

# 18TH ROAD SAFETY CONFERENCE

9th March 2026, Chambéry

*Enhancing the Resilience of Highways to Flooding, Ensuring Road Safety, and Winter Maintenance: The Experience of Kazakhstan*

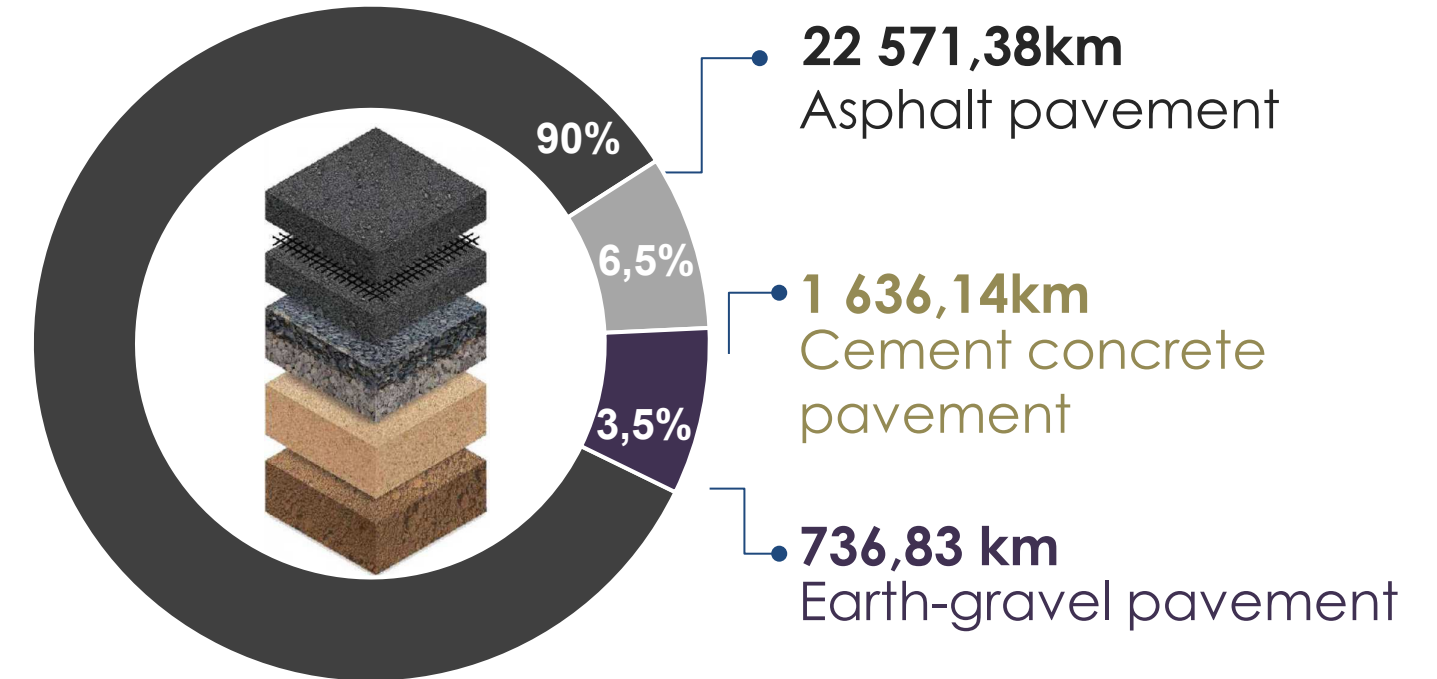
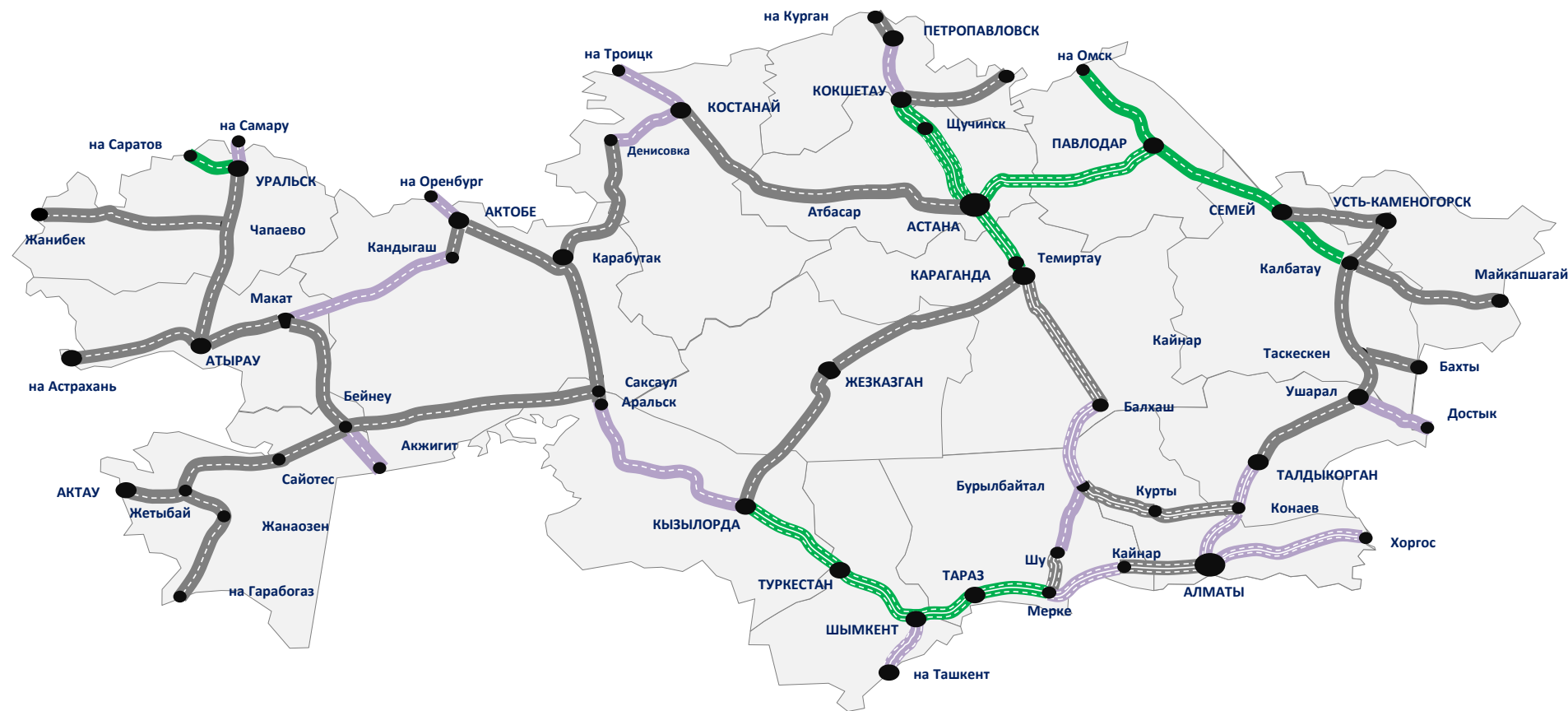
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Hosted by



## ▶ NATIONAL ROAD NETWORK LENGTH: 25,000 km



## ▶ Standard “Winter Maintenance of Roads”

- Required equipment and materials.
- Five winter service levels (based on road importance and traffic volume).
- Directive response times for snow clearing and the application of de-icing materials.
- National zoning of Kazakhstan into 7 snow-drift severity zones.
- Requirements for de-icing materials by the 7 zones (composition and application rates).



## ► «QSMART-ANTIGLAZE» DE-ICING REAGENTS

Common salt is widely used; however, its use is prohibited within populated areas.



### SOLID FORM

Works on contact with snow and ice. Effectively breaks down ice and compacted snow, prevents the formation of an ice crust.

1. Remove loose snow from the surface.
2. Apply the agent evenly over the surface.
3. After the ice has broken down, perform mechanical removal.

Effect

Application method



### LIQUID FORM

Works on contact with snow and ice. Effectively breaks down ice and compacted snow, prevents the formation of an ice crust.

1. Remove loose snow from the surface.
2. Apply the agent evenly over the surface.
3. After the ice has broken down, perform mechanical removal.



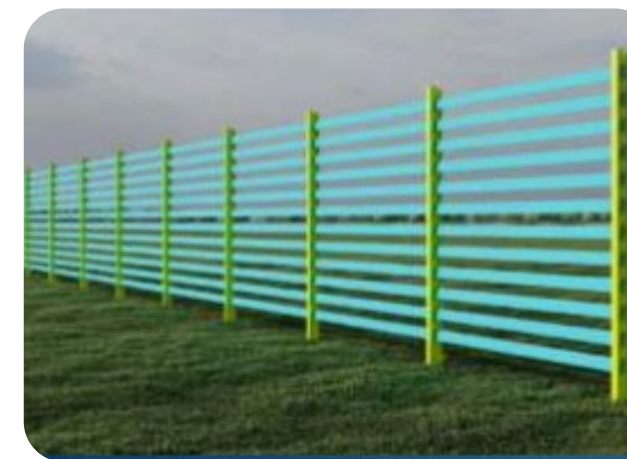
## ► WINTER ROAD SAFETY MEASURES



VARIABLE MESSAGE SIGNS (VMS)



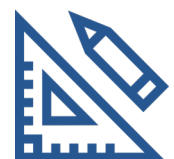
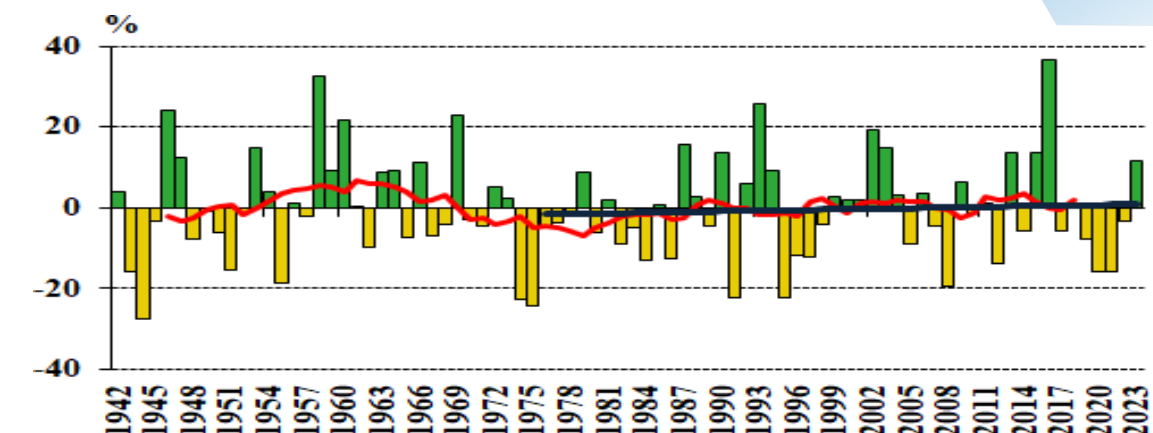
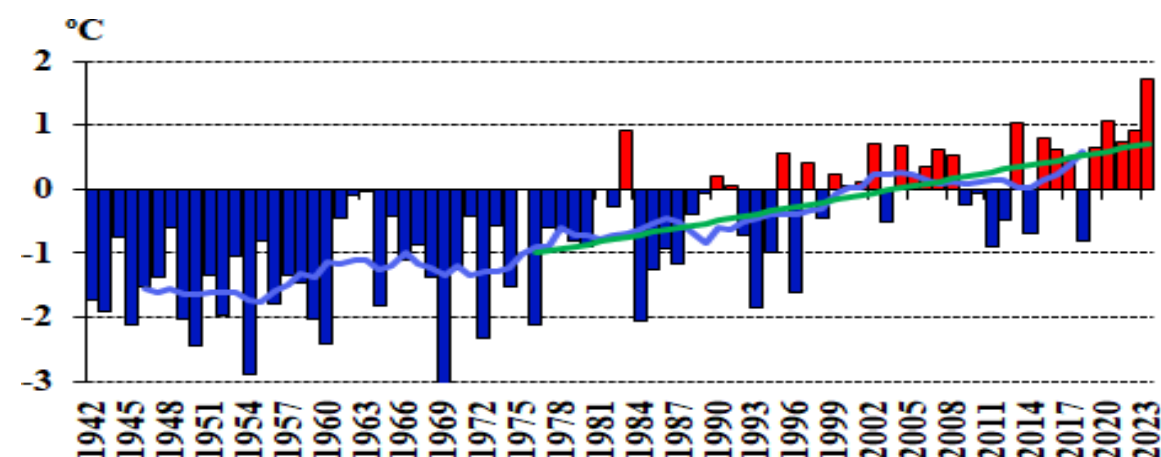
LASER GUIDANCE EQUIPMENT



COMPOSITE SNOW FENCES



## CLIMATE CHANGE CONDITIONS IN KAZAKHSTAN



## ENGINEERING MEASURES

- Construction of 831 km of protective dikes and embankments.
- Construction and rehabilitation of 1,128 km of drainage systems, channels, and irrigation ditches.
- Installation and replacement of 934 culverts on road and rail corridors.
- Riverbank protection works and river channel clearing.



## OPERATIONAL READINESS AND PREVENTIVE ACTIONS

- 24/7 monitoring of flood conditions across the network.
- Road agencies and equipment on standby for rapid response.
- Stockpiling of aggregates and reinforcement materials for vulnerable sections.
- Temporary traffic restrictions and detours introduced when overtopping risks arise.



## DIGITAL FLOOD FORECASTING (TASQYN)

- In 2025, the Tasqyn information system was deployed for flood forecasting.
- The system integrates Kazhydromet forecasts and gauging-station data.
- Scenario modelling is performed to simulate flood extent on at-risk sections.
- Based on operational use, the system forecast a flood threat for 8 of the 16 settlements that were actually flooded.

# THANK YOU

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