



**Solution winter and summer
routine maintenance of
motorways.**



**LITHUANIAN
ROAD
ADMINISTRATION**

**Head of Financial Assistance project
Handling division
Remigijus Lipkevičius**

Road Management Structure



**Ministry of Transport
and Communications**



shape public policy, organize, coordinate and oversee its implementation of all-type transport



Lithuanian Road Administration

organizing and coordinating the reconstruction, maintenance and development of the state roads



11

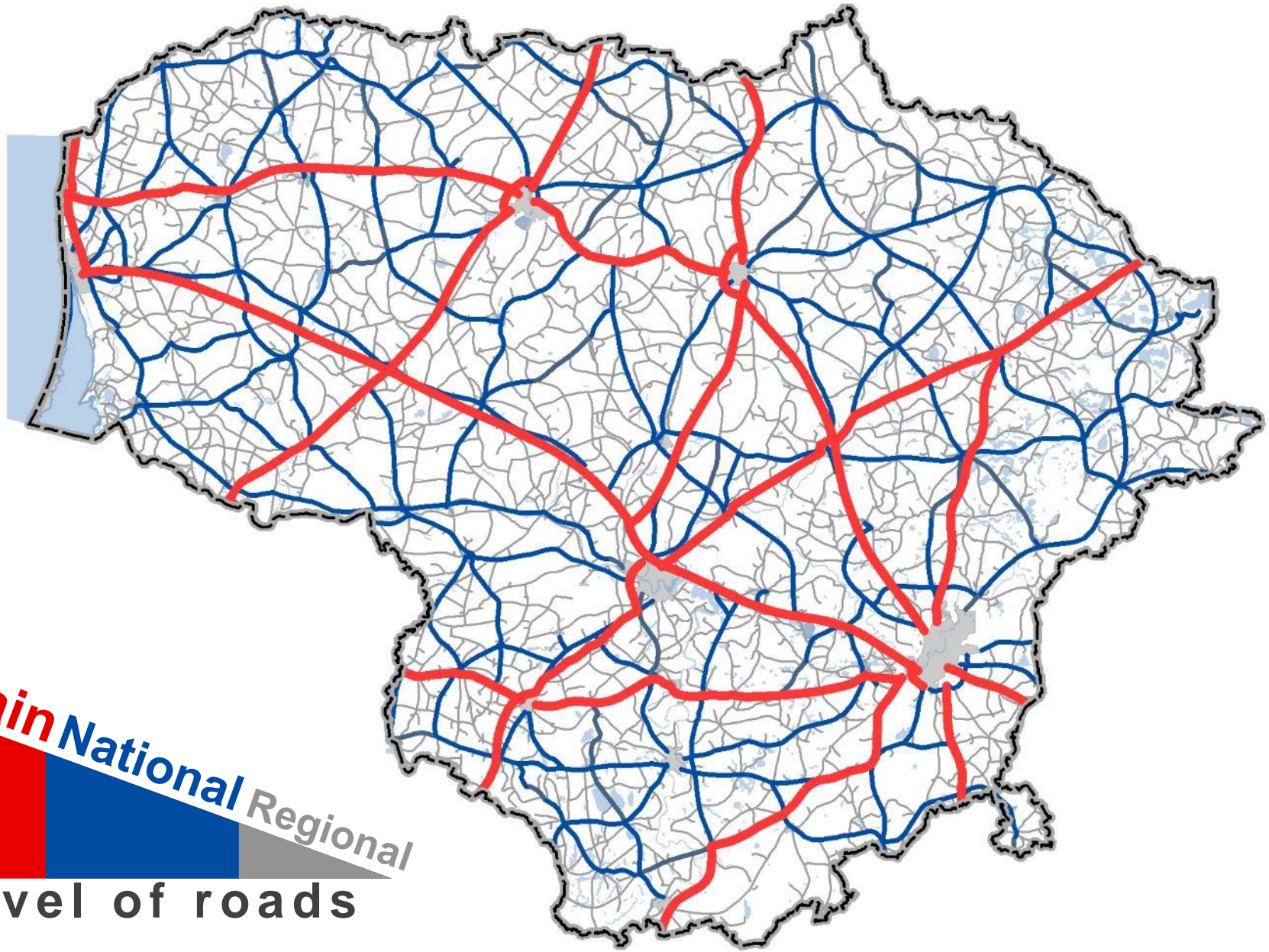


State Enterprises

delegated authority and responsibility to carry out maintenance, repair and inventory of state roads



State Roads Map



Main **National** **Regional**
level of roads

State Roads statistic

Main 1 750 km

National 4 927 km

Regional

7 416 km

69%

8%

23%

14 586 km

7 170 km

Total length

21 263 km



Asphalt

14 093 km

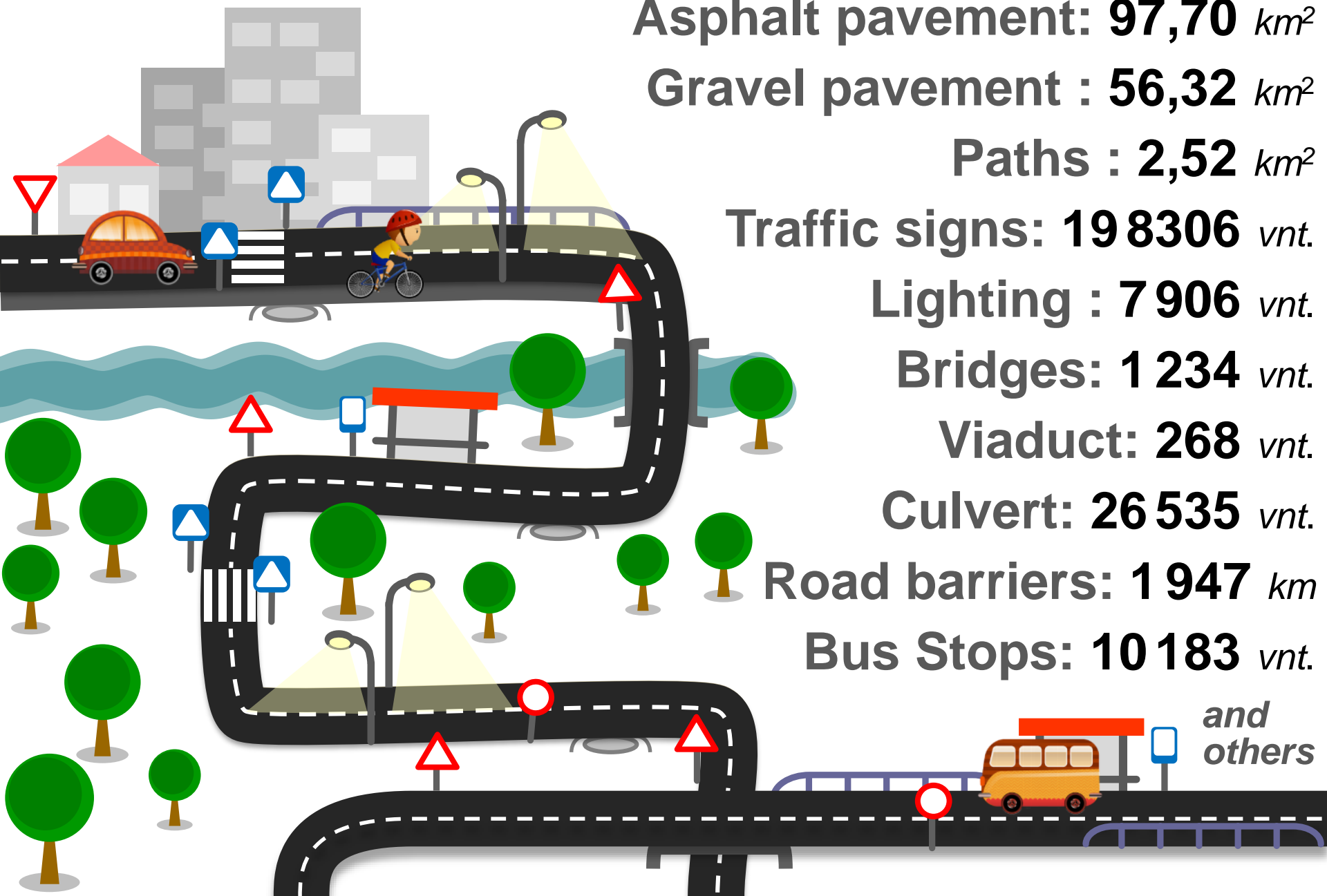
66%

34%

7 170 km

Gravel

Road infrastructure elements



Asphalt pavement: **97,70** *km²*

Gravel pavement : **56,32** *km²*

Paths : **2,52** *km²*

Traffic signs: **19 8306** *vnt.*

Lighting : **7 906** *vnt.*

Bridges: **1 234** *vnt.*

Viaduct: **268** *vnt.*

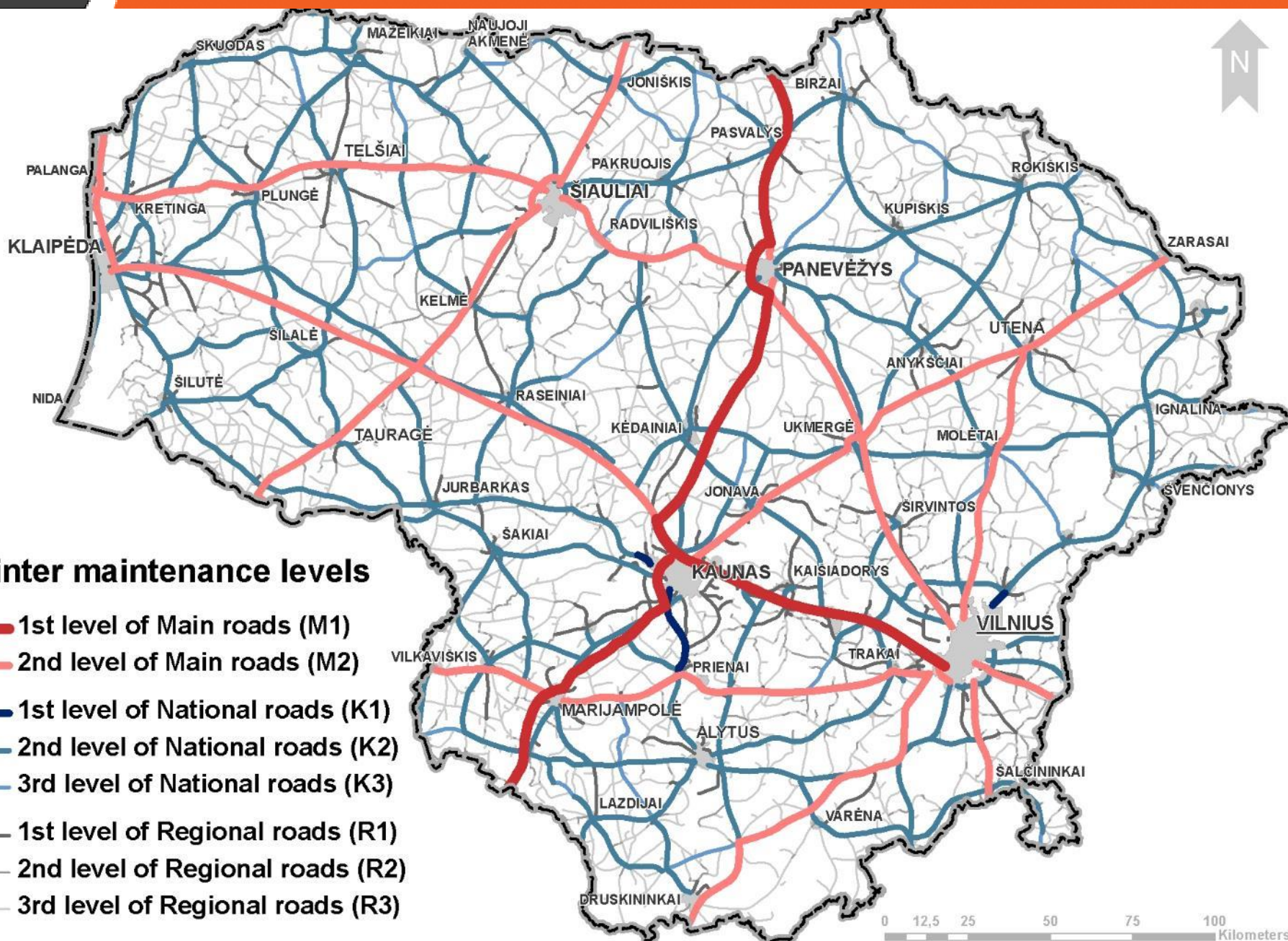
Culvert: **26 535** *vnt.*

Road barriers: **1 947** *km*

Bus Stops: **10 183** *vnt.*

*and
others*

Winter Maintenance



Road Management Structure

Ministry of Transport
and Communications



Lithuanian Road Administration



State
Enterprises

Alytaus RK

Kauno RK

Klaipėdos RK

Marijampolės RK

Panevėžio RK

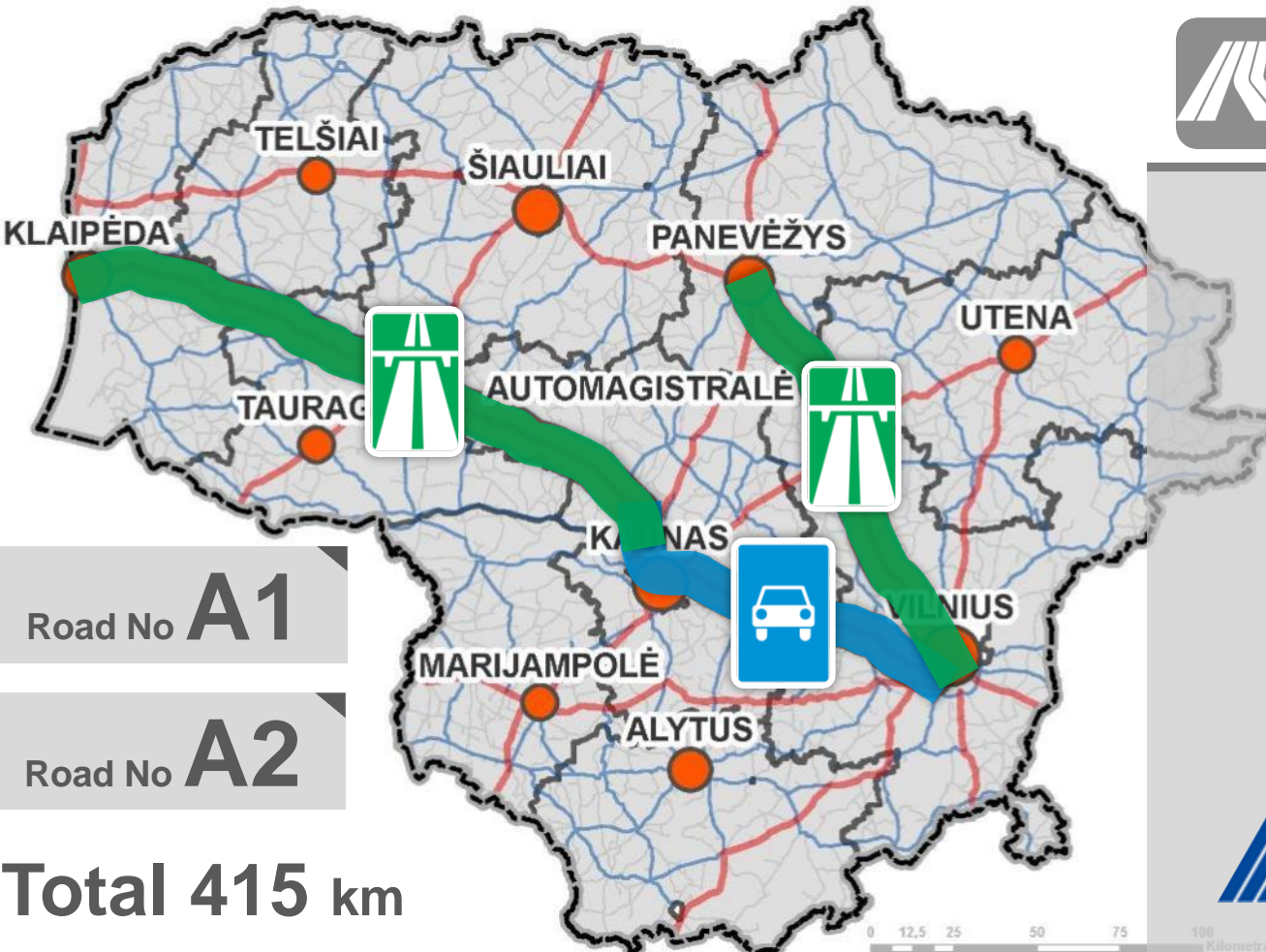
Šiaulių RK

Tauragės RK

Telšių RK

Utenos RK

Vilniaus RK



Road No **A1**

Road No **A2**

Total 415 km

Statistic on Motorways

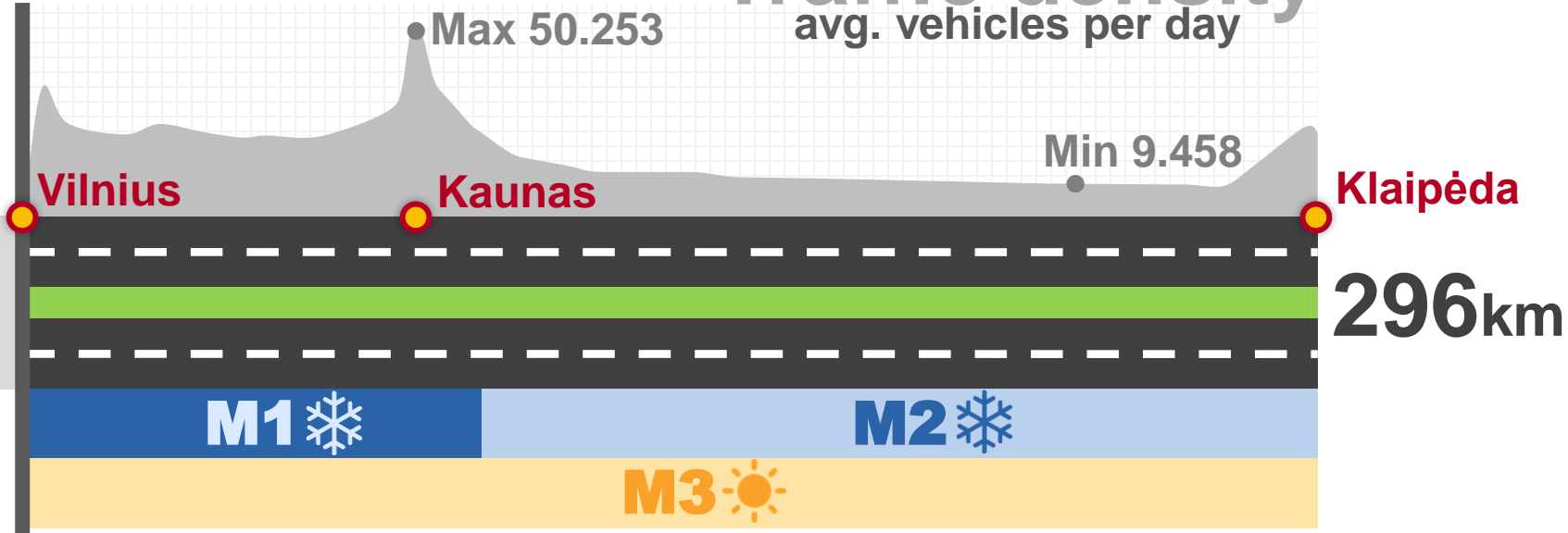


Traffic density

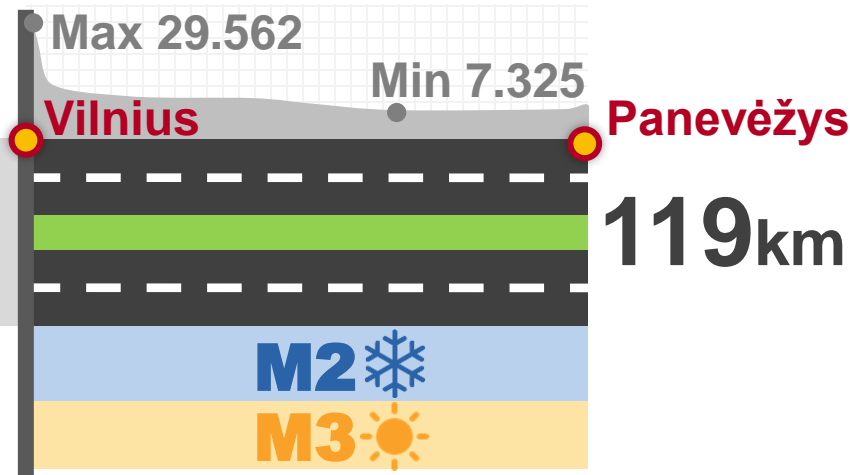
avg. vehicles per day

Road No

A1



A2



- M1** ❄️ 1st level of Main roads maintenance in **Winter**
- M2** ❄️ 2nd level of Main roads maintenance in **Winter**
- M3** ☀️ 3rd level of Main roads maintenance in **Summer**

Winter Maintenance Requirements

Winter Road Maintenance Requirements 2016 m.



Level of Road Maintenance in Winter:

M1 ❄️

M2 ❄️

Total length of motorways:

105 km

310 km

25%

75%



Winter service working time



0-24 h



4-22 h



During the snowfall or blizzard the permitted layer of snow on the carriageway is not more than

4 cm

7 cm



When the road is covered with ice or snow overnight, de-icers should be spread



24 h



till 7 am



After the snow stops, all roads should be cleaned and de-icers spread

within 2 h

within 3 h



Under normal weather conditions, the pavement should be free of snow or ice

yes

yes



Traffic under extreme weather conditions may be interrupted

no longer than 3 h

no longer than 4 h

Winter Maintenance



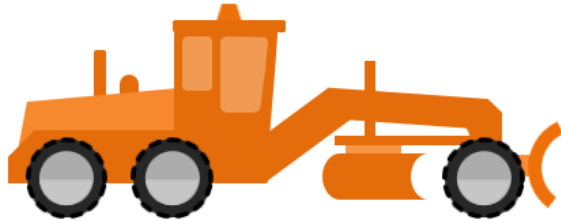
salt spreaders

46



tractors

25



11

autograders

Other

19

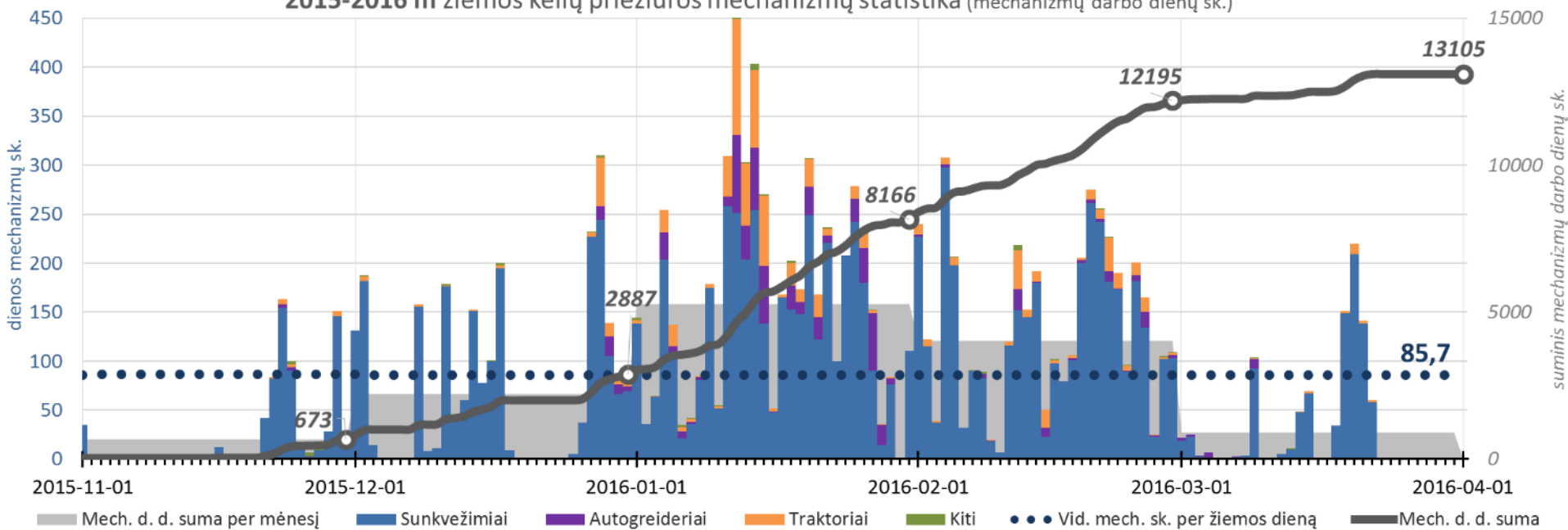
rotor snow ploughs
salt loaders and etc.

Total: **101**

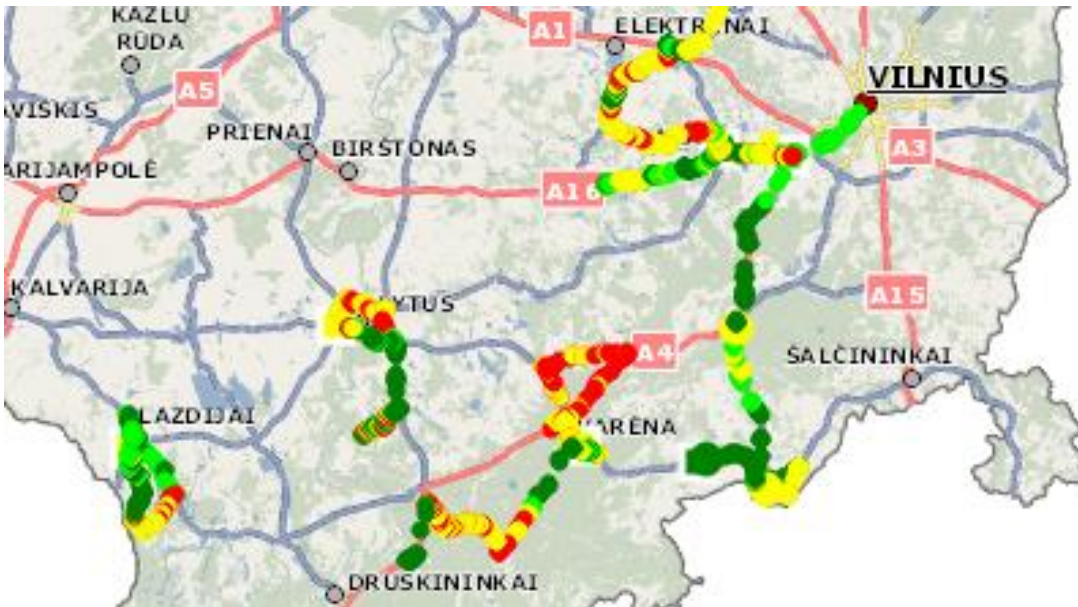
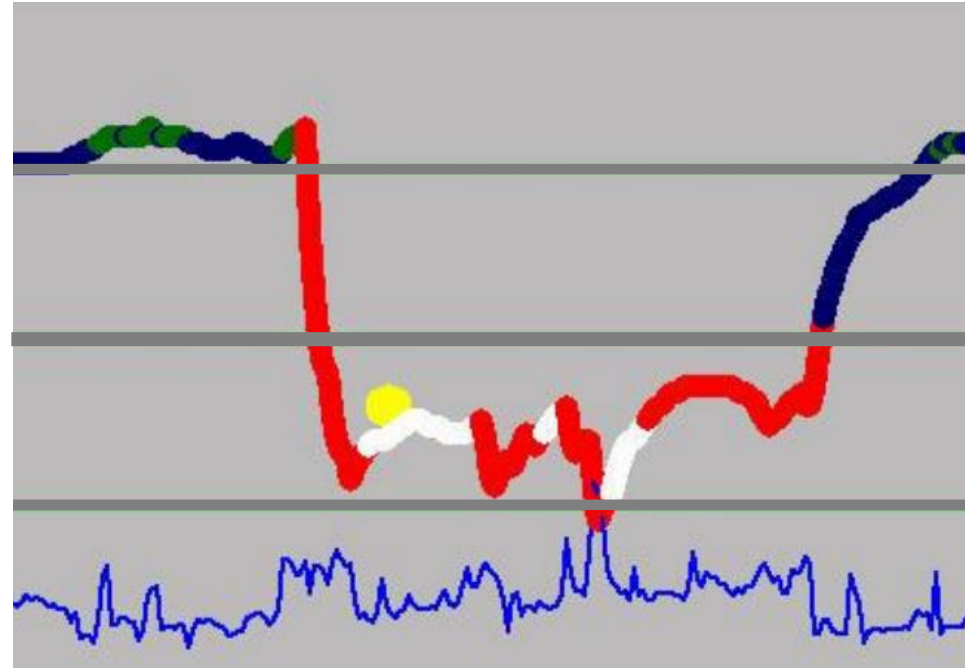
Winter Maintenance GPS statistic



2015-2016 m žimos kelių priežiūros mechanizmų statistika (mechanizmų darbo dienų sk.)



Winter Maintenance



40
mobile optical
road friction
sensors RCM411

Winter Maintenance

Measurements of Road Surface Friction

The report of special road inspection performed with mobile optical friction meter RCM 411



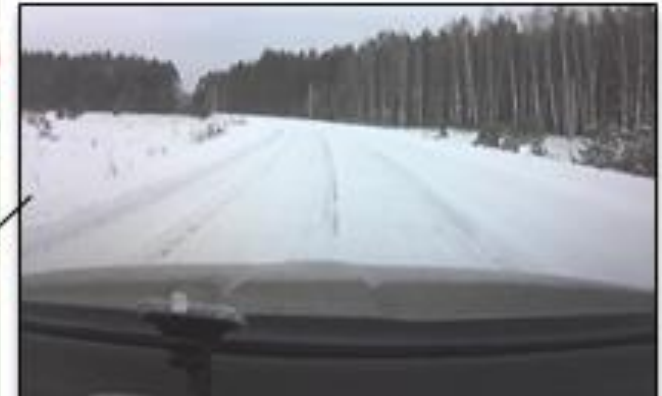
 Poor friction ($<0,34$)

 Moderate friction ($0,35-0,49$)



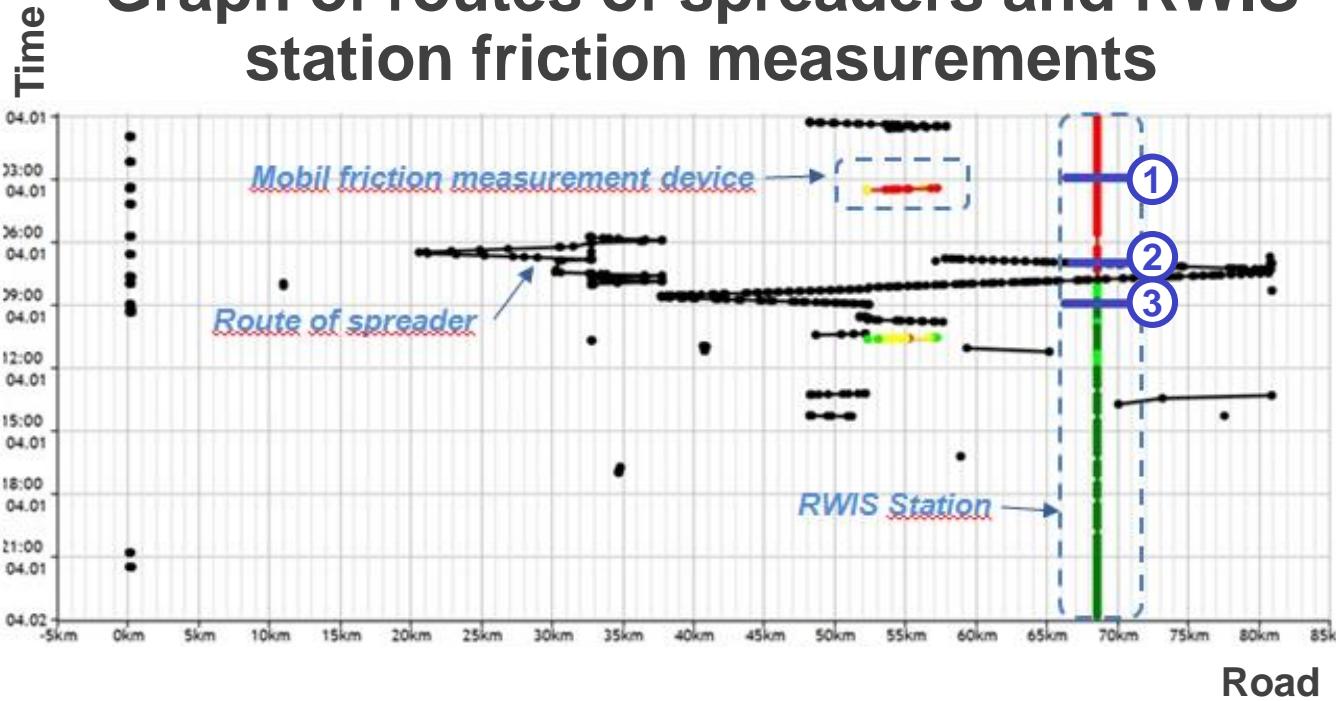
 Good friction ($0,50-0,69$)

 Poor friction ($<0,34$)



Machinery route application

Graph of routes of spreaders and RWIS station friction measurements



- Poor friction (<0,34)
- Moderate friction (0,35-0,49)
- Good friction (0,50-0,69)
- Excellent friction (>0,70)

Functional System:

- determine what parameters will be shown on the map;
- set the alarm for the appearance of extreme weather conditions;
- select road maintenance mechanisms
- define parameters of mechanisms;
- form graphs and reports.

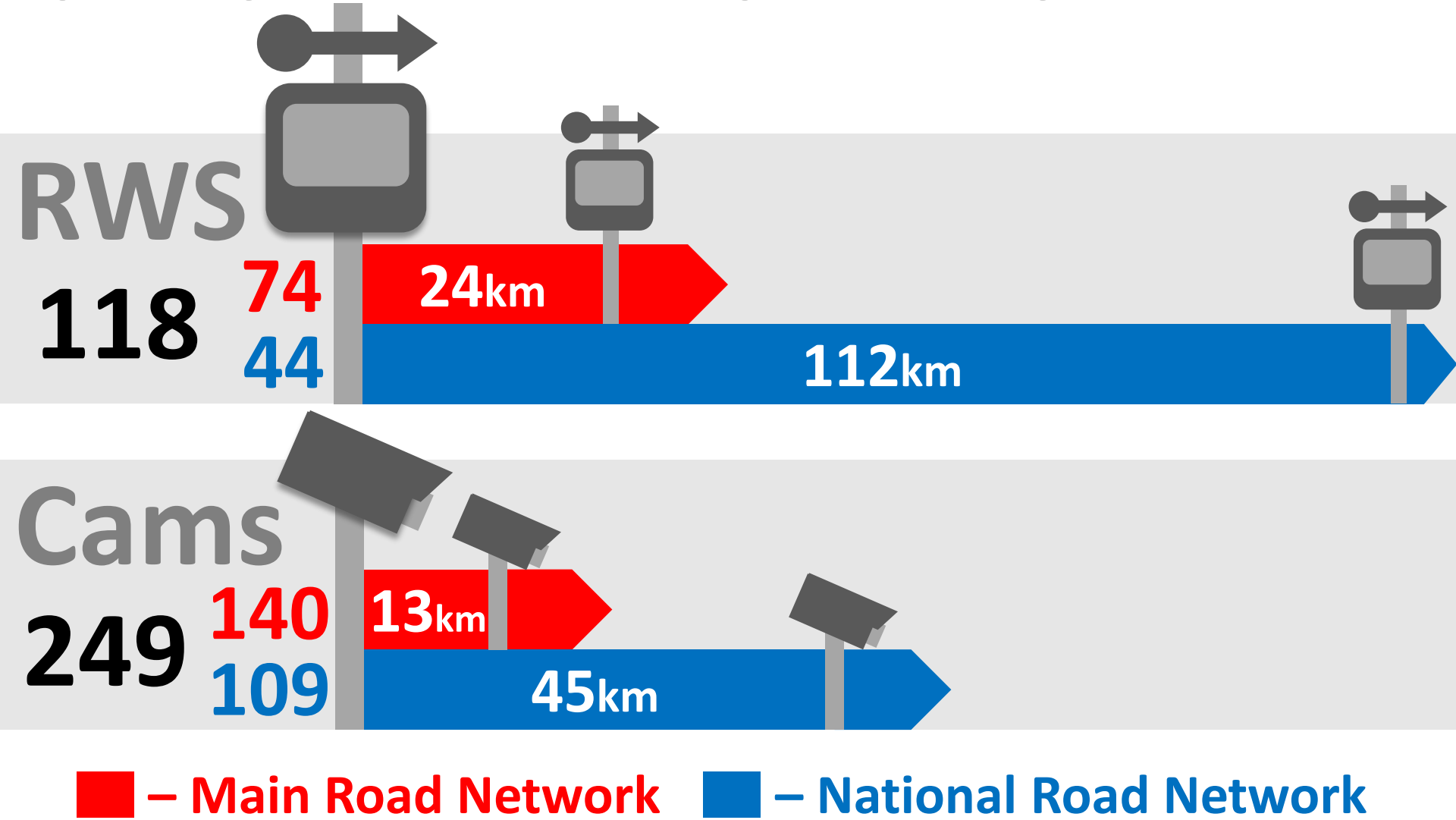
Road traffic information

total

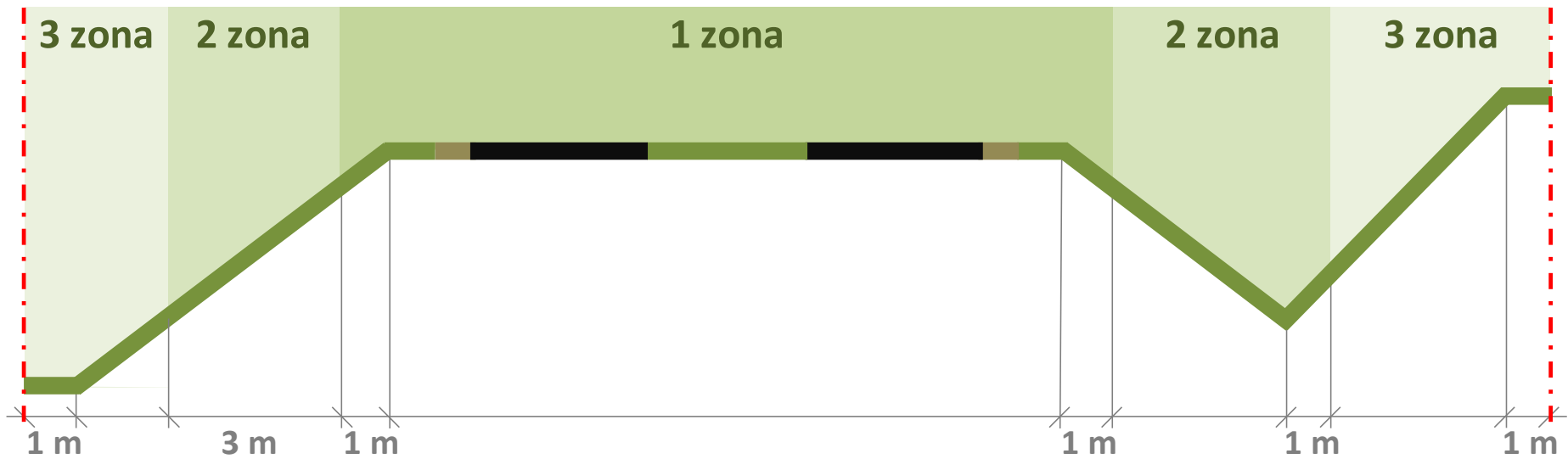
(device)

density

(km/device)

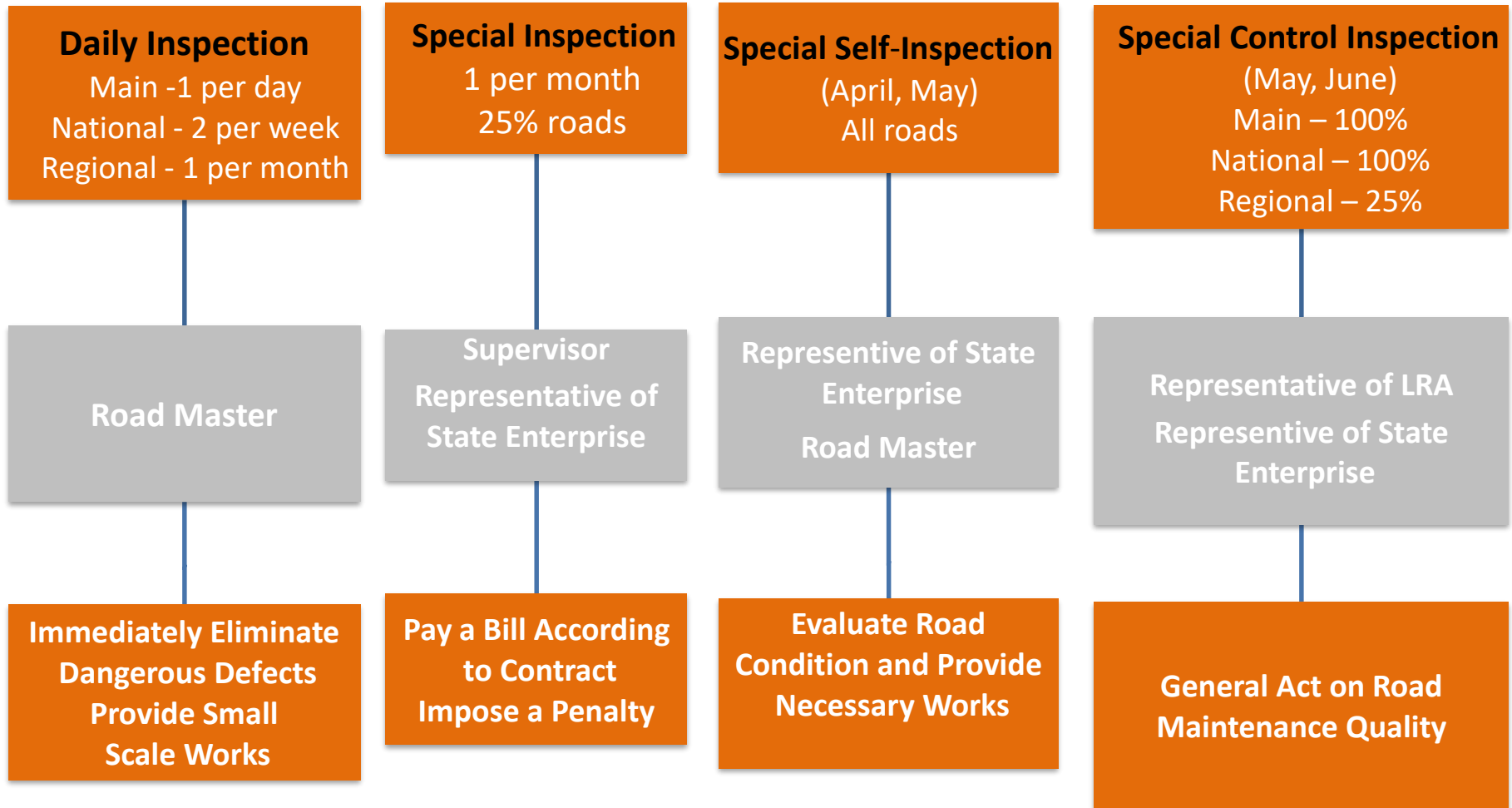


Summer Maintenance Requirements



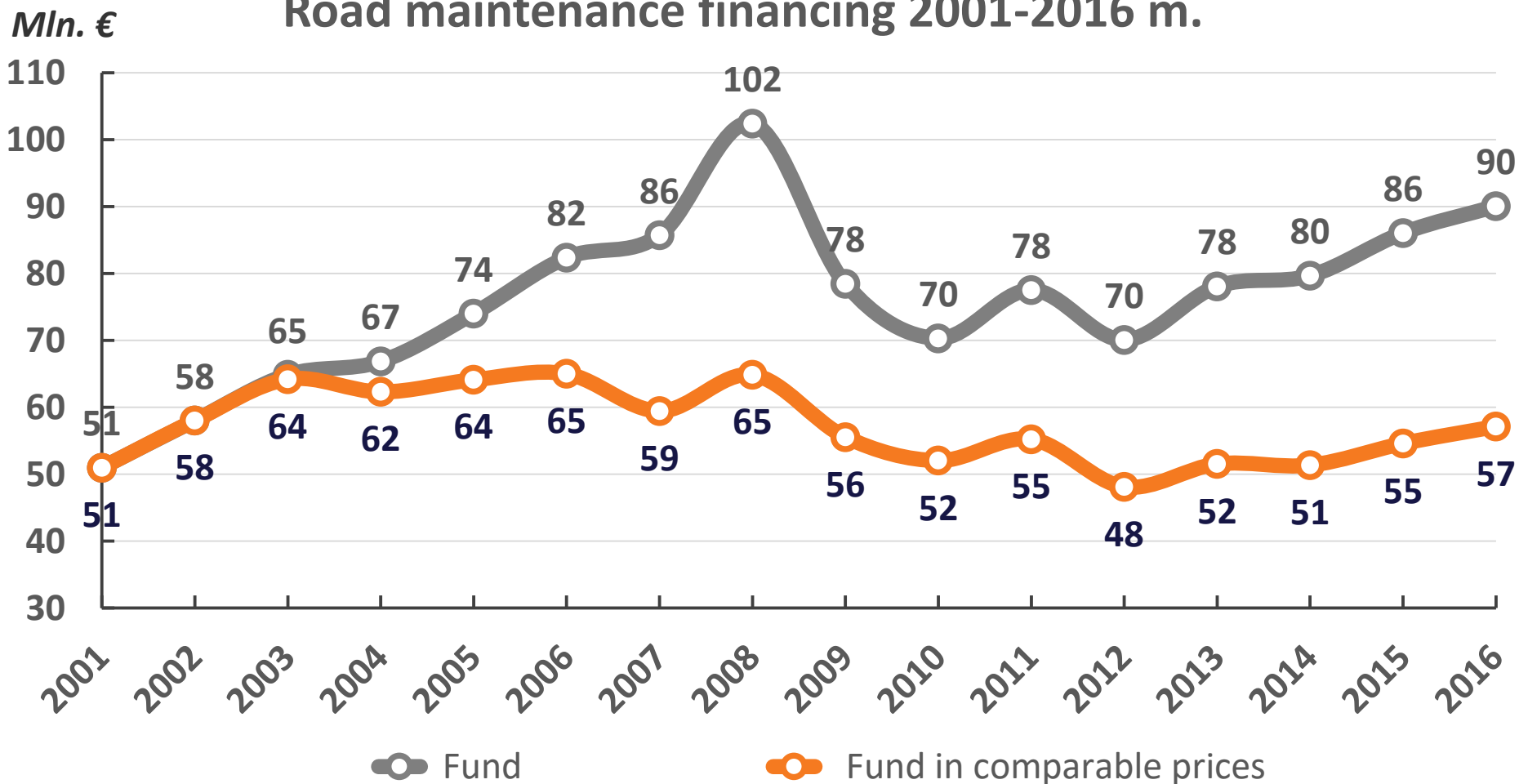
Summer Maintenance Requirements

Monitoring of Road Conditions



Road Maintenance financing

Road maintenance financing 2001-2016 m.



Average Fund for Maintenance for 1 km Road : **4 233 €**



**Thank you for
attention!**