</sup>
FS 100	20g/m <sup>2</sup>	→	4g/m <sup>2</sup>

### Typical quantities of spreading material



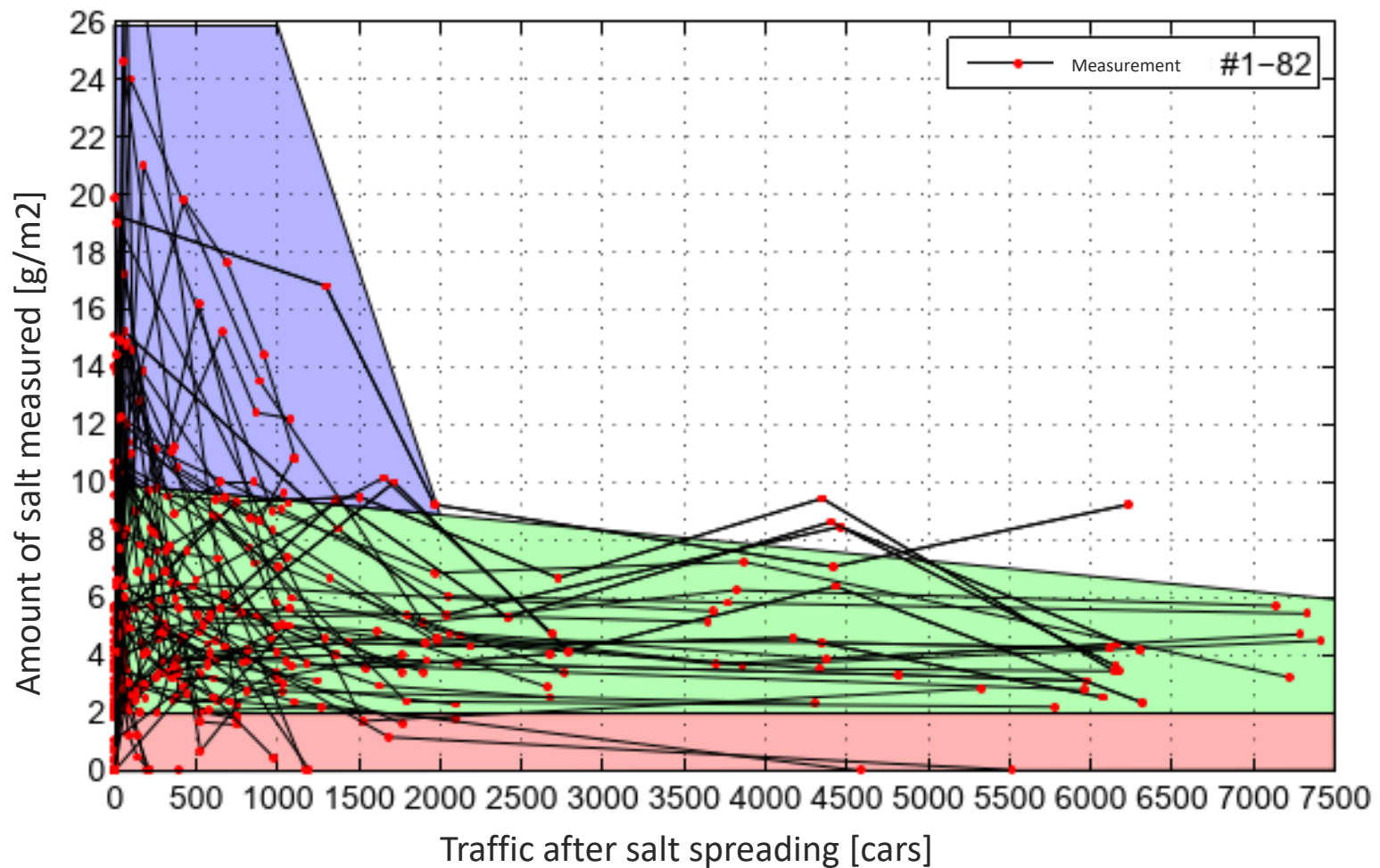
# How long salt remains on the ground

## Basics of physics

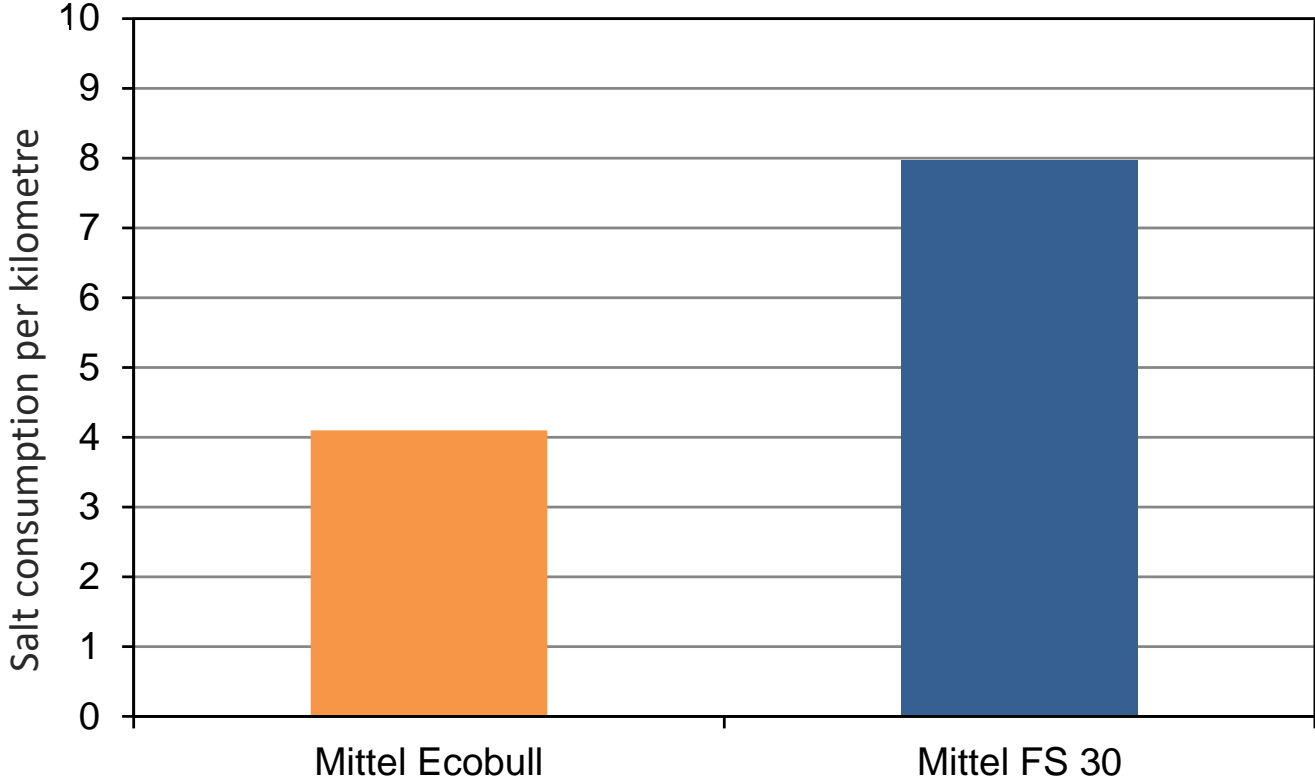
Wind and turbulence carry salt to the edges

Traffic carries salt to the edges (similar to grit, but more slowly)

Rain washes salt into the road drainage system

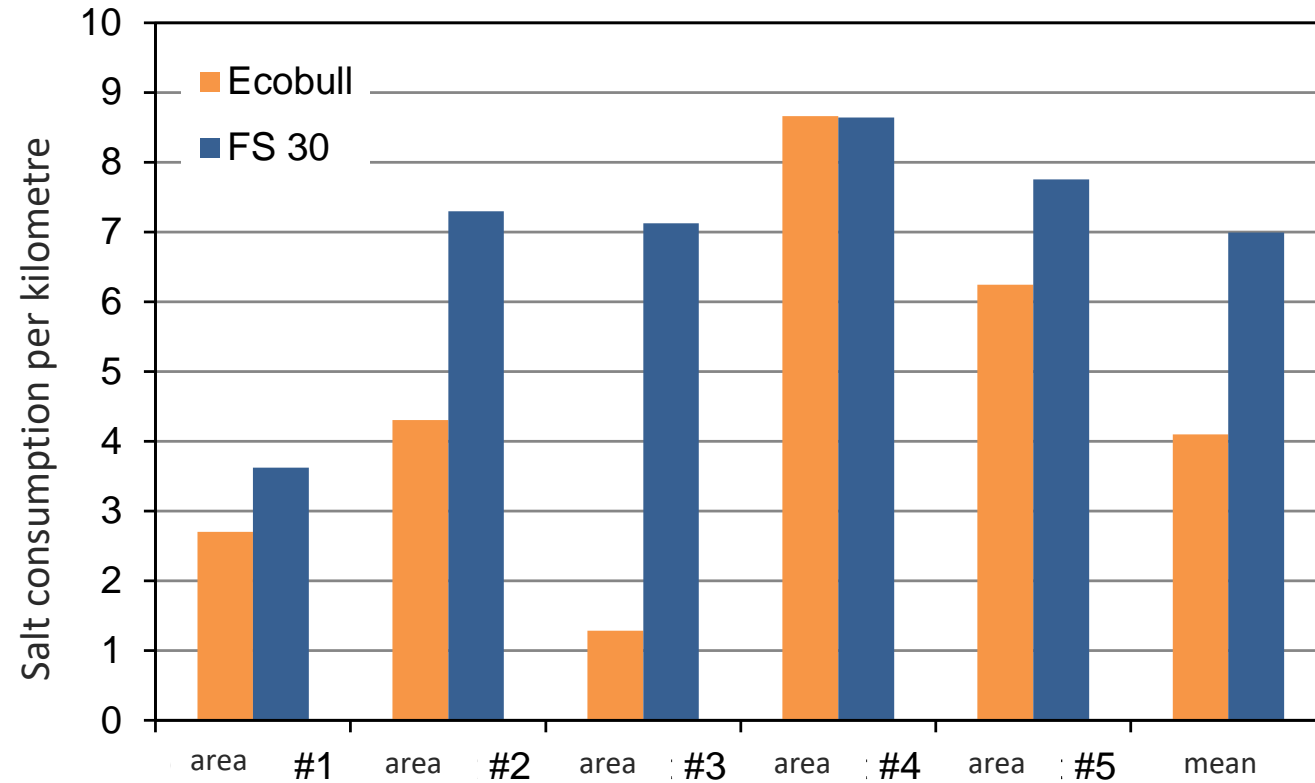


Results of the test in the 2013/14 winter season I



**Significantly reduced salt consumption is possible when using combination spreaders compared to conventional FS 30 spreading**

## Results of the test in the 2013/14 winter season II

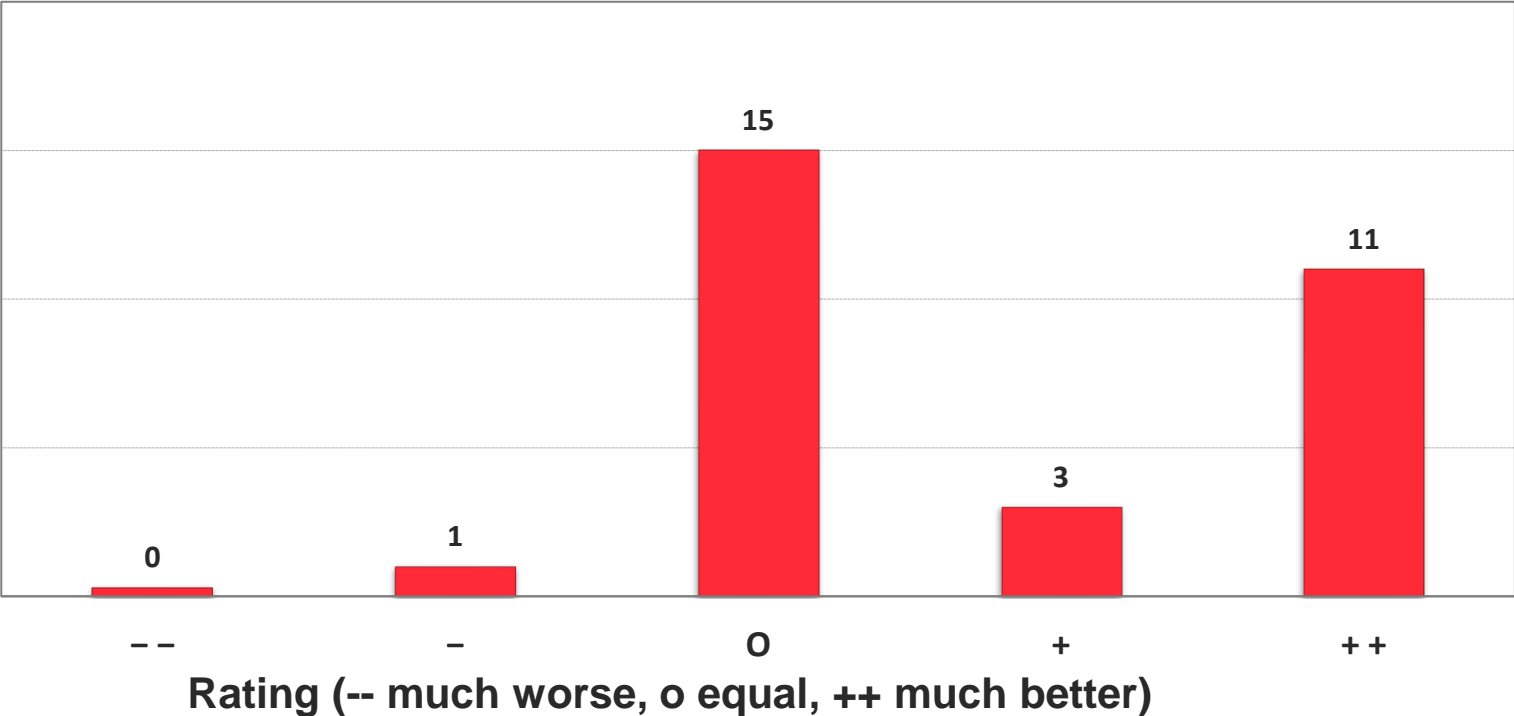


**There are very significant differences between drivers**

**Driver training is essential for a successful rollout!**

Results of the test in the 2013/14 winter season II

FS 100 vs. FS 30



A-Plans  
Brine and wet salt

Important roads

68 A-plans

Maintained by trucks

e.g.:

5,000 litres of brine

3.0 m<sup>3</sup> of salt



## K-Plans

12 to 24 hours circulation time

Roads with low importance  
for traffic

127 K-plans

Maintained by utility vehicles  
(up to 9.5 tonnes)

e.g.:

1,400 litres of brine

0.8 m<sup>3</sup> of salt



## R-Plans Cycle path maintenance

A designated winter maintenance network of cycle paths covering approx. 275 km

17 R-plans

Maintained by the street cleaning department, in the same way as the roads with low importance for traffic



## Double-blade plough

### Advantages

- Excellent clearing performance
- Compensates for uneven road surfaces
- High visibility





PRIORIT



**WIENER SNOWBOARD**

## Automatic brine mixing systems

Fully automatic brine mixing systems at the winter maintenance depots

Total storage capacity of approx. 1.9 mio. litres; maximum mixing rates of 16,000 litres per hour

Several filling stations per brine mixing system



# Use of brine spreading in Vienna in 2014

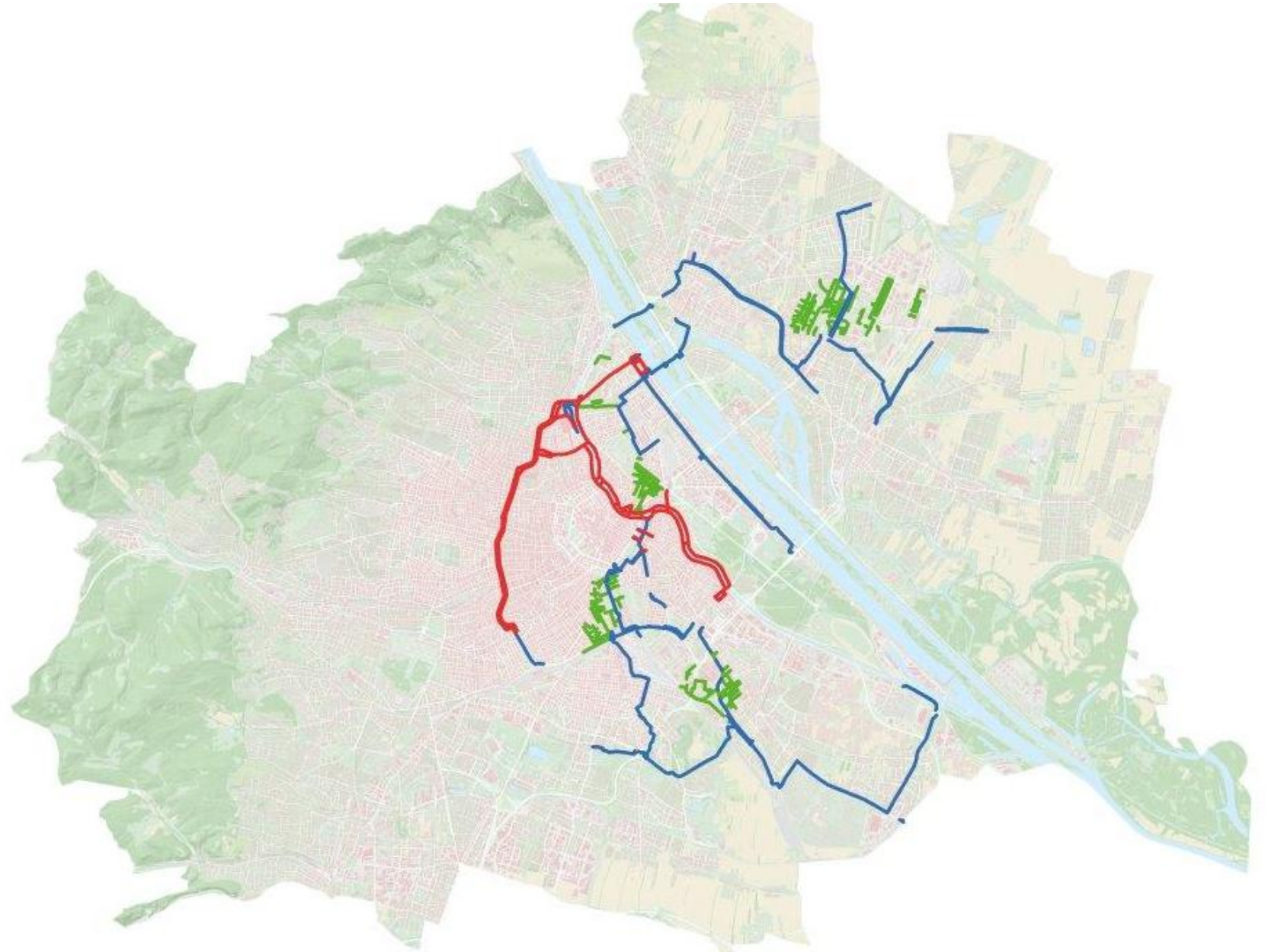
 Trucks



 Small vehicles



 Cycle paths



# Use of brine spreading in Vienna in 2018

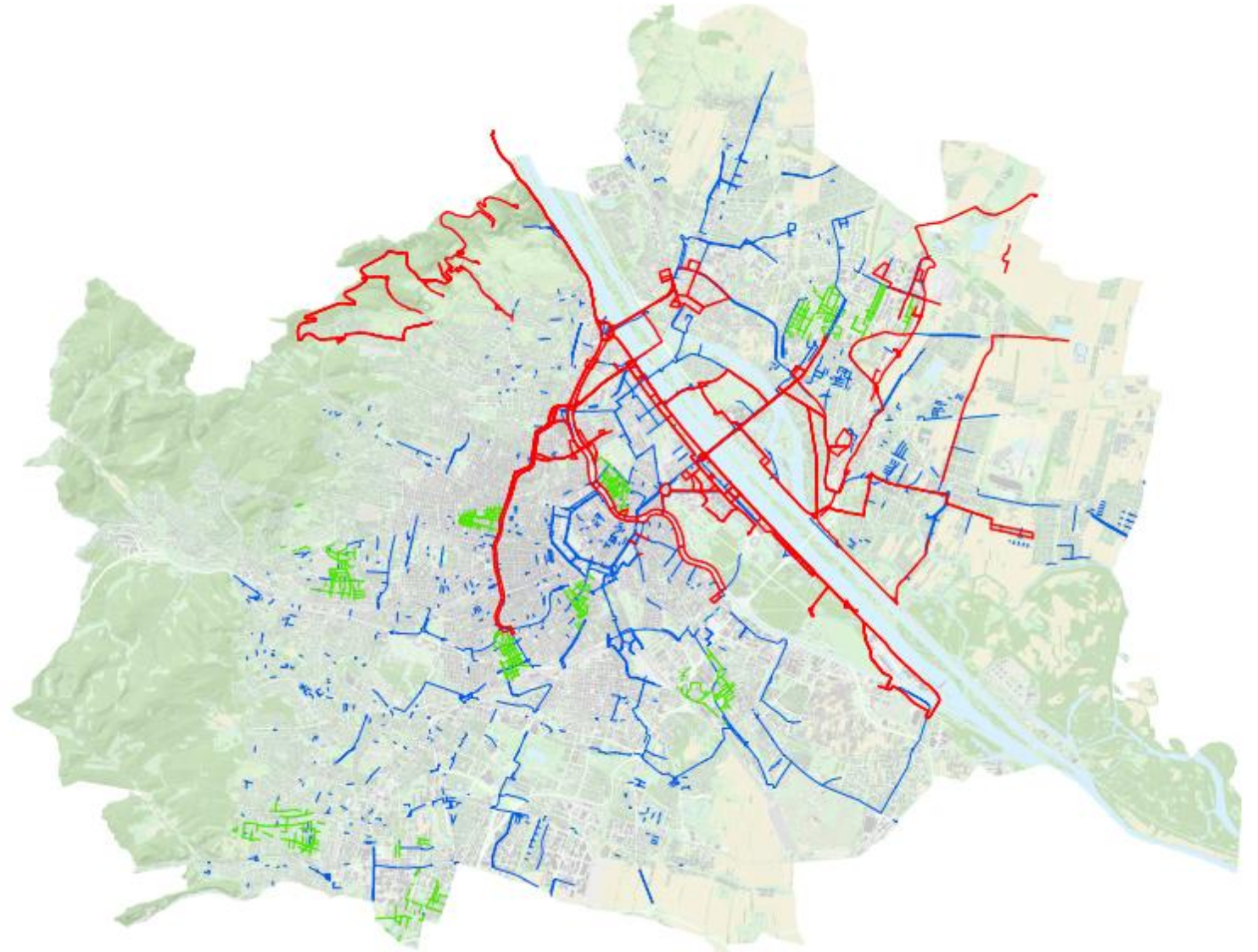
 Trucks



 Small vehicles



 Cycle paths



# Use of brine spreading in Vienna in 2025

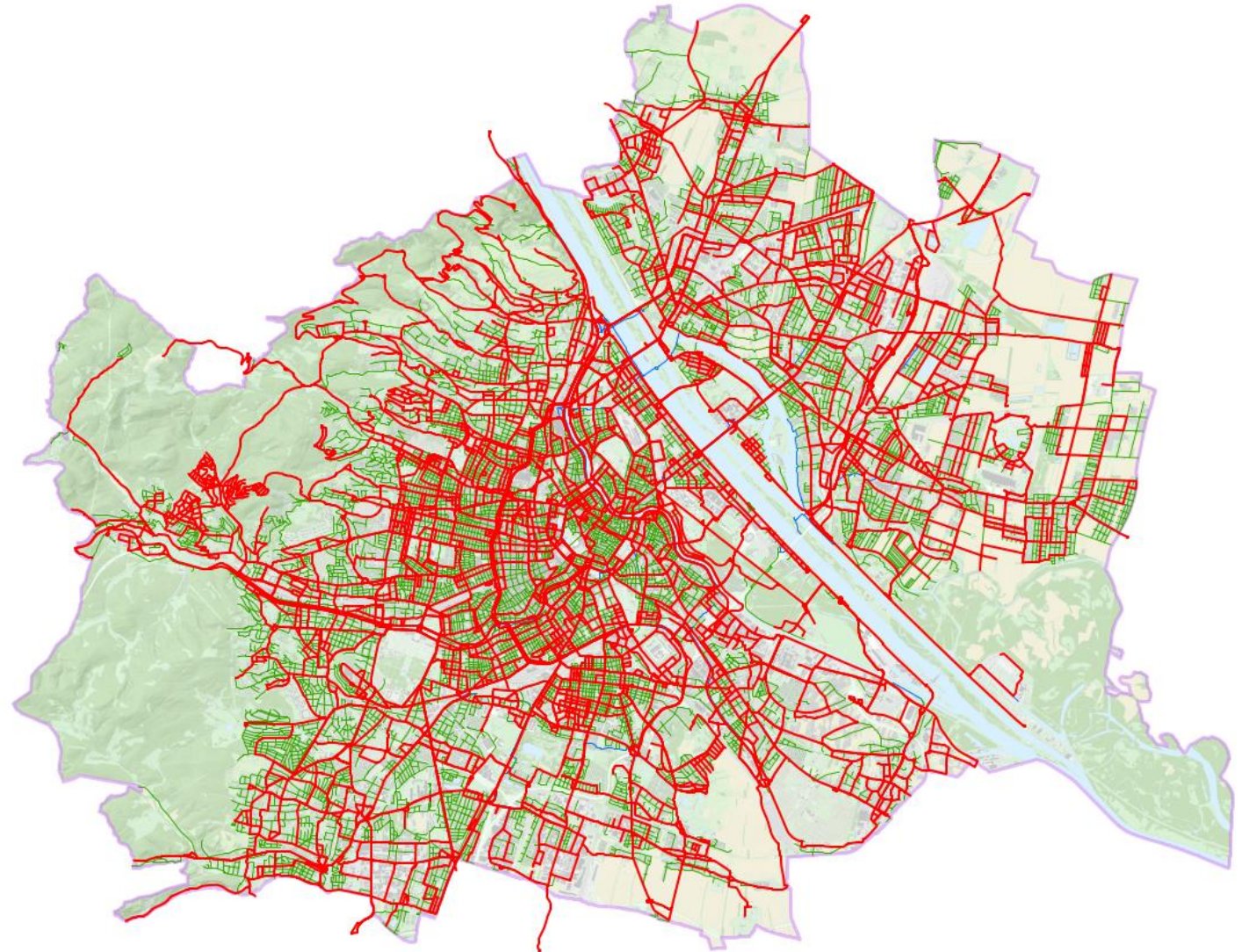
**Trucks**



**Small vehicles**



**Cycle paths**





Thank you!

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