



# Guidelines for winter maintenance in Finland

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Winter Road Congress 12.-13.2.2020 Tampere

# Guidelines for winter maintenance in Finland since year 2000

- 2001 – slight emphasis on environmental aspects
- 2008 – emphasis on customers and traffic safety
- 2018 – emphasis on heavy vehicle traffic and climate change

# Challenging winter 2017–18 and media

- Weather conditions were exceptionally difficult for road maintenance and traffic.
- Substantial amount of negative feedback from different stakeholders and citizens.
- Criticism on conditions and quality requirements, but also on contracting methods and quality control.
- Social media is quick and effective to raise up issues widely.
- Safety in winter:
  - adapting driving speed
  - predicting and caution
  - effective maintenance
- The situation was not acceptable. We had to develop winter maintenance

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YLÄSAVOLAISTEN ÄÄNENKANNATAJA

VUODESTA 1925

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**Headlines:**  
*"Magnificent ice skating march".*

Pääkirjoitus

## Mahtava luistelumarssi

Vieremäläisten Ahti-Pekka Vornasen ja Lassi Heiskasen luistelutempaus Kauppilänmäntiellä on saanut huimat mittasuhteet. Maanviljelijöiden tarkoituksena oli kiinnittää huomio teiden kunnossapitoon, ja idea todellakin onnistui. Videota on katseltu eri kanavissa jo hulpeasti yli miljoona kertaa (Savon Sanomien verkkouutinen 16.1.).

MTV:n Huomenta-Suomesa mielenilmausta tituleerattiin jo "luistelumarssiksi".

Tempaus oli Vornasen mukaan spontaani, mutta siinä osui kaikki kohdalleen Heiskasen karvahuuta myöten.

MTV:n haastattelussa kävi hyvin ilmi, mistä on kyse. Vika ei ole yksittäisten urakoitsijoiden, vaan koko tienpidon periaatteissa on korjattavaa. Kun ely-keskuksen kunnossapitopaallikko Pekka Rajala totesi, että tienhoitoluokan mukaiset laatuvaatimuk-



ANNI NIEMINEN

set täytyvät, ei vastaukseen tarvitse eikä pidä tyytyä.

Vornasen mukaan tilanne on huonontunut kymmenen viime vuoden aikana. Ongelmana on esimerkiksi se, että lumenpoistoa ei aloiteta aikanaan. Kyse ei ole välttämättä edes rahasta.

"Sen pitää olla jossakin muualla kuin konttorissa, joka päättää milloin lähdetään hiekoittamaan ja auraamaan", vieremäläiset tiivistivät.

Liikennevirasto on muuttamassa teiden kunnossapidon

urakointiperiaatteita. Pohjois-Savon ely-keskuksen Liikenne- ja infrastruktuuri-vastuualueen johtaja Tommi Huttunen on kertonut, että urakointiin toivotaan enemmän valinnanvapautta. Aura-auto voisi uuden ajattelun mukaisesti lähteä liikkeelle jo ennen kuin urakassa mainittu lumen vähimmäismäärä olisi täynnä. Kuulostaa järkevältä. Tien päällä on varmasti paras tieto.

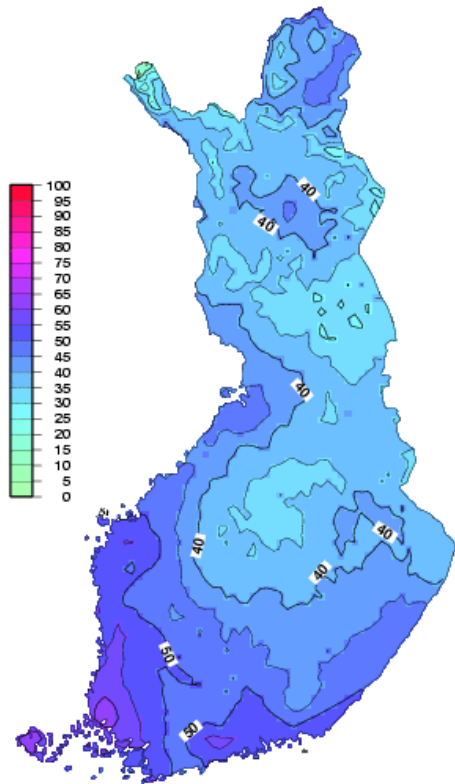
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**"Vika ei ole yksittäisten urakoitsijoiden."**

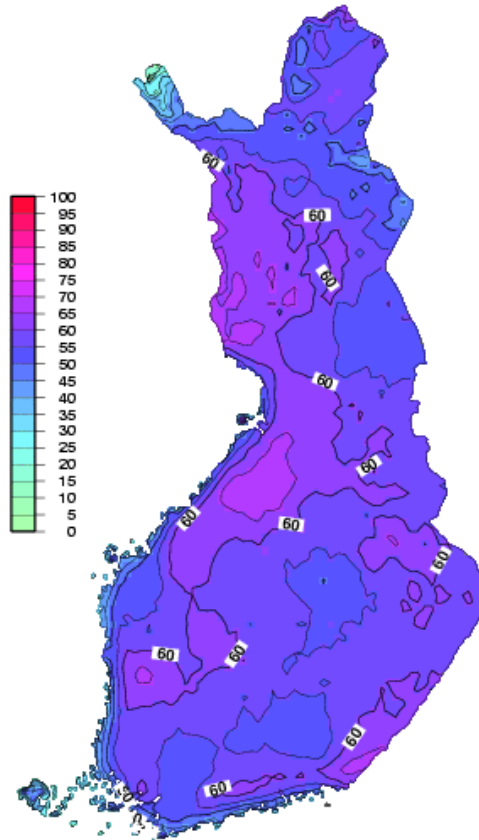
# Climate change: slipperiness increases inland

(Temperature under 0 °C/times per year)

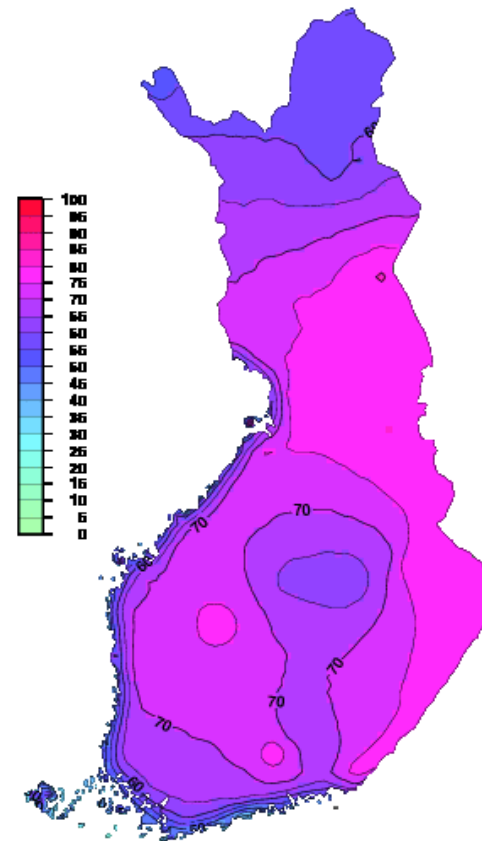
**Winter 05 - 06**  
(“good old winter”)



**Winter 06 - 07**  
(mild winter)



**Winter 14 - 15**  
(very mild winter)



# Develop programme of winter maintenance

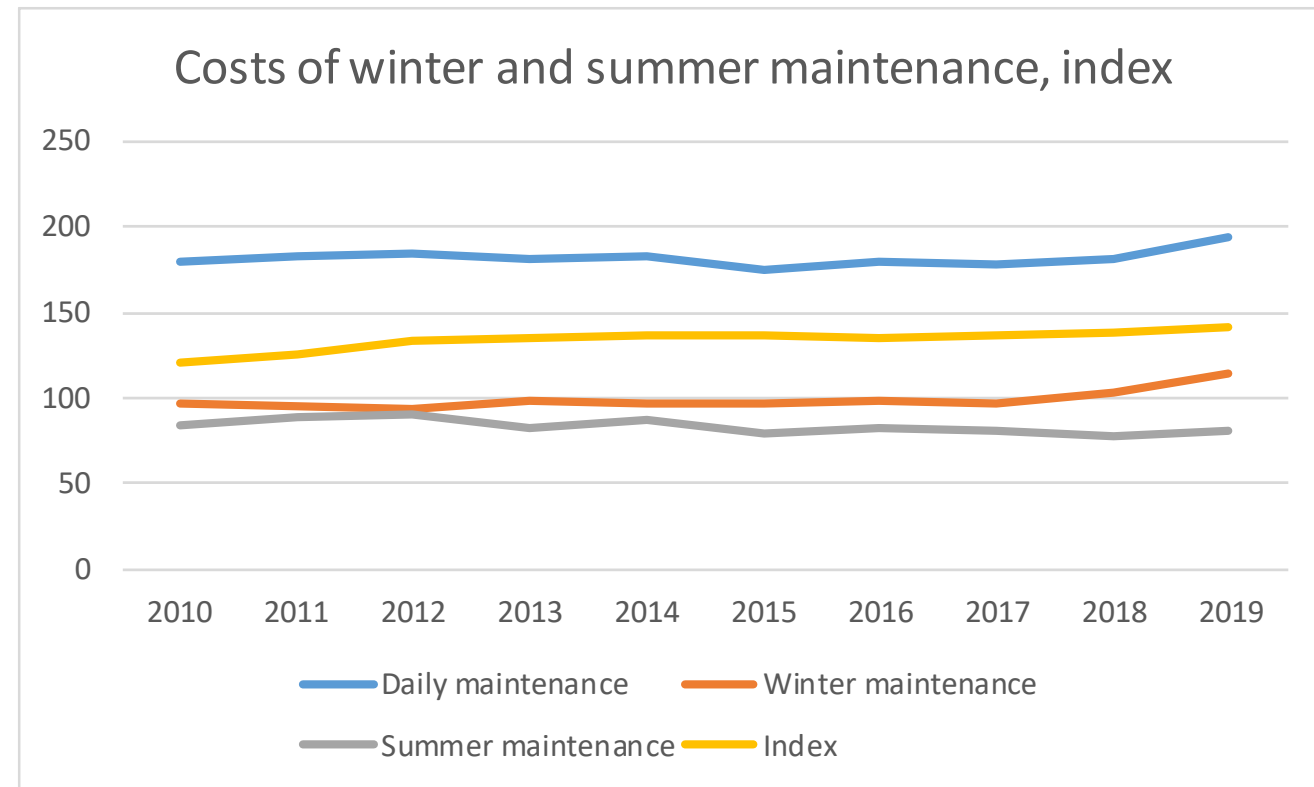
## Minister Berner 15<sup>th</sup> February 2018



- Updating guidelines for winter maintenance during spring
  - criteria for maintenance classes
  - quality requirements
  - regain times
  - targeted maintenance
- New contract model to contracts starting year 2019
  - co-operation
  - reaction ability
  - target price
- Continuous development of digitalisation and utilising it
  - weather forecasts and information
  - analysis
  - implementing trials
  - quality control
- More effective information
  - active, proactive
  - timely
  - based on facts

# Financing of winter maintenance increases, percentage of winter maintenance of all road maintenance cost quite stable however

- 20 M€/v permanent extra money on winter maintenance is allocated in the government programme, 13 M€/v has realised yet
- Basic funding for state roads, railways and water ways increases for over 300 M€/year since 2020
- Extra funding for maintenance backlog was also allocated during previous government period
- Emphasis on summer maintenance lies on decreasing maintenance backlog
- New winter maintenance guidelines helped to rise funding for winter maintenance back to index development level 2010-19







# Guidelines for winter maintenance 2018



Implementation in  
stages!

Talvihoidon toimintalinjat



# Guidelines for winter maintenance and quality requirements

Continuous targets

- traffic safety
- functioning and fluent traffic

Emphasis on new guidelines

- heavy traffic
- commuting
- controllability of quality<sup>8</sup>
- effects of climate change
- targeted maintenance



# New winter maintenance classes

## Raised winter maintenance classes:

- Stage 1) 1<sup>st</sup> January 2019: 10 300 km + 700 km "Ib targeted maintenance"
- Stage 2) Ca 3000 km increased maintenance classes III->II by tendering contracts by 2023

**ADT = Annual average daily traffic**

**ADTh = ADT of heavy vehicles**

**ADTt = ADT of trailers**

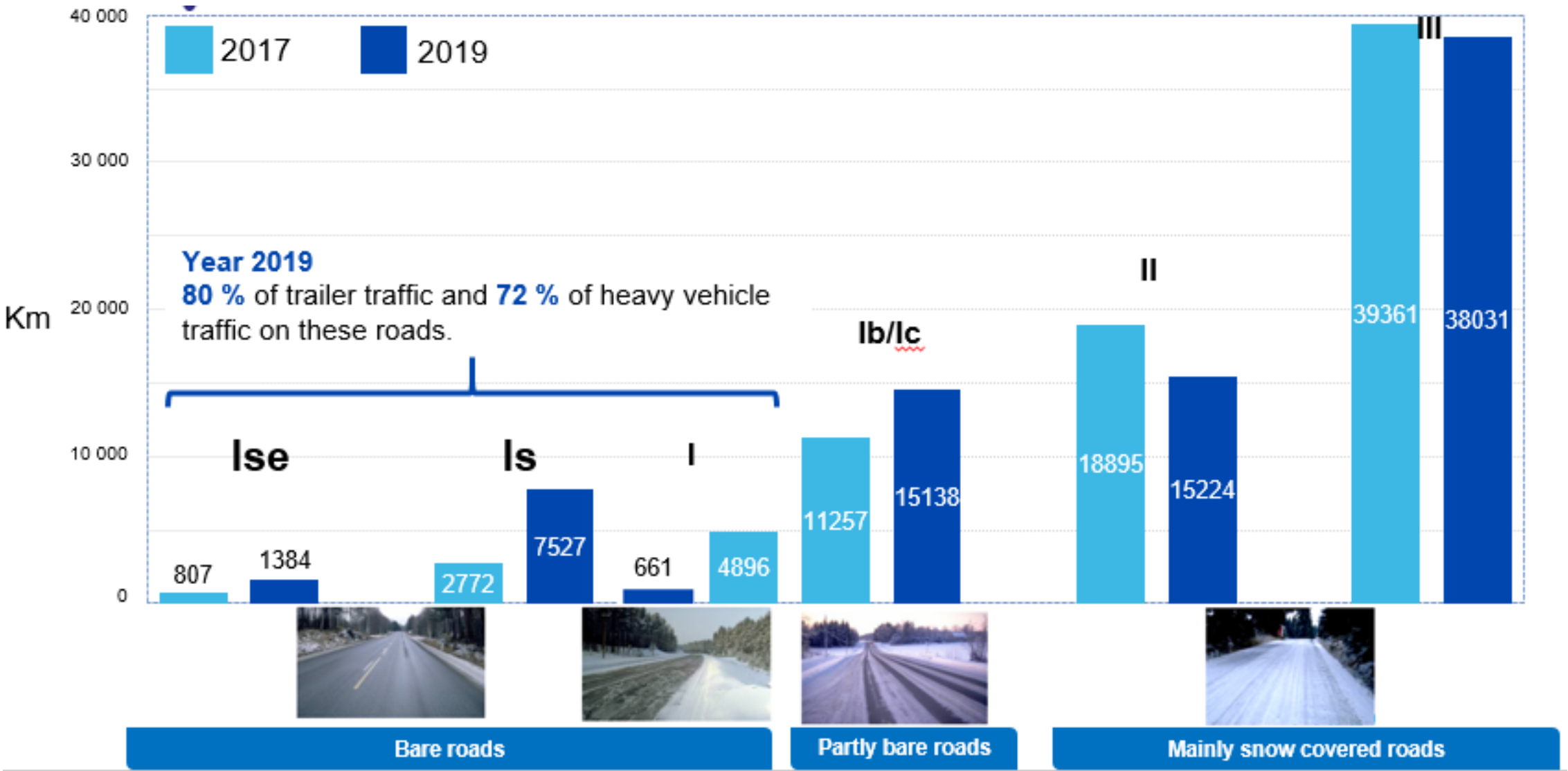
**Recommended to count traffic volumes to at least 40 km road stretches**

ADT	Highways, class I	Highways class II	Regional roads	Connecting roads	ADTh/ ADTt
100 000		Ise			
12 000		Is			1350/ 750
3 000		Ib/Ic			330/ 170
800					70/ 40
350		II			25/ 12
200					
0		III			

**Winter maintenance classes**



# Service level for winter maintenance 2017 → 2019



# Winter maintenance in Finland 2019

## Traffic volume & winter maintenance classes

**Low (traffic) volume roads**  
Winter maintenance classes  
II ja III  
53 300 km



Mainly snow covered roads

**Medium volume roads**  
Winter maintenance classes  
Ib (+Ic)  
15 100 km

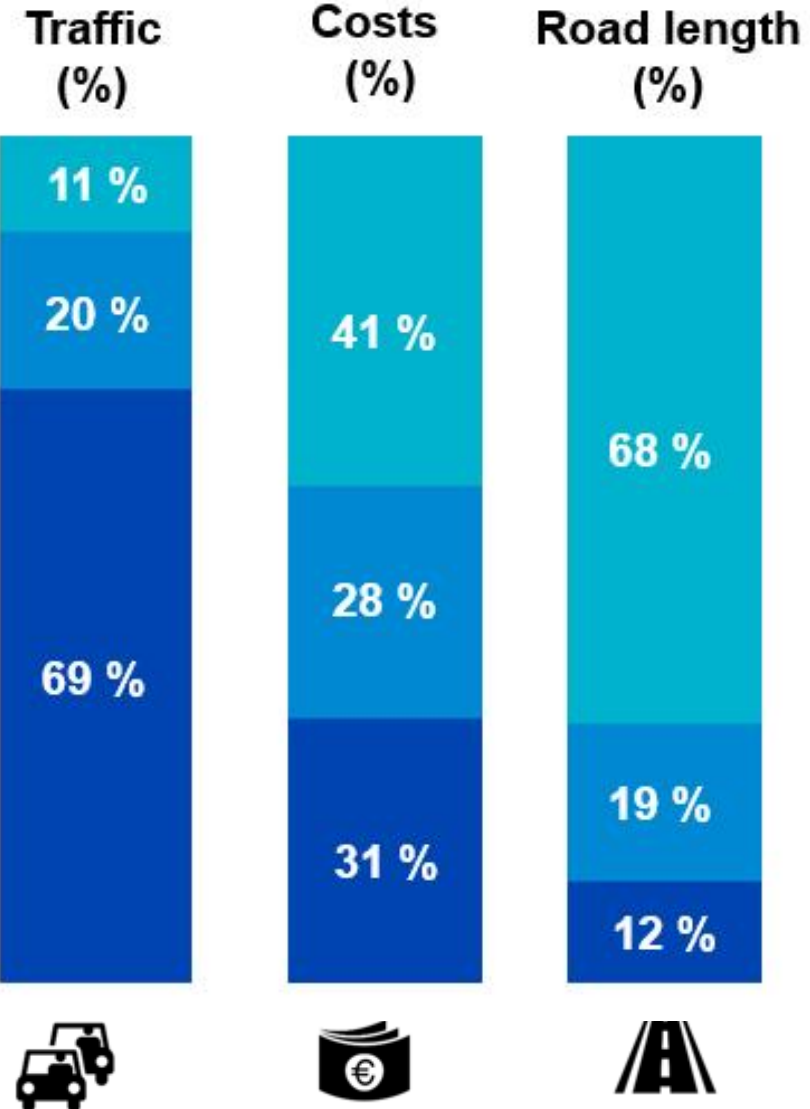


Partly bare roads

**Busy roads**  
Winter maintenance classes  
Ise, Is ja I  
9 600 km



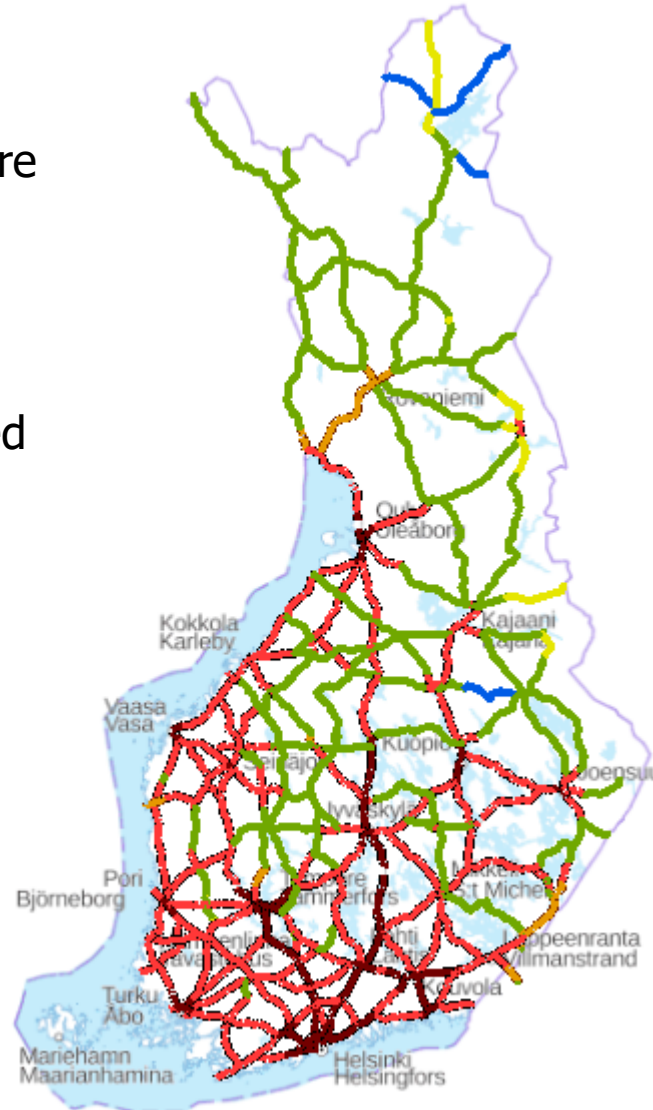
Bare roads



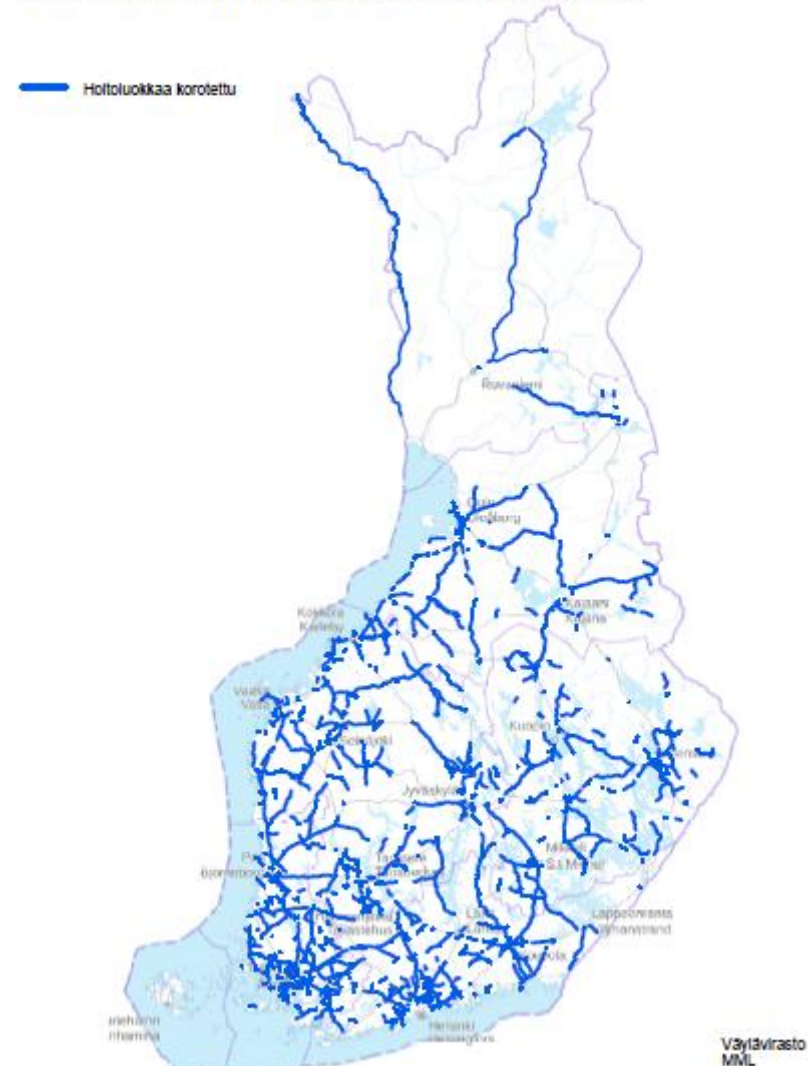
# Winter maintenance classes on main roads 2020 and raised level of winter maintenance 1<sup>st</sup> January 2019

## Talvihoitoluokka

- Bare roads
- Normally always bare
- Normally bare
- Mostly salted
- Sand usage mostly
- Mostly snow covered
- Cycle ways, (high quality)
- Cycle way, basic



## Raised winter maintenance level 1.1.2019

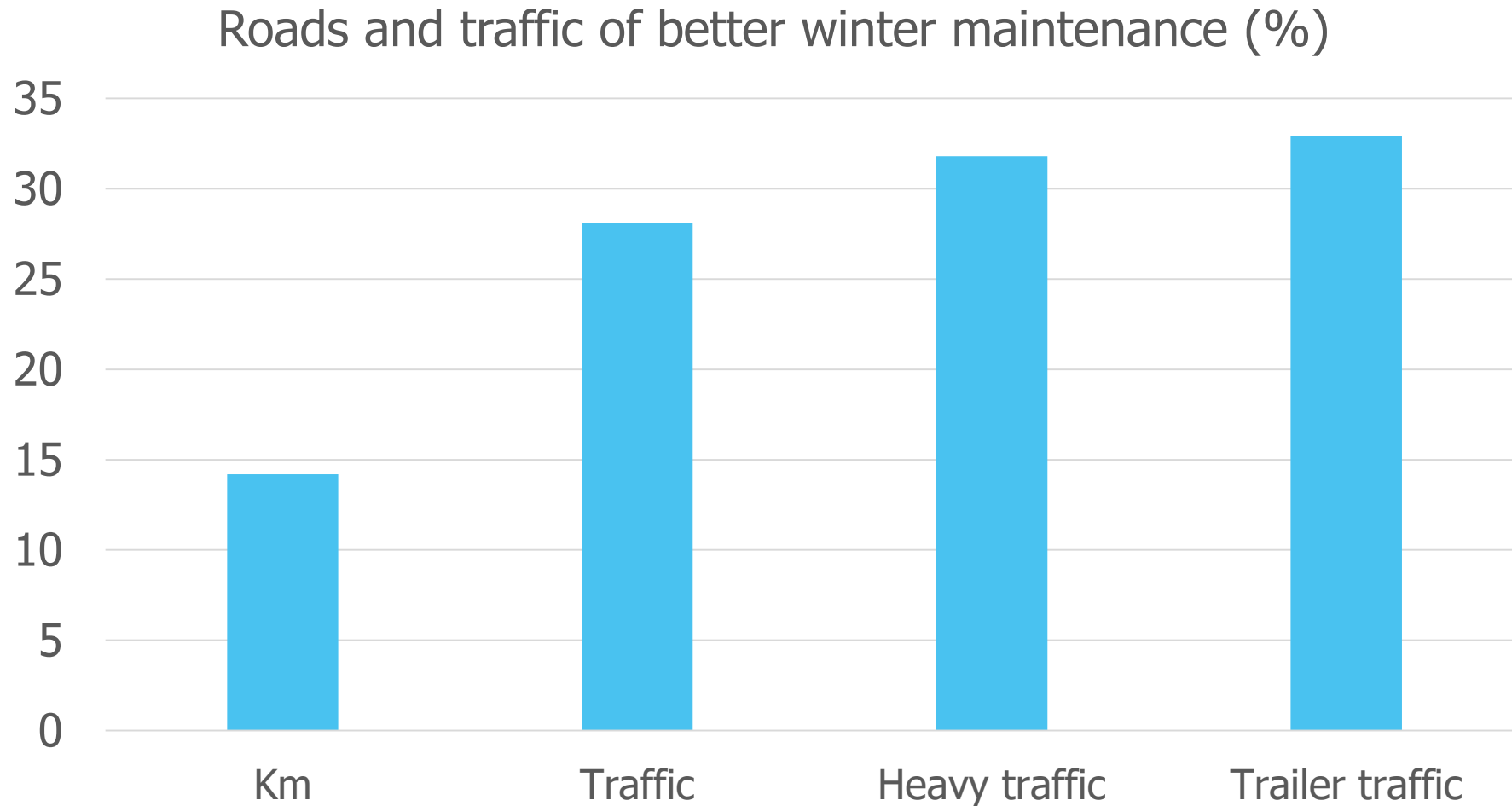




# Implementation of winter maintenance guidelines in stages

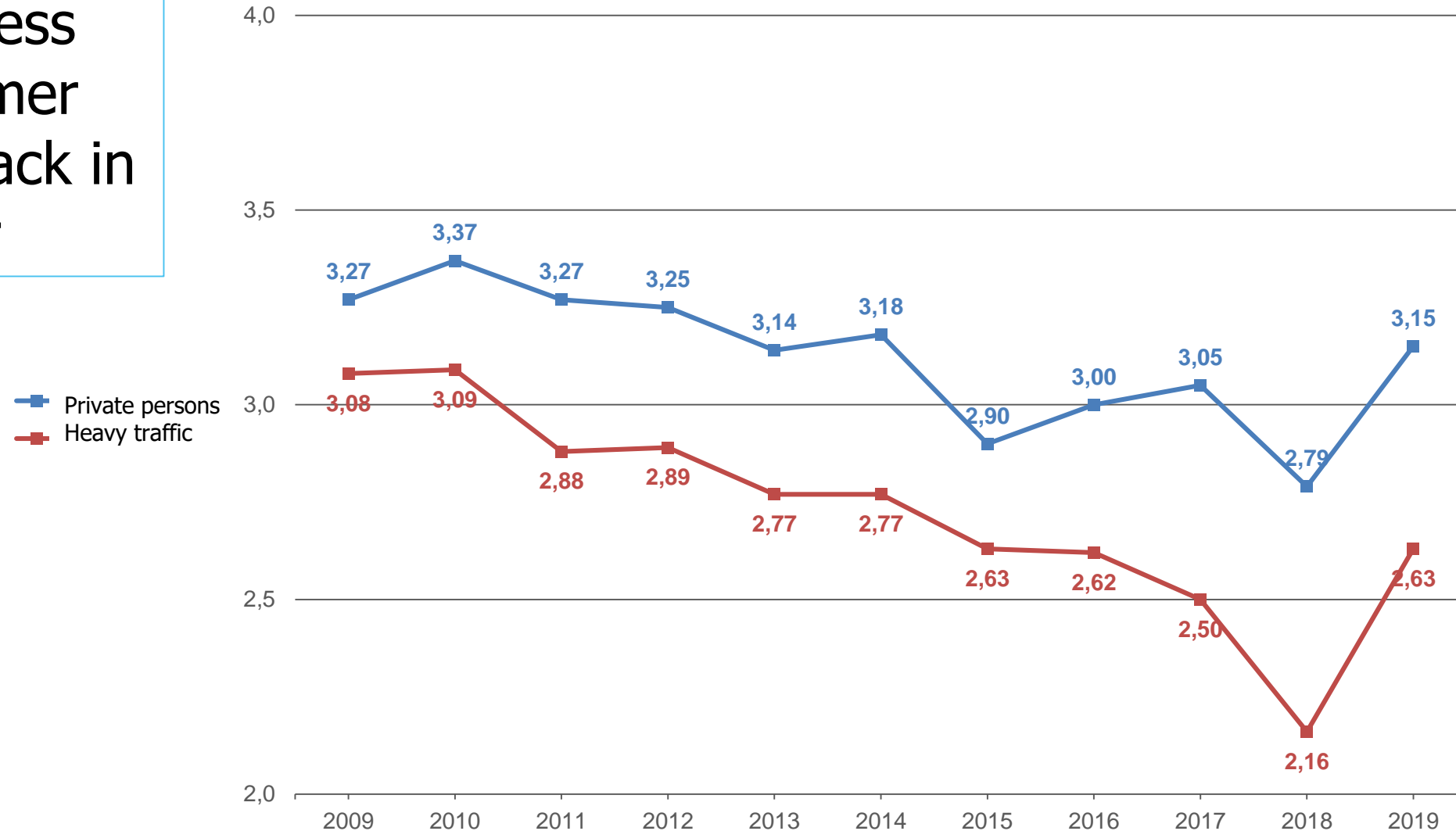
- Raised winter maintenance classes and raised service level on main roads ca 11 000 km
- Implementation of quality requirements and shorter circle times on regional roads and connecting roads by tendering contracts in 2019–23
- Implementation of new contract model to daily maintenance for state roads simultaneously during the years 2019–23

# Raised level for winter maintenance 1<sup>st</sup> January 2019



# Customer satisfaction raised much in winter

25% less  
customer  
feedback in  
winter

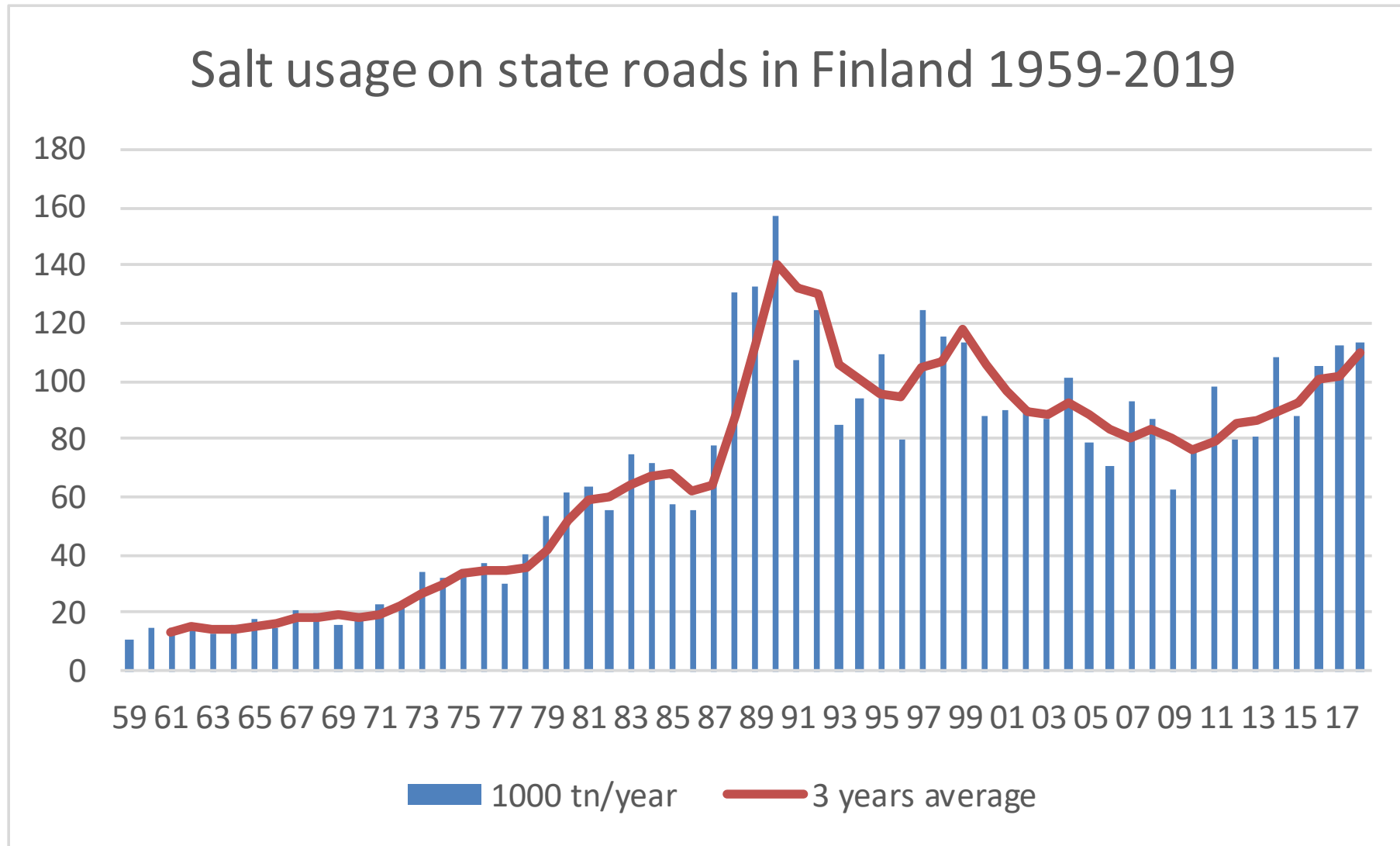


# Effects

- + More unified quality on main roads
- + Quality assurance and maintenance methods more clear
- + Business and transport benefits
- + Commuting benefits (including cycling)
- + Better customer satisfaction
- + Easier to meet requirements of packed snow
- + Benefits morning traffic on minor roads
- + Injury accident reduction 40–50/year
- + Seriously injured reduction ca 8–10/year, ca 3 fatalities/year
- + Longer lifecycle ensured on fragile pavements by using mostly sand
- Salt increase ca 20–25 % -> requires several years follow-up
- Sand increase 25 % -> Sanding has not increased first year -> 2. stage?



# Salt usage in winter 1959–2019



# Implementation of new requirements for winter maintenance by tendering contracts 2019-23 (stage 2)

## Examples of changes in quality requirements:

- Circle times in anti-skid treatment:  
class II: 6 h -> 5 h  
class III: 8 h -> 7 h
- Circle time for snow ploughing in class III 6 h -> 5 h
- Threshold for ploughing:  
II-L: 4 -> 3 cm  
III-L: 5 -> 4 cm (thresholds 4 or 5 cm between 20-02 o'clock)
- The same friction requirement throughout winter in maintenance class Ib (previously lower friction allowed on maintenance class Ib between December-February)





