



CONFERENCIA INTERNACIONAL
SOBRE
VIALIDAD INVERNAL

Del 27 al 30 de junio de 2017

Mendoza - Argentina

WINTER MAINTENANCE IN VIENNA

Peter NUTZ, Ph.D. – Winter maintenance service manager

www.vialidadinvernal.org.ar

ORGANIZAN



Winter maintenance responsibilities

- **Municipal department 48 (MA 48)**
Waste Management, Street Cleaning and Vehicle Fleet
 - Public roads and bicycle lanes
 - Tender concerning winter maintenance on pavements in responsibility of the City of Vienna
- **ASFINAG (Highway operator)**
 - Highways
- **Wiener Linien (public transport)**
 - Public stops of bus, tram, train
- **Adjoining owner**
 - Pavement in front of property line

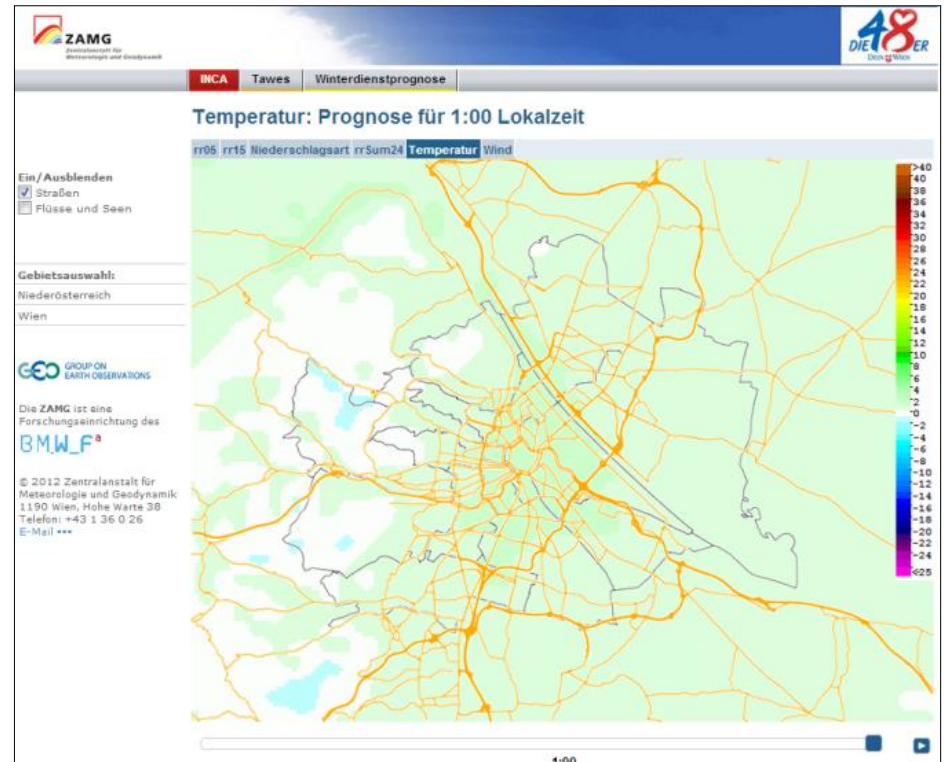


Facts about WM in Vienna

Staff in winter maintenance	around 1,400 people
Vehicles (own and hired)	352 Trucks or multi-equipment carrier
Serviced traffic area	23 Mio. m ²
Serviced road network	2,800 km
Pedestrian crossings	around 24,000
Parking places for handicapped (voluntarily)	around 2,600
Pavement serviced by MA 48, combined pedestrian/cycling areas and markets	Around 610 km
Winter maintenance service depots	15
Salt silos	37
Salt storage capacity	55,000 tons of salt 960,000 litres of brine

Weather forecast

- **Meteorological services**
 - ZAMG (public service)
 - MeteoServe (Vienna airport)
- **Other weather information**
 - Weather radar
 - 11 RWIS Stations
 - Surveillance by staff



Challenges in urban areas

- **Many different responsibilities**
 - **Winter maintenance on around 6,000 lane kilometers considering**
 - one-way
 - Dead end roads
 - Turning relations
 - Very narrow roads
 - Parked cars blocking roads
 - **Compliance with given service intervals**
 - **Preferably few overlapping routes**
- Route creation using GIS applications

Winter maintenance categories I

- **A-Routes 0-24h (service interval max. 5 hours)**
Inner-city main roads, access roads, roads with bus lines / trams, roads to access public hospitals and fire stations
 - 70 A-Routes
 - Serviced by own trucks (1 per route)

- **B-Routes 0-24h (service interval max. 12 hours)**
Roads with minor traffic importance, feeder roads in residential and commercial areas, mountain roads
 - 95 B-Routes
 - Serviced by own trucks or hired trucks
(Regularly one MA 48 Truck services one A-Route and one or two B-Routes. In heavy winter weather hired trucks service B-Routes and MA48 trucks only service A-Routes)



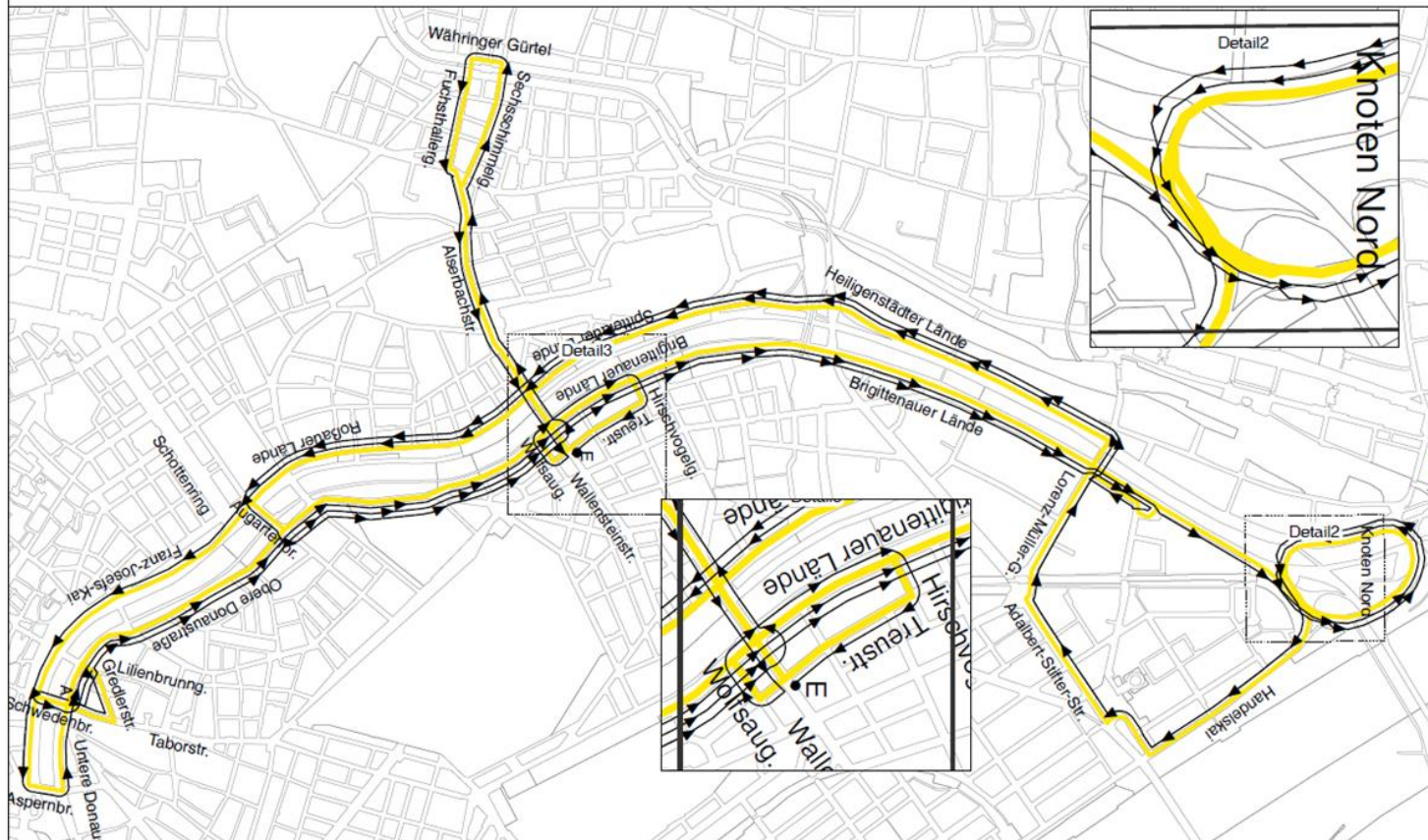
Example „A-Route“

Planung und Winterdienst / lanm481st

MA 48 - WINTERDIENST A - PLAN NR. 0067

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Garage	20. Leystraße 87	Tel.: 488 04 48 401	Fahrzeug	5296 - 48	Legende	A-Plan	Linkspflügen	Lagerplätze MA 48
Lagerplatz	19. Grinzinger Straße 151	Tel.: 318 67 87/11	Räumbreite	2,7		C-Plan	Leehrfahrt	
Lagerplatz	2. Dresdner Straße 119	Tel.: 216 33 92/11				Salzstreuverbot		
Zugeteilte B-Pläne	2021 2022 --							



Winter maintenance categories II

- **K-Routes (service interval max. 12 hours)**

Roads with minor traffic importance, rural character

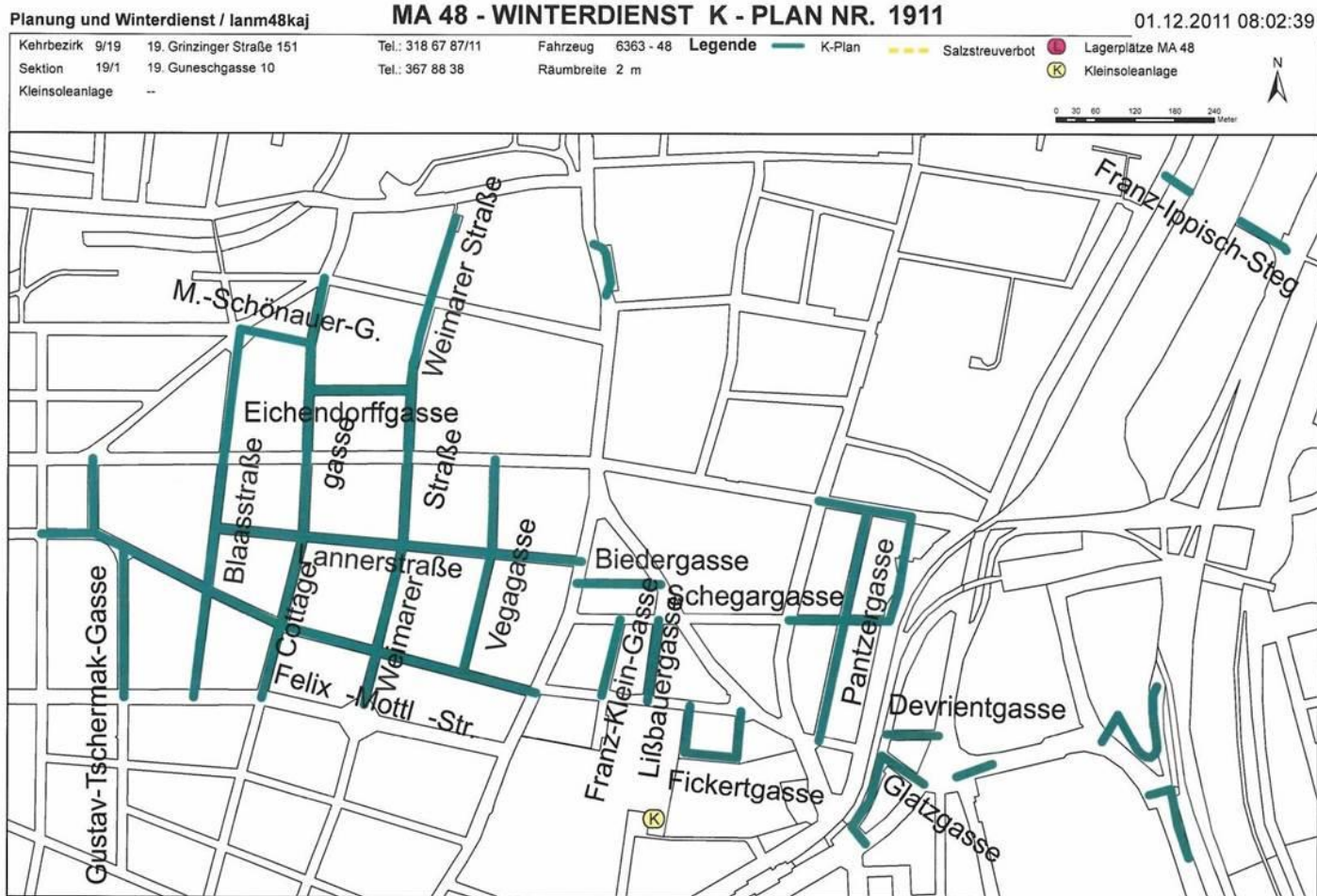
- 180 K-Routes

- Serviced with multi-equipment carrier (up to 9.5t)





Example „K-Route“



Winter maintenance categories III

■ R-Routes

Winter maintenance on defines bicycle lane network of around 277 km

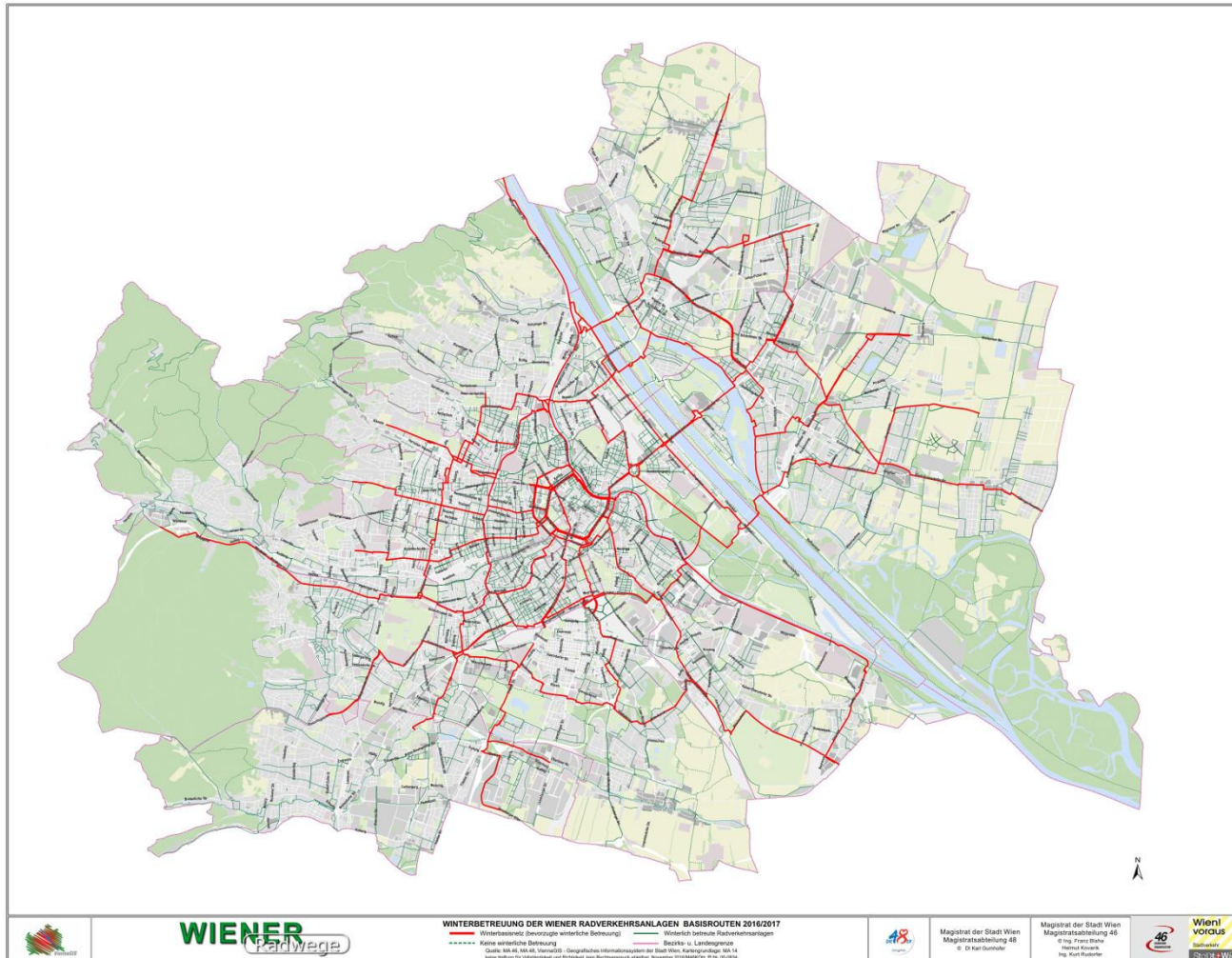
- In total 37 R-Routes
- Acquisition of 6 small tractors with brine trailers
- 13 semi mobile brine mixing plants with 1.200l capacity each



Winter Maintenance on bicycle lanes



Winter cycling network in Vienna



Use of brine spreaders in Vienna

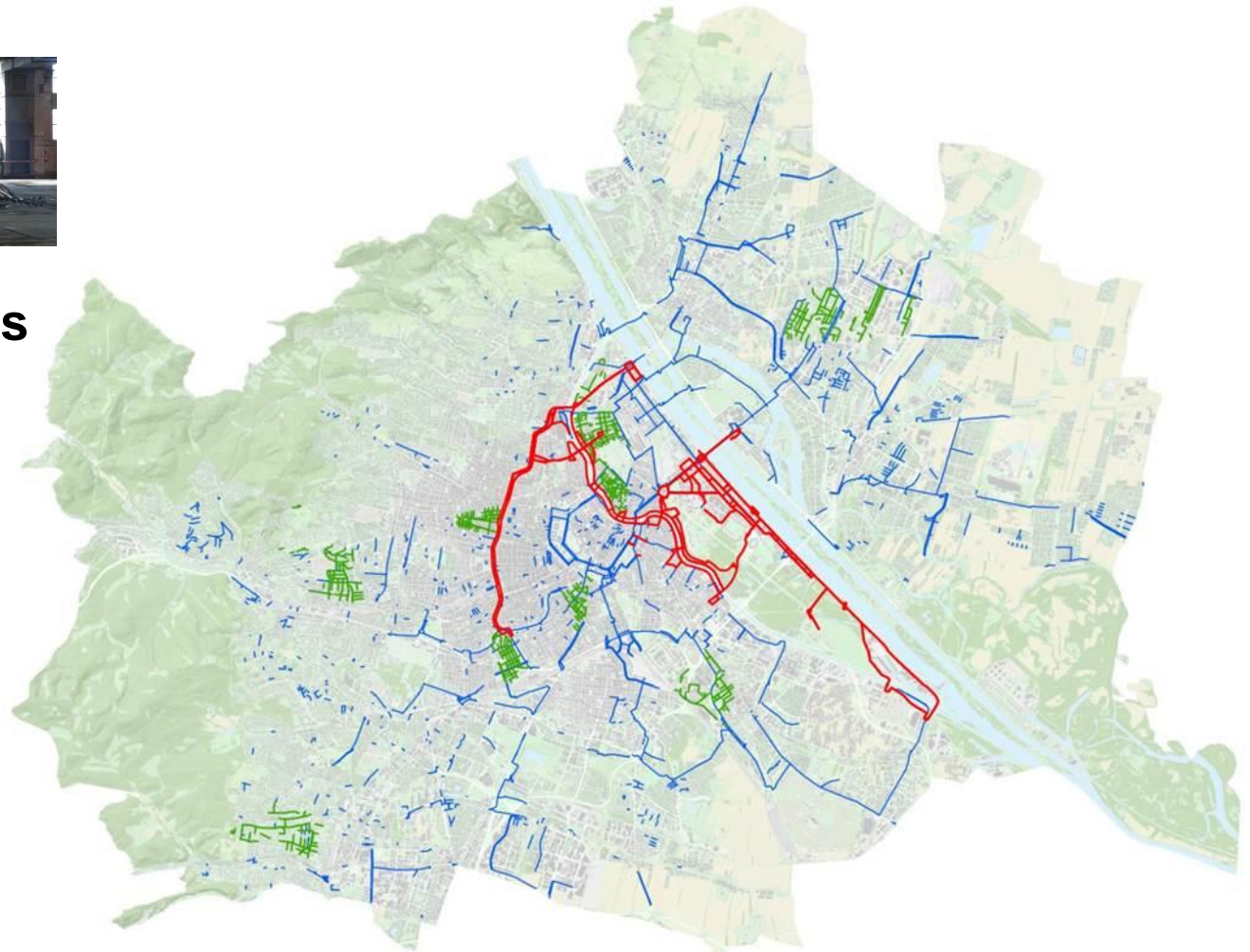
Trucks



Small vehicles



Bicycle lanes



Combined Spreaders (pre-wetted salt and brine) on trucks



Combined Spreaders (pre-wetted salt and brine) on trucks

- Brine capacity 2,800 l
- Salt capacity 2.1 m³
- Range with 3m spreading width 50 km
- Duration of brine loading 15 minutes
- Duration of salt loading ~3 minutes

Combined Spreaders (pre-wetted, brine) on small vehicles



Combined Spreaders (pre-wetted salt and brine) on small vehicles

- Brine capacity 1,400 l
- Salt capacity 0.8 m³
- Range with 3m spreading width 23.3 km
- Duration of brine loading 12 minutes
- Duration of salt loading ~2 minutes

Sufficient range with route lengths of around 10 km

Optimal brine application using a low mounted spreading bar

Combined Spreaders (pre-wetted salt and brine) on small vehicles



Even brine application using a spreading bar

Additional spreading dish for pre-wetted salt for very low temperatures

Conclusions: Brine usage in Vienna

- Drivers are satisfied with the new technology
- Limited range has to be considered during planning process
- Very fast thawing reaction of brine confirmed by drivers
- Excellent distribution of brine even on roads with very less traffic
- Less salt is needed with the use of brine
- Combined spreaders can change application method if conditions change (e.g. fast temperature drop)
- Training of drivers is very important



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