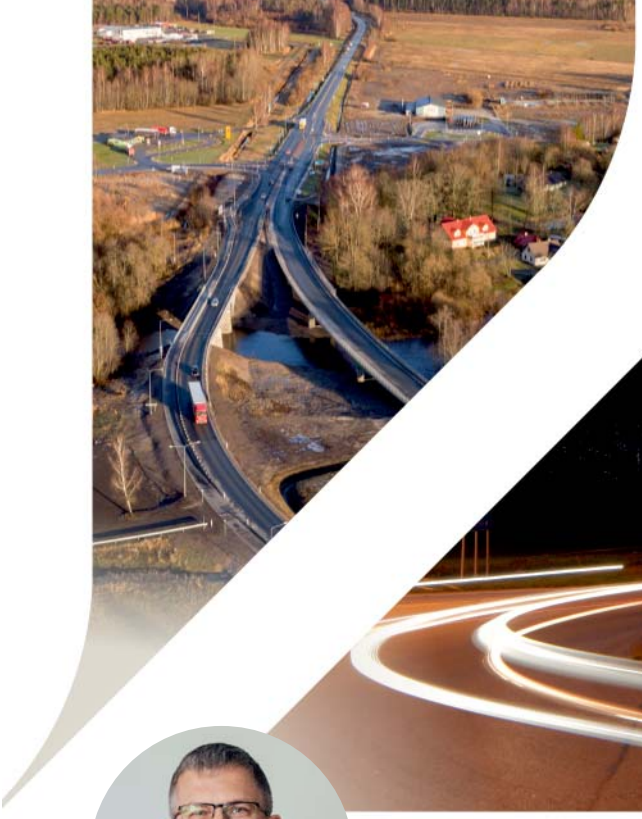
REPUBLIC OF ESTONIA
ROAD ADMINISTRATION

Yearbook 2018



PRIIT SAUK,
Director General of the
Estonian Road Administration

Sentiment of the Director General

2018 represented a celebratory centenary feel for the Republic of Estonia as well as for the Road Administration.

One hundred years have helped the Road Administration become the state authority that it is today, managing the road network and various modes of transport and shaping mobility. A unique publication "One hundred years on Estonian roads" was completed in order to celebrate this remarkable milestone. It was compiled by Mairo Sääsk, historian and former Head of the Road Administration. This book will serve as a reminder of the history of the first one hundred years of the Road Administration.

The centenary year brought along various success stories at the Road Administration.

We can consider 2018 a successful construction year. We exceeded our initial plans in practically all work areas in terms of volumes, the only exception was reconstruction. We managed to implement the financial volume of investments allocated from state revenue to the extent of 98% compared to our initial plans. Moreover, funding in the extent of 15 million euros was brought forward from 2019 at the request of the Government of the Republic, which resulted in a significant increase in the volume of construction.

The biggest works were carried out in regard to transforming the Kose–Ardu and Ardu–Võõbu road sections into four lane roads. The main part of the embankment of Kose–Ardu section was completed in the end of September and was left to sink in its entirety over the winter. This marked the end of the most difficult stage of the three-year construction period, as such large-scale construction works on peat lands were a first for us as well as the contractors. Despite such large volumes, the works are actually ahead of schedule because the works carried out in 2018 exceeded the amount initially planned by nearly eight million euros.

The increase of wintertime road condition levels posed a serious challenge for the Area of Road Maintenance last year. Every beginning is hard, but all partners joined in and made the necessary changes in order for us to be able to provide better maintained and safer roads for road users.

We have also implemented a huge improvement for road users on the Tallinn–Pärnu–Ikla road, where variable message signs have been adopted and now manage traffic. This is the kind of efficiency that we need in terms of informing road users: we can reduce the permitted speed in the case of bad weather conditions or increase the permitted speed limit to 110 km/h during

winter, provided that weather conditions are good. The plan is to also instal variable message signs on Tallinn ring road and the new section on the Tallinn–Tartu road in the upcoming years.

We knew that 2018 would be a serious challenge for us in the area of public transportation. As of 1 January, the Road Administration took over the role of organising county and inter-county public bus, ship and plane lines from county governments. The Supervisory Division of Public Transport Department along with 14 official posts was established at that time, the function of which is to analyse the line network, monitor fulfilment of contracts and carry out ticket inspections. Implementation of new tasks was certainly an incredibly challenging and complicated task, but the Public Transport Department handled it excellently.

The Road Administration has always disapproved of corruption and we have also now taken a step towards making the inspection process more transparent. Cameras were installed at technical inspection points in July 2018 at the instigation of the Technical Department. This helps to decrease the risk of corruption during inspections since transparency is the worst enemy of corruption and the camera system makes it more difficult for technically unsound vehicles to pass roadworthiness tests. Therefore, we can ensure that the vehicles that engage in traffic are safe for the driver as well as fellow road users.

I am glad to see that our e-service is taken up by increasingly more new users each year. Estonian citizens have the right to choose to either come to our service bureaus for our services or to use e-channels. The proportion of transactions made online was 65% in 2018. I am convinced that the service is like a new wave of literacy, which the people are still learning, and it is the responsibility of the IT Department to develop convenient, secure and functional IT solutions in cooperation with owners of public services.

In order to better fulfil this role, we have decided to make the IT Department service-based, which means that the department will transition from a responsive style of action to a preventive support unit that focuses primarily on the quality of service provision.

Development of e-services will certainly continue as well and hopefully we can conduct the majority of operations for clients in a preventive manner without them ever even having to visit a bureau or the e-service environment.

The Road Administration considers itself a spokesperson for mobility in Estonia and our vision is to become a highly valued competence centre for road users as well as our partners. In 2018, we mapped our strategic competences and carried out a pilot survey across four competences among our partners. We wanted to figure out what our partners expect of us as a competence centre and which areas need further contributions in order to ensure as efficient cooperation as possible. We received substantial feedback from our key partners and we have plenty of room for improvement. We also plan to carry out a survey on the rest of our competences in 2019.

It is important for us that the public services provided by the Road Administration are functional and also available as modern e-services, if possible. We have decided to use the service design methodology in the development of new services and in reshaping existing services.

In addition to the aforementioned significant changes, we also began to prepare our transition to the new process-based structure. The new version of the statute of the Road Administration shall establish a prerequisite for economical, functional and safe planning and implementation of traffic and taking on the role of a spokesperson for the creation of a supporting management structure.

We shall hereafter put more emphasis on the traffic planning stage and address traffic modelling tasks, which in other words analyses the movement of people, goods and information, and seeks the most efficient solutions for directing the aforementioned flows. The chain of liability within and between units will be clarified, which shall ensure better cooperation opportunities, and prioritise the role of process, road and service owners: the owner shall plan the process as well as service-based resources and necessary activities, while also taking responsibility for fulfilling the objectives set.

New structural units of the Road Administration consist of divisions that cover fulfilment of primary functions appointed to the Road Administration by legislation. The statute enables to flexibly form various structural units within the divisions.

It is a difficult challenge to face and it requires experts in relevant areas. No road builds itself, it requires people and engineers, all with their own stories. The engineering profession is relatively unpopular, but it is our task to make sure that young people are aware of the excitement and permanence of this profession. We must actively talk about our actions, skills and thoughts on society in general. We live at a time when attention economy is an independent industry and we cannot ignore it.

During the centenary year of Estonia, we launched the Aadu Lassi Lifetime Achievement and Engineering Awards in the road construction area in cooperation with the Asphalt Pavement Association to recognise engineers who are remarkable in their field. The first recipients of this great recognition were AADU Engineering Award Laureate Marek Koit and AADU Lifetime Achievement Award Laureate Aleksander Kaldas.

The centenary year of the Road Administration represented a dignified and proud step towards our two hundredth anniversary.

Photos: page 36 from Heidi and Tanel Neuhaus' hunting camera, page 4, 10 by Taivo Möll.

Contents

About Road Administration

The Estonian Road Administration (ERA) is a government agency who operates within the administrative area of the Ministry of Economic Affairs and Communications and executes state supervision, implements state policies and offers public services on the basis and to the extent prescribed by law.

The main functions of the Road Administration are the following.

- Road management and creation of conditions for safe traffic on national roads.
- Increasing traffic safety and reducing harmful environmental impact of vehicles.
- Organisation of road traffic and public transport.
- Organisation of state supervision over compliance with the requirements established by legislation regulating ERA's area of activity and applying enforcement powers of the state.
- Keeping state registers of roads, vehicles and public transport, maintaining the system of stationary automated speed cameras.
- Participation in development of legislation regulating ERA's area of activity and making proposals for amending and supplementing the legislation, participation in working out the terminology connected with ERA's area of activity.
- Participating in elaboration of policies, strategies and development plans and preparation and implementation of international projects in ERA's area of activity.
- Implementing state policies and development plans in ERA's area of activity.

The primary area of activity of the Road Administration is divided into the Area of Construction and Development, Area of Road Maintenance, Area of Road Network and the Area of Traffic Safety and Public Transport, which are led by Deputy Director General and Heads of Areas. The activity of primary areas is supplemented by support services.

The Road Administration and thereby the maintenance of national roads is funded on the basis of the Traffic Act. Majority of the revenue collected by

Implementation of the Road Administration budget 2018

Accrual based; in thousands of euros

	Budget	Budget implementation	Implementation %
Total state budget resources:	**308,908**	**300,405**	**97%**
Total operational costs:	**66,980**	**65,171**	**97%**
Labour costs	16,422	15,682	95%
Management costs	50,558	49,489	98%
Total investments	**181,545**	**179,207**	**99%**
Buildings	575	498	87%
Purchases of land	2,943	2,521	86%
IT developments	2,440	2,405	99%
Other investments	876	688	79%
National road summary project and national co-financing	174,711	173,095	99%
Total grants awarded:	**60,383**	**56,027**	**93%**
Road transport organisation	34,936	31,415	90%
Waterway transport organisation	22,775	21,941	96%
Air transport organisation	2,672	2,671	100%
Total external resources:	**32,185**	**23,921**	**74%**
Road Maintenance Plan investments	29,717	22,268	75%
Other investments	245	106	43%
IT investments	536	292	54%
Estonian Road Museum	1,462	1,146	78%
Labour and management costs	225	109	48%
Total revenue from economic activities:	**836**	**1,158**	**139%**
Investments	215	900	419%
Management costs	621	258	42%

the Road Administration stems from state fees and road toll, the volume of which was 29 and 20 million euros in 2018. The primary sources of finance for costs and investments arise from state revenues and external resources. The total volume of investments of the Road Administration amounted to 204 million euros last year with 12%, i.e. 24 million euros, received from external resources.

The volume of operating costs was 65 million euros, of which maintenance costs of national roads accounted for 60%, i.e. 39 million euros.

Since 2018, the Road Administration's budget also includes grants for the organization of road, water and air transport in the amount of 60 million euros.

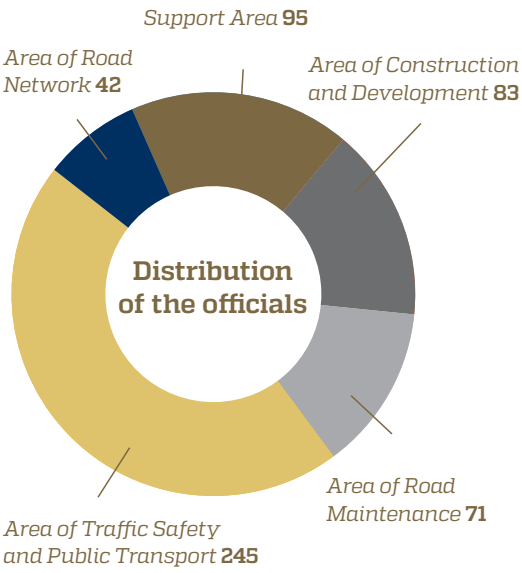
Resources allocated for the preservation and development of a functional and safe road network infrastructure constituted the majority of the budget. In addition to ongoing maintenance works, preservation also includes the costs for the repair of existing infrastructure. Expenditure on development includes the amounts set out for road construction in regard to the programme for pavement of gravel roads, for the establishment of noise barriers and reconstruction of road sections that pose a traffic hazard. The latter also relates to one of the priorities in the area of traffic: implementation of the traffic safety strategy. The greater part of the cost base in the area of traffic stems from the costs related to the service bureaus of the Road Administration. In recent years, the Road Administration has made greater investments to the e-service area in order to enhance efficiency and improve the quality of services.

Personnel of Road Administration

The Road Administration had 536 official posts in 2018. The total labour turnover was 12% and a total of 72 new officials were hired to work at the Road Administration.

Several significant changes and preparations for changes were carried out within the structure of the Road Administration in 2018. As of 1 January 2018, the Road Administration took over the functions regarding the organisation of public transport from county governments, which resulted in the establishment of the Supervisory Division of Public Transport Department along with 14 posts at the Road Administration.

Preparations for transitioning to a new process-based structure commenced as well. Preparations for the new structure were based on the need to offer clients more efficient and high-quality public services, transitioning from process-based management to activity-based state budget, and on the practical feasibility of merging the Area of Construction and Maintenance as well as that of the redistribution of the functions of the Area of Road Network. In terms of the management structure, a completely new Division of Strategic Planning shall be established, the aim of which will be to plan movement in accordance with the needs of the society.



As of 1 January 2019, the total length of Estonian national roads is 16,608 km, with the addition of up to 87.6 km of temporary ice roads in suitable weather conditions.

Among national roads, there are a total of 953 km of E-roads* and 1,294 km of TEN-T roads**.

National roads include 1,609 km (9.7%) of main roads, 2,405 km (14.5%) of basic roads, 12,480 km (75.1%) of secondary roads and other national roads, and 114 km (0.7%) of connecting roads.

The overall length of national roads increased by three kilometres over the year, resulting from the entry of new connecting roads and ramps, which were built as part of the reconstruction of existing roads, into the road register. For instance, new connecting roads established in the context of the reconstruction of Tallinn ring road and transforming the Valmaotsa–Kärevere section of Tallinn–Tartu–Võru–Luhamaa road into a 2+1 lane road.

As at 1 January 2019, the length of paved roads is 11,958 km, i.e. 72%, and the length of gravel roads is 4,650 km, i.e. 28% of the total length of national roads.

Existing roads

78 km worth of paved roads were added in the course of the year, mainly due to covering gravel roads with dust-free pavements.

The density of national roads is 366 km per 1,000 km² and the density of the entire registered road network is 1,289 km per 1,000 km².

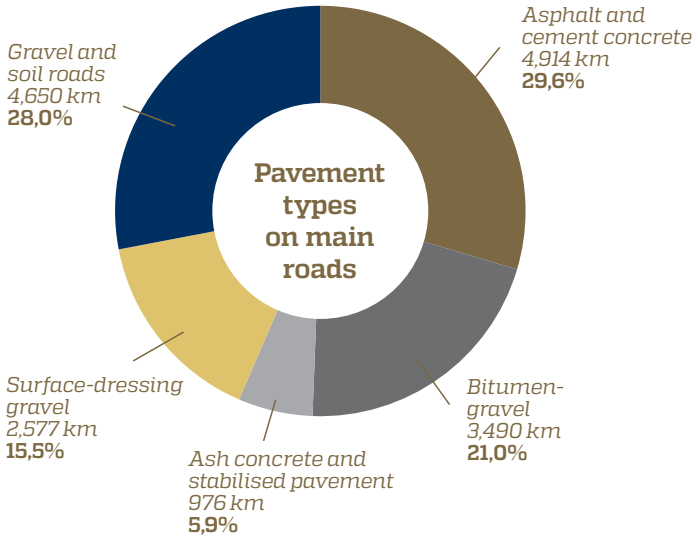
There are a total of 1,012 bridges on national roads with a total length of 25,170 m, two of which are wooden bridges with a total length of 30 m.

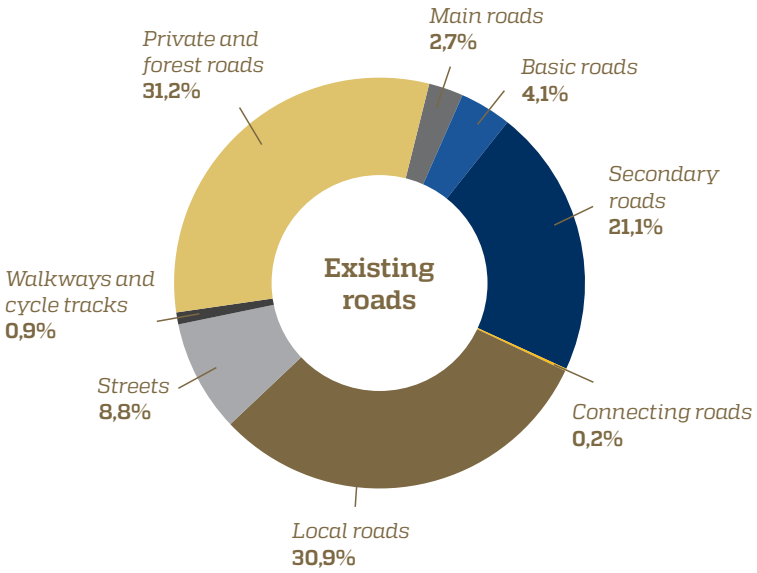
Pursuant to the Building Code, data concerning all public roads is collected, processed, stored and published in the register of roads. The register of roads is an online national database that includes data on national as well as local roads and is available to the public at https://teeregister.mnt.ee. Road Administration is the data controller of the register of roads, whereas the data is supplied by the Road Administration in regard to national roads and local governments in regard to local roads.

Supplementing data and addition of new data to the register of roads is carried out on a rolling basis pursuant to acceptance documents and additional inventories. In cooperation with the Land Board, applicable road layers are based on the Estonian Topographic Database (ETD). For the visualisation of the data stored in the register of roads, there is a X-GIS map application of the Road Administration in the geoportal of the Land Board, where one can view data regarding national as well as local roads.

National roads	**16,608 km**
incl. main roads	1,609 km
basic roads	2,405 km
secondary roads and other national roads	12,480 km
connecting roads	114 km
Local roads	**24,002 km**
incl. highways	18,237 km
streets	5,209 km
walkways and cycle tracks	556 km
Private and forest roads*	18,398 km
Total:	**59,008 km**

* 31 December 2008 data of Statistics Estonia





*An E-road is a road defined by the UN Economic and Social Council (a road of the European road network as in the Building Code).

**A TEN-T road is a road defined in Regulation (EC) No 1315/2013 of the European Parliament and of the Council that is located on the territory of Estonia (a road of the Trans-European road network as in the Building Code).

TARMO MÕTTUS,
Deputy Director General in
Maintenance Area of Road Administration

2018 posed a lot of challenges for the Area of Road Maintenance. The largest challenge was certainly the enhancement of the wintertime road maintenance level as of 1 November.

Increased volume of maintenance also constituted a challenge for our maintenance partners who had to expand their machinery, plan maintenance routes more efficiently and react quicker in changing weather conditions. It was pleasing that all maintenance partners embraced the new plan in the end. Preparatory works for the achievement of such results took one and a half years. After all, our objective is common – create a safe and securer traffic environment for road users.

The amendment resulted in additional 566 km of roads with a condition level of 3+ (i.e. the highest level); said condition level must be ensured on roads with a traffic volume of 3,000 cars or more per day. Condition level 3 was appointed to additional 314 km of roads. Condition level 2 was appointed to an additional 552 km of roads, meaning that said condition level must be ensured on roads where traffic volume exceeds 250 cars per day. We raised the condition level on a total of 1,432 km of roads. We also provided 1.9 million euros of additional funding to ensure fulfilment of the new requirements.

In recent years, we have been cooperating with the Ministry of Economic Affairs and Communications in regard to preparing the amendment of the Regulation of the Requirements for Condition of Roads. We reached its entry into force in autumn.

In 2018, we launched a pilot project on road maintenance surveillance in Pärnu county, in the context of which we ordered maintenance surveillance from the open market. The Road Administration personally monitors the fulfilment of maintenance contracts, however, we are using this pilot project to test the functionality of such a service when ordered from other companies and whether it is something to consider in the future. Initial conclusions can be made in the spring of 2019 and the consequent course of action can then be considered.

We are still working on harmonising surveillance activities, which can be facilitated by applying the measurements collected in regard to the assessment of road conditions and developing the maintenance and supervision log, and merging it with the notification system of road users to create one collective information system. In 2018, we purchased four new devices for the measurement of the wet grip index, which shall contribute to the efficiency of road maintenance surveillance.

We thoroughly considered options on how to improve the condition of gravel roads, and the situation of persons who live by and use gravel roads. The most efficient method is still to increase the volume of dust control. In 2017, we carried out dust control on approximately 1,000 kilometres, whereas in 2018, the volume had increased by 500 km, reaching 1,500 km. We execute dust control on all roads where traffic volume exceeds 90 cars per day. Furthermore, we also carry out dust control on roads where traffic volume is lower, in places where it is necessary for inhabitants.

The Road Administration pays nearly 700,000 euros annually for the

Area of Road Maintenance

electricity utilised in street lighting. The Area of Road Maintenance began replacing regular street lighting lamps with LED lamps in order to create long-term savings. This will certainly continue in 2019 as well. It should result in a reduction of 50% in electricity costs in a couple of years.

In 2018, the Road Administration also carried out a first pilot project by installing temporary public restrooms for the summer period in some car parks located by main roads. For instance, a total of 26 temporary restrooms were installed at four car parks located on Tallinn–Narva road, at three car parks on Tallinn–Pärnu–Ikla road and at four car parks on Tallinn–Tartu–Võru–Luhamaa road. The special needs of disabled persons were also taken into account upon installing the restrooms.

The project shall continue in 2019, during which we will increase the time period as well as the number of car parks where temporary restrooms shall be installed. Upon selecting the locations, we consider the popularity, size and distance of the car parks from the nearest petrol stations and eateries. However, the petrol stations and eateries located by the side of national roads shall continue to bear the greatest burden, as better conditions for serving people have been ensured at such places. The problem was that the restrooms installed at car parks became subject to vandalism, which means that the creation of equal conditions would require improvement of good conduct practices and an additional service provider on-site.

For the first time in several years, we also installed garbage bins at those same car parks, which will remain in use throughout the year. We believe that the waste management culture has improved and that these bins will not become a place for nearby inhabitants to discard their domestic waste.

In 2018, we created a Road Administration work group who began to address an extremely topical issue in the society – travel speed on national roads. Under the leadership of the Traffic Management Department, we have divided this topic into various key issues and agreed to find a solution to these issues among the Traffic Safety Department, Planning Department, Traffic Management Department and Road Maintenance Department. We prepared an action plan in regard to future activity.

The Road Administration is currently preparing a guide which can be used in the future to determine the fastest travel speed on various roads. Determination of travel speed depends on the function of the road, traffic volume, traffic composition and land use. The most important aspect in terms of travel speeds is traffic safety, which is our reference point in all activities. For this, we have commenced a thorough analysis of the road network in order to detect possible bottlenecks in areas where the traffic regime does not reflect the traffic environment, especially in terms of traffic safety. We wish to review the roads where travel speed can be increased and where it should be reduced.
In 2019, we shall conduct a speed limit related pilot project, under which we will apply common principles of speed limit determination on selected test sections. The aim is to bring the speed regime of the test sections into compliance with the traffic environment in the course of the pilot project by making permitted travel speed clearer and safer to the road users, therefore reducing the risk of traffic accidents.

The biggest change in traffic management for road users was implemented on Tallinn–Pärnu–Ikla road, where variable message signs were adopted. These signs enable us to warn road users in the case of slipperiness and to change the permitted travel speed according to road conditions. The biggest surprise for many road users was the permitted speed of 110 km/h during winter in the daylight. Our aim is to allow road users to travel at the speed that is in accordance with weather and road conditions.

The difficult wintertime weather conditions in 2018 and 2019 have made us consider reviewing the current road maintenance model. The expectations of road users for better travel conditions on the one hand and existing opportunities arising from current road maintenance contracts on the other hand have made us realise that we must analyse our options for the provision of better road maintenance services. Consequently, we have made it part of our 2019 action plan to collect and compare various road maintenance concepts from around the world. As a result, we would like to figure out which road maintenance model would be the most suitable in our conditions.

We also wish to complete the analysis of equipment currently used on roads by mid-2019. We want to use this as a basis for agreeing on future development principles and for developing suitable methodology for selecting the location for such equipment.

We will also continue with various topics handled by the work group in the speed area, incl. convening an external expert committee to assess our preliminary vision for shaping travel speeds on Estonian roads.

Maintenance
of national roads

Pursuant to the new maintenance contract, AS Eesti Teed began work in the area of Keila roadmaster as of 1 February 2018, and on the basis of the extended maintenance contract, Leonhard Weiss Viater Ehitus AS began work in Rapla county as of 1 June 2018.

Distribution of maintenance providers as at 1 January 2019 is as follows.

- AS TREV-2 Grupp, 4,337 km – 26.1% in Põlva, Valga, Jõgeva and Ida-Viru county.
- AS Eesti Keskkonnateenused, 1,243 km – 7.5% in Viljandi county.
- OÜ Tariston, 1,846 km – 11.1% in Kose area in Harju county as well as in Hiiu and Järva county.
- AS Üle, 442 km – 2.7% in Kuusalu area in Harju county.
- AS Eesti Teed, 4,259 km – 25.7% in Keila and in Lääne-Viru, Võru and Saare county.
- AS Leonhard Weiss Viater Ehitus, 1,014 km – 6.1% in Rapla county.
- OÜ Warren Safety, 771 km – 4.6% in Lääne county.
- OÜ Sakala Teed, 2,692 km – 16.2% in Pärnu and Tartu county.

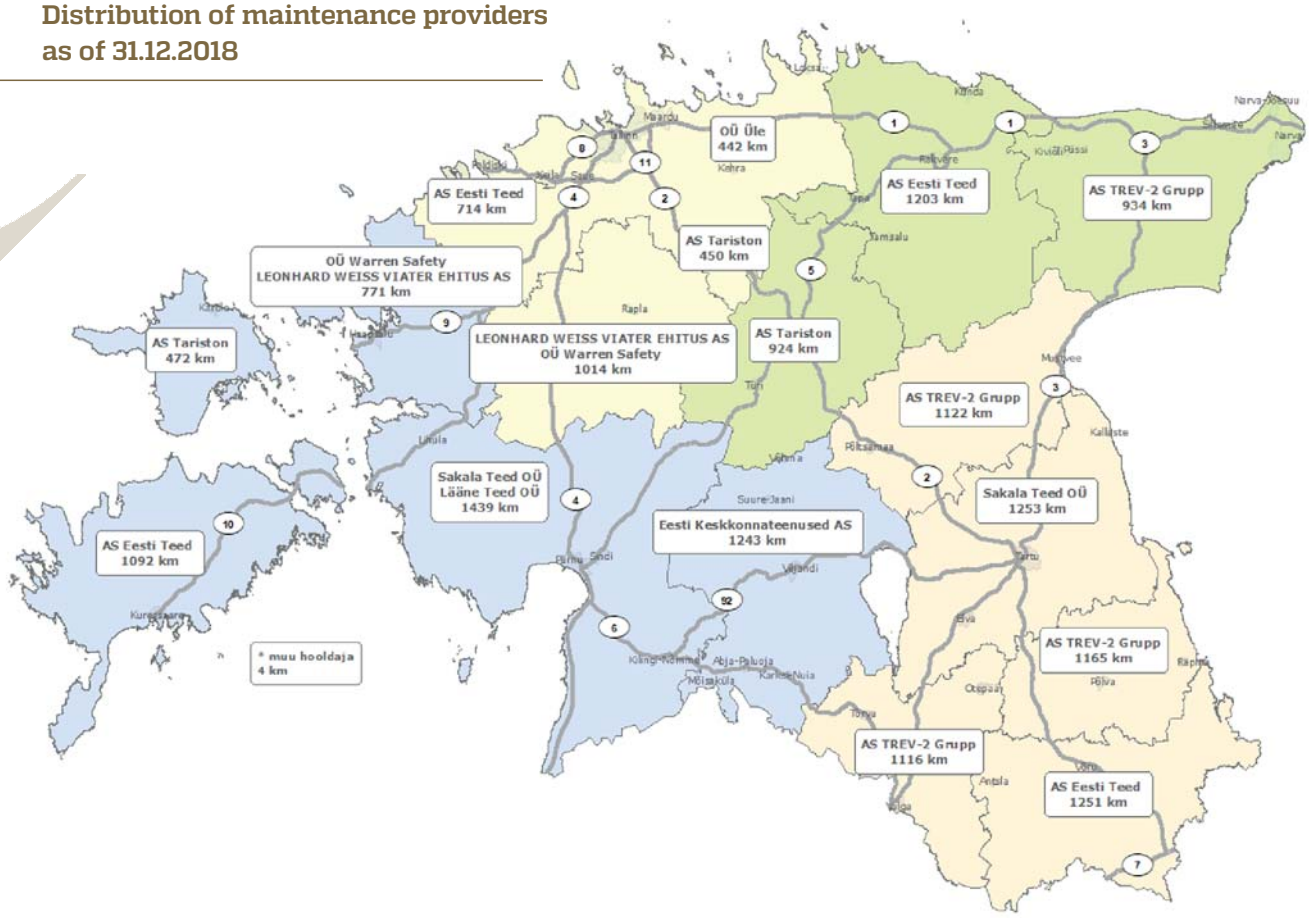
Maintenance of national roads was funded with 27 million euros in 2018. 16.7 million euros was allocated for winter maintenance and 10.3 mil-lion euros for summer mainte-nance. Under contracts concluded with 17 maintenance areas, maintenance costs amounted to 1,626 euros per one kilometre of national road (1,600 euros in 2017, 1,912 euros in 2016, 2,693 euros in 2015).

Maintenance Department of Road Administration launched a six-year project in 2018, during which sodium-vapor lamps that currently illuminate national roads shall be replaced with energy saving and efficient LED lamps. We installed 790 new LED lamps on 36 intersections. There are a total of 10,000 street lamps in need of replacement.
In addition to saving energy, new LED lamps also ensure a more consistent distribution of lighting on national roads, thus improving traffic safety.

Driver satisfaction survey
70% of road users said that they are satisfied or very satisfied with summertime road maintenance, which is 2% lower than last year. 49% of road users said that they are satisfied or very satisfied with wintertime road maintenance, which is 4% lower than last year. Even though the percentages have declined, they are still high.

In terms of wintertime maintenance requirements applicable on Estonian national roads, 46% of drivers consider themselves aware of the requirements, whereas 79% of them are satisfied with wintertime requirements.

Distribution of maintenance providers as of 31.12.2018



70% of drivers have seen the "Road is slippery, drive accordingly!" campaign and 87% of respondents consider is necessary. 48% of drivers believe that the campaign affects behaviour in traffic.

Pursuant to the Bonus System Guide for Road Maintenance Providers, which is based on the satisfaction survey, AS TREV-2 Grupp earned a monetary bonus for providing maintenance services on national roads in Ida-Viru and Jõgeva county, AS Tariston in Hiiu county and OÜ Warren Safety in Lääne county.

Ice Roads

Haapsalu–Noarootsi ice road existed for 24 days and was open for traffic for 17 days. The total cost of the ice road was nearly 27,000 euros. The ice road was used by 9,581 cars.

Tärkma–Triigi ice road existed for five days and was open for traffic for two days. The total cost of the ice road was nearly 12,000 euros. The ice road was used by 477 cars.

Rohuküla–Sviby existed for 16 days and was open for traffic for ten days. The total cost of the ice road was nearly 37,000 euros. The ice road was used by 5,252 cars.

Laaksaare–Piirissaare ice road existed for 32 days and was also open for traffic for 32 days. The total cost of the ice road was 39,244 euros. The ice road was used by 545 cars and 228 vulnerable road users (ATV, snowmobile, kicksledge, etc.).

Lao–Kihnu ice road remained unopened during the season of 2018, however, the surveys conducted cost nearly 3,000 euros.

Traffic counting

As at the end of 2018, the traffic counting system included a total of 100 permanent traffic counting stations and 47 periodical counting stations.

Changes in Estonian economy are also reflected in the results of traffic counting. For instance, traffic volume increased steadily between 1998 and 2007, reaching 6–10% per year on main and basic roads, whereas between 2008 and 2010, traffic volume declined significantly. Between 2011 and 2012, traffic volume remained at the same level as in 2010, but started to grow once again in 2013, remaining between 2.0–5.9% between 2013 and 2017. In 2018, traffic volume increased by 2.9% in comparison with 2017.

The section with the highest traffic volume is still a section of the Tallinn–Pärnu–Ikla road located at the border of the city of Tallinn, where the average volume of km 13.0–13.8 was measured at 32,723 cars per day.

Participation in ITS projects

The Road Administration is engaged in various international and domestic ITS projects, the realisation of which is funded by European Union (EU) funds.

The activities of the Estonian-Latvian traffic management project **SMART E67** continued in 2018. All variable message signs and information boards on the Via-Baltica route have been installed in Estonia as well as in Latvia. The traffic light system of the Pärnu bypass was improved.

In autumn 2018, the Road Administration submitted an application for five-year ITS project CEF in the ITS development round for the establishment of a dynamic traffic management system on the Väo–Saue section on Tallinn ring road and for the establishment of a heavy vehicles smart car park in the Väo area. The European Union shall make the funding decision by summer 2019.

The Road Administration is also participating in the **TN-ITS GO** project, the aim of which is to mediate data for companies that offer navigation services, in order to provide road users with quick and up-to-date road information. In 2018, an analysis was launched and a realisation plan for the pilot solution was prepared, which is used as a basis for developing a data exchange service across Estonian national roads in 2019.

In 2018, activities of the **Real-time Ferries** (RTF) project commenced, in the context of which two variable message traffic information boards shall be installed on roads leading to Hiiumaa and Saaremaa in 2019; displaying operational information regarding departing ferries in addition to road information. Two road weather stations shall be updated on the islands, and information on ferries shall be made available in the travel planner of Road Administration at peatus.ee.

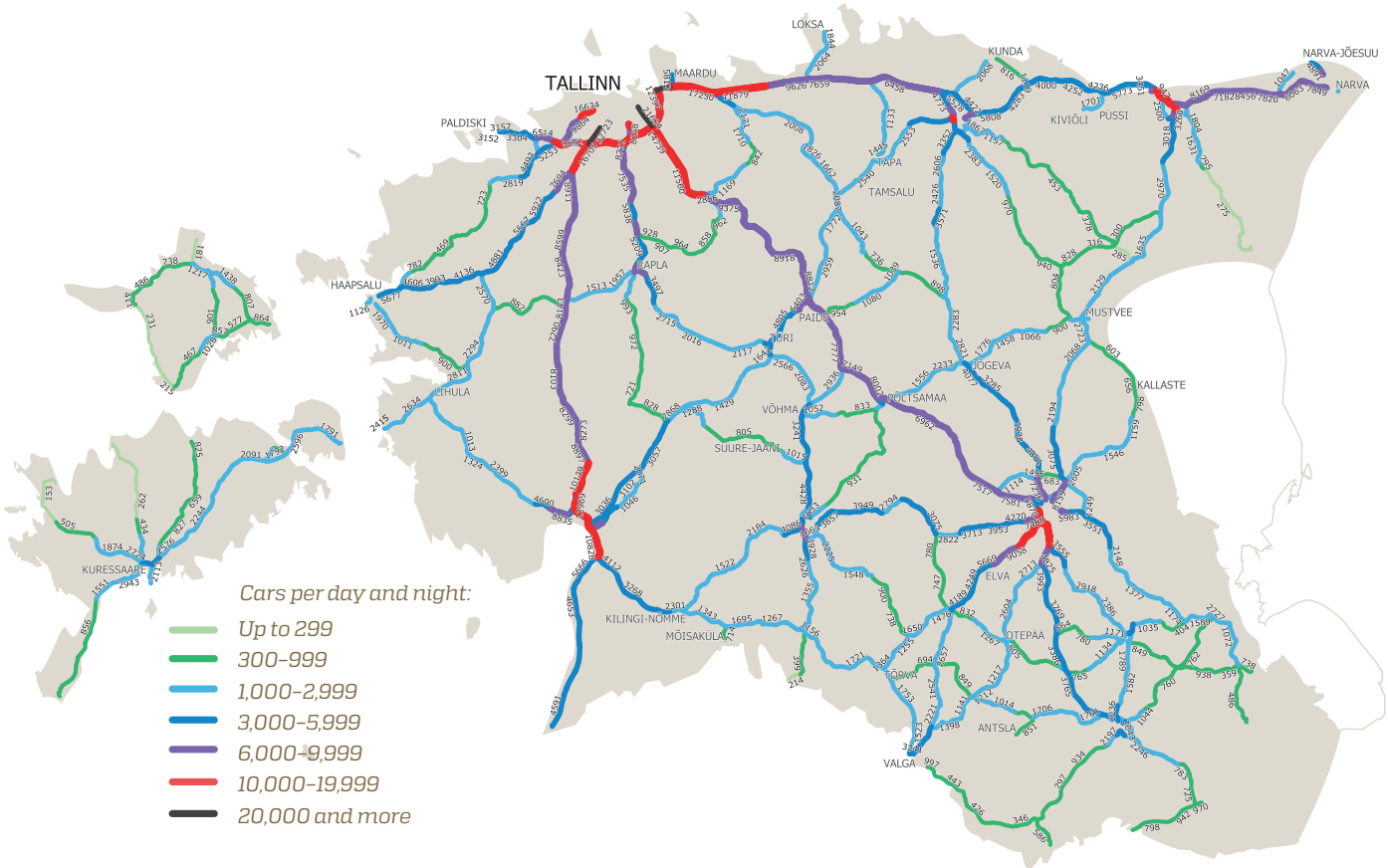
The Road Administration also realised a new **development of the Tarktee** traffic restrictions disclosure project in 2018.

In conclusion, 2018 can be characterised by the abundance and international nature of various ITS-related projects and activities, which establish a great foundation for international cooperation and the use of smart solutions.

BEST ROAD MAINTENANCE PROVIDER

The best road maintenance provider was selected on the basis of contractual deductions, the number of overdue deficiencies, results of periodical reviews and the number of complaints received from road users. The title of the best road maintenance provider was awarded to **Eesti Teed AS** who maintains national roads in the area of the Keila roadmaster and in Võru, Lääne-Viru and Saare counties.

Traffic volumes on national roads



In 2018, the Road Administration conducted 38 state supervisory procedures in regard to the construction of public roads. The review included checking the compliance of materials and products, as well as road works with the design and compliance to quality requirements of road construction.

Problems occurred in regard to the tilt and flatness of construction courses built during traffic, prior to the construction of the next layer. On occasion, work on the following construction course began before the previous work had been accepted and without the necessary permit.

In terms of asphalt mixes, the composition and gradation of binders and deformation-resistance of mixtures were inspected. Compliance to temporary traffic organisation requirements during road works continued to receive greater attention. Inspection of the compliance to established requirements at road construction objects of local governments continued as well.

State supervision of compliance to road condition requirements for the roads of local governments

In 2018, the Road Administration continued to monitor the condition of roads and streets in local governments, focusing on places where the traffic volume and thus also the risk of traffic accidents is higher. The number of inspected local governments decreased in comparison with previous years due to the administrative reform.

The Road Administration carried out state supervision procedures on the compliance to road condition requirements of local roads in 44 local governments. 39 of those were planned and five were case-specific. Procedures involved the inspection of 349 different roads, streets or sections thereof with a total length of 589 km.

Deficiencies were detected on 204 roads/road sections, i.e. on 58% of inspected roads/sections.
Most common deficiencies:

- lateral visibility on roads below the required level;
- occurrence of potholes that exceed permitted size, as well as occurrence of unmarked potholes in the road surface;
- height difference between road surface and shoulder;
- branches in the clearance zone;
- road signs were not visible or readable for road users due to various reasons.

The deficiencies were eliminated during procedures and a follow-up inspection was carried out before conclusion of the procedure.

Settling of claims

The increasing intensity of traffic results in higher risk of traffic accidents. In the event of traffic damage, it is inevitable that road users submit claims to the Road Administration, whether justified or unjustified. In comparison with previous years, road users submitted more claims to the Road Administration than before, the total amount of claims increased as well, whereas the total amount of damages paid declined by nearly a quarter. Data on claims submitted and damages paid between 2015 and 2018 is set out in the table below.

Data on claims submitted and damages paid by the year the claim was submitted

Year when claim was submitted	Number of claims	Number of successful claims, incl. partially	Number of claims dismissed	Ongoing procedures, number	Procedure not initiated[1]	Sum of claims	Sum of damages	Sum of damages by the Road Administration	Sum of damages by contractual partners
2015	102	23	58	1	20	€ 63,317	€ 16,431	€ 4,778	€ 11,654
2016	87	21	41	-	25	€ 102,087	€ 3,447	€ 2,383	€ 1,064
2017	147	74	29	5	39	€ 68,179	€ 21,712	€ 11,017	€ 14,641
2018	159	46	62	4	49	€ 84,479	€ 16,459	€ 3,984	€ 12,475
Kokku	495	164	190	10	133	€ 318,062	€ 58,049	€ 22,162	€ 39,834

[1]Procedure was not initiated due to insufficient evidence

State supervision of roads

Speed surveys
In the spring of 2018, the Traffic Management Department began development of the methodology and guide for determining the speed limit outside built-up areas. The aim of the guide is to ensure that the applicable speed limit on roads is based, first and foremost, on safety and is in compliance with the established speed regime and actual traffic environment. The Finnish speed limit determination guide is used as an example.

There is an ongoing pilot project for applying and improving the methodology of determining speed limits, where common principles of speed limit determination are applied on selected test sections. This was preceded by a thorough analysis for identifying bottlenecks.

Two test sections were selected for implementation of the pilot project: Jõhvi–Tartu–Valga main road and Tallinn–Rapla–Türi basic road. The selection was based on the fact that the selected sections were subject to various situations that occur elsewhere in the road network, and that could be generalised for other national roads. Speed limits that are based on the developed methodology and safety in particular shall become applicable on the selected test sections in spring 2019. In 2018, the existing speed regime on these sections was mapped, and actual speeds were measured and analysed. During the test period, speeds are measured on the basis of the new arrangement and an assessment is prepared on how road users perceive the new speed regime that is based on the traffic environment.

In 2018, the Traffic Management Department was actively engaged in measuring and monitoring the travel speed of vehicles. Capacity of monitoring was significantly increased by a services contract concluded in spring 2018, under which a contractor measures vehicle travel speed with mobile speed measuring devices in places on which there is no prior data. Furthermore, five new mobile speed measuring devices were purchased. By the end of 2018, the Road Administration had used mobile speed measuring devices to measure vehicle travel speed on 282 different objects. Said objects are supplemented by permanent counting stations that consistently collect vehicle travel speeds at specific locations.

Measuring and data collection of vehicle travel speeds shall continue in 2019, during which vehicle travel speeds are measured in all speed limit areas (permitted speed less than 90 km/h) of main roads. This will provide a significant and accurate overview of actual travel speeds at various speed limit areas on main roads.

Traffic management surveys

Traffic management survey on level crossings
In 2017, development of the traffic management guide for level crossings commenced, clarifying and supplementing requirements of various regulations and standards concerning traffic management of level crossings. The guide sets out requirements regarding visibility, breaking distance and suitable speed for entering a crossing.

In 2018, the Road Administration ordered a traffic management survey of level crossings in order to check compliance of the traffic management of level crossings located on national roads with the requirements of the guide and detect parameters that play an important role in the assessment of the safety of level crossings. The survey included 58 level crossings on national roads throughout Estonia.

During the survey, road signs and road markings at level crossings, as well as the location, condition and other parameters thereof were inspected in order to assess compliance with the requirements of the guide. Information regarding the manufacturer and installer of road signs and their time of instalment was collected as well.

Furthermore, visibility triangles, i.e. actual visibility from both directions (meaning at which point from the level crossing can a train that is 400 m away be seen), were measured and determined.

In addition, actual travel speeds at level crossings were measured from both directions approximately 30–40 metres before the crossing. The results showed that travel speed is the biggest issue, as the speed limit is ignored. Therefore, one of the first tasks was to begin implementation of calming measures. It was also concluded that the established speed regime of various crossings is not in compliance with the safe speed for passing the level crossing, and must thus be changed.

In general, there were no problems with road signs and road markings at level crossings, as they were mostly at the right location and in required condition.

The results can be used by the Road Administration to determine the safety levels of level crossings and to prepare plans for improving the safety thereof.

Pilot project concerning road signs equipped with a signal light

In the context of a 2018 pilot project, the Road Administration ordered two road signs equipped with LED signal lights to be installed in Viljandi county. The aim is to enhance the attention of drivers approaching a safety island with the intention of improving the safety of road users especially in twilight and at night-time.

Road signs on km 31.6 of Imavere–Viljandi–Karksi-Nuia road and km 0.85 of Viljandi–Rõngu road were installed by IB Foor OÜ. By order of the Road Administration, Stratum OÜ conducted a traffic behaviour impact assessment prior to and after the instalment of road signs at said locations. The survey was conducted by using test persons with various driving experience, a questionnaire form was completed and eye-tracking device Tobii Glasses II was used. The glasses consist of a camera that records the situation observed and another camera that detects movement of the right pupil 30 times per second, thus recording the position of the eye the objects observed.

The results of eye-tracking glasses were opposite to expectations: the gaze of drivers fixed on road signs equipped with a signal light later than on those without it. The survey brought out that eye-tracking glasses indicate the fixation of the driver's gaze on an object, however, in the case of road signs equipped with a signal light, drivers notice it even without fixing their gaze on it. The questionnaire results revealed that most drivers noticed the flashing road sign from far away.

In conclusion, the use of road signs with signal lights is not recommended everywhere, but only in places where it is more likely to hit the safety island upon significant deviation of the travel path.

The impact of road signs equipped with a signal light was also assessed as part of another pilot project near the Randvere school and kindergarten in Viimsi municipality. A thermal camera that detects pedestrians and road signs equipped with signal lights, which warn drivers, were installed at the site.

The survey conducted by the TTK University of Applied Sciences by order of the Road Administration showed that the proportion of drivers who ignored the obligation to give way to pedestrians reduced to 6–7% following the instalment of the system, which is a significant difference in comparison with the initial 20% of ignorers. Even though the proportion of drivers who adhered to the obligation to give way remained high during the first year after the instalment of the system, an increase of travel speed within the permitted speed limit was observed.

It is also important to note the high assurance of safety by pedestrians before crossing the road, which also improved after the instalment of signal lights, even though they were not aimed at crossing pedestrians, and the increased attention in traffic could have stemmed from improved awareness and possibly addressing the topic of traffic safety in the small community.

Traffic Management Centre

Traffic Management Centre became operational on 1 November 2017 as a successor of the former Traffic Information Centre.

The Traffic Management Centre (TMC) was established in order to improve safety and reduce time spent in traffic by ensuring that road users receive operative and preventive information. With regard to this change, the Road Administration began outsourcing the service of the road information line 1510 from the Help and Information Centre of the Emergency Response Centre.

The Traffic Management Centre handles the following tasks:

- collection of information regarding speed limits and publishing thereof in the portal Tark Tee, as well as forwarding information regarding important limits to the media;
- collection of information on winter road conditions from maintenance providers and forwarding thereof to the media;
- mediation of information regarding opening and closure of ice roads;
- issue of permits for special carriages and maximum weight;
- management and monitoring of variable message road sings, traffic cameras, crossing gates and other traffic management equipment;
- management of the road toll system.

One of the incentives for the establishment of the TMC was the big cooperation project SMART E67 with the Latvian Road Administration in regard to Intelligent Transport Systems (ITS), under which 35 variable message electronic road signs were installed on Tallinn–Pärnu–Ikla road by the end of 2017.

In the beginning of 2018, TMC was made responsible for managing the road toll system for heavy goods vehicles, which included entering into agreements with distributors and the management thereof, as well as making refund decisions and replying to enquiries made by clients and partners. The first year of applying the road toll has been satisfactory in general. In the course of the year, the network of sales points increased at the external border in particular, where the demand for payment is highest.

New partnerships were also established with providers of electronic payment solutions. An invoice payment option was added to the system and a self-service environment shall be completed in 2019, which will make payments even more convenient.

2018 was a year of establishment and development of the team, work processes, technical solutions and guidance materials for the TMC. The office of TMC underwent renovations and a new video wall was installed. In June, the first variable message signs on Tallinn–Pärnu road were switched to the so-called stationary regime and the second half of the year saw gradual improvement in the management capacity thereof alongside with the development of the automatic management system, which is planned to be adopted in spring 2019.

By the end of 2018, seven real-time traffic cameras which are operated at the centre were installed on Tallinn–Pärnu–Ikla road, providing information regarding the traffic situation, incidents as well as road and weather conditions.

A significant achievement was the completion of a new version of the Tark Tee portal in November. Implementation of the project was funded by the European Regional Development Fund with national co-funding to the extent of 15%. The updated environment offers additional opportunities to regular road users as well as carriers and is compatible with smart devices. An important update to the Tark Tee portal was the data gate that complies with the European-wide DATEX II standard, and can be used by the Road Administration to forward operational data regarding traffic restrictions, road repairs and traffic hazards for public use. Development of the Tark Tee portal will continue in upcoming years and the biggest challenge will be to increase inclusion of local governments in regard to sharing traffic information concerning local roads.

In terms of special carriages, the biggest change was the amendment of legislation which entered into force on 1 July 2018. The amendment enables carriers of other goods aside from roundwood to also use heavier road trains upon special carriages, if the axles of vehicles used are equipped with paired tyres and the laden mass does not exceed 48 tonnes in the case of 6-axle road trains and 52 tonnes in the case of 7-axle road trains. Experts find that such technical requirements enable to decrease the adverse effects on roads arising from larger laden masses.

By the end of the year, a guide for the issue of transport permits and the determination of special terms was completed, therefore organising and harmonising the process and terms of issuing transport permits. The most important update in terms of the development of the transport permit information system was transferring the application process of traffic ban permits to the e-service, thus enabling applicants and handlers to save time.

SMART E67 is a joint project between Estonia and Latvia, under which various roadside intelligent transport systems (ITS) for traffic management, monitoring and notification of road users were installed on Estonian and Latvian sections of the Via Baltic route (E67) in 2017.

The aim of the SMART E67 project is to make travelling on an international road with high traffic volumes safer and smoother, as well as decrease travel times.

For Estonia, the most important output of the project is the adoption of variable message signs, which can be used to change the speed limit on the basis of actual road or weather conditions, notify road users of traffic accidents, hindrances on the road, road repairs and bypass routes in the event of road closures, forward information regarding travel times in the case of traffic jams, and other useful information regarding traffic.

Data is collected in relation to road and air temperature, condition of road surface, wind speed, type and intensity of precipitation, traffic volume and speed.

The installation of variable message signs and additional road weather stations was completed by the end of 2017.

All necessary electrical connections were completed in the course of 2018 and starting from June, the signs were gradually switched on. At first, the signs operated in the so-called stationary regime, however, the Traffic Management Centre began managing the signs in accordance with the developed management rules in autumn.

The Road Administration and AS Teede Tehnokeskus concluded a consultancy contract in spring 2018 for the development of management principles for the signs. A foreign expert from Finland assisted in the development process and the corresponding guide developed by the Finnish Transport Agency was used as an example in structuring the Estonian guide. The impact of various, especially wintertime road conditions, factors on actual travel speeds on Tallinn–Pärnu–Ikla road were analysed on the basis of prior data received from road weather stations and traffic counting stations. The specification and suitability of the location of existing road weather stations were also analysed in regard to traffic management needs. The first version of management principles was completed in autumn.

In addition to the adoption of variable message signs, we also developed the traffic light system of the Pärnu bypass section over the year. Traffic light programmes were optimised in order to ensure better coordination between the nine consecutive regulated intersections (the so-called green wave); sensors that detect heavy goods vehicles were also installed on two intersections. An innovative solution was the instalment of prismatic variable message information boards on Liivi road in Pärnu. These boards recommend a suitable speed for road users until the next green traffic light, depending on the current phase of the traffic light cycle. The aim of the innovations was to make the Pärnu bypass smoother and faster, especially for transit traffic.

In October 2018, we entered into a five-year contract with AS IB Foor for the development of the traffic management system. The supplied traffic management system based on the Swarco Omnia platform will become the primary tool for the Traffic Management Centre in the management of variable message signs. The aim is to make the management system as automatic as possible. The experience of other countries has revealed that it is highly difficult to make management systems that are dependent on road conditions and the weather fully automatic, and that the role of humans will remain particularly important in confirming decisions regarding the increase of speed limits. The first stage of the traffic management system should become operational in March 2019 and the second stage in June. Pursuant to the contract, additional variable message signs and monitoring systems can be integrated into the same system in the future.

SMART E67 project will conclude in 2019, but the positive impact of the project will last for many years to come. In addition to the Tallinn–Pärnu–Ikla road, we plan to extend the traffic management system to the Tallinn ring road as well as the Tallinn–Tartu direction in the coming years. Aside from the direct benefit to the development of the E67 route, the project has also been greatly beneficial to the Road Administration team in acquiring experience and knowledge in a new area.

Variable message signs

The Road Administration collected 20.2 million euros in road toll and sold a little over 685,000 tickets in 2018. The collected amount constituted 102% of the estimated 19.7 million euros.

Road toll for Estonian vehicles was paid to the extent of 14.3 million euros with 276,000 tickets purchased. Road toll for foreign vehicles was paid to the extent of 5.92 million euros with nearly 410,000 tickets purchased. In terms of foreign vehicles, the largest amount of road toll was paid for Polish vehicles – 1.8 million euros (35% of tickets purchased for foreign vehicles). Poland was followed by Latvia with 1.6 million euros (23% of tickets), Lithuania with 1.3 million euros (18% of tickets) and Russia with 620,000 euros (12% of tickets).

One day tickets were the most popular category with nearly 620,000 tickets purchased. These were mostly purchased by foreign vehicles, constituting over 400,000 tickets, i.e. 65% of one day tickets. The amount of one day tickets purchased for Estonian vehicles exceeded 217,000 (35%). In terms of popularity, one day tickets were followed by 90 day tickets (33,800), 30 day tickets (over 23,000) and 365 day tickets (nearly 3,400). Purchase of long-term tickets was particularly popular among Estonian carriers, as 95% of yearly tickets and 97% of quarterly tickets were purchased for Estonian vehicles.

Payments, i.e. payment of 75.6% of tickets and 88.6% of the amount due, are mainly made through the website of road toll.

Road toll was paid at border crossing points (incl. eastern border and ports) on 43,300 occasions (6.4%). All primary border crossing points have sales points. More information on payment options is available at the address www.teetasu.ee.

According to the Tax and Customs Board (TCB), 25,567 trucks travelled on Estonian roads in 2018, 58% of which were registered in Estonia and 42% were foreign trucks. The analysis of the TCB shows that the road toll was always paid for 53% of all trucks in 2018, incl. 46% of Estonian trucks and 63% of foreign trucks. The road toll was always unpaid for 11% of trucks in 2018 (incl. 10% of Estonian and 12% of foreign trucks). For the rest of the trucks, road toll was sometimes paid and sometimes unpaid during travel. An estimated 1.16 million euros of road toll remained unpaid in 2018, and 963,670 on Estonian trucks.

Road toll was paid at border crossing points (inc. eastern border and ports) and at the service bureaus of TCB on 36,712 occasions. Moreover, all trucks that entered the eastern border crossing point underwent an inspection, a total of 107,908 trucks in 2018. Procedures due to unpaid road toll were initiated at border crossing points on 197 occasions. Procedures are initiated upon establishing unpaid road toll regarding trucks exiting Estonia, if the truck is entering Estonia, we direct them to pay.

In addition to border crossing points, the TCB also carries out road inspections. A total of 9,238 road inspections (all vehicles in total, incl. vehicles that exceed 3.5 tonnes) were carried out last year, unpaid road toll was detected on 555 occasions and persons were directed to pay.

In 2018, the police initiated 1,301 misdemeanour procedures in regard to unpaid or insufficiently paid road toll, 314 procedures were initiated in relation to foreign citizens.

Road toll

Development of road weather stations continued in 2018, which saw the construction of six new Lufft road weather stations in the following places: Uhmardu, Rõngu, Ainja, Üdruma, Lokuti and Kurla.

Precipitation sensors of the six road weather stations of Tallinn–Pärnu–Ikla road were updated, enabling to manage new electronic road signs on that road more accurately than before.

The information system of road weather stations included 76 road weather information systems (three of which belong to local governments), 112 road cameras (19 of which are real-time road cameras) and two variable message electronic road signs as at the end of 2018.

Updating of IR lighting of road cameras commenced, which will help to significantly improve the quality of night-time photos, thus contributing to the improvement of the quality of wintertime maintenance works.

The Road Administration did not install any new speed cameras in 2018; national roads are equipped with 66 measuring booths for speed cameras. In addition, the Road Administration also has two measuring booths in the city of Tallinn.

There are a total of 68 measuring booths in Estonia. Four measuring booths can measure speed in both directions. The so-called two-way measuring booths are located at Puhu intersection in Põltsamaa city, Libatse village in Pärnu county, Rannu village in Ida-Viru county and Kiia village in Harju county.

The Road Administration uses 50 measuring devices on national roads, which are periodically switched between booths.

2017 marked an important milestone for the Road Administration in terms of speed cameras, as automatic surveillance was launched on a local government road for the first time ever. In March, speed cameras on Endla street, Tulika street and Sõpruse puiestee intersection (so-called Kristiine intersection) became operational. The first stage initiated determination of travel speed. The project will continue in 2019, during which the same equipment will be used at the Kristiine intersection to also automatically detect ignoring of red traffic lights.

Road weather stations

Speed cameras

PRIIT SAUK,
Director General of the
Estonian Road Administration

The Road Administration can consider 2018 incredibly successful in the area of preservation and development of the road network.

All financial objectives regarding investments were met to the extent of 98% and all volume objectives, either per kilometre or piece, were in fact exceeded. This year's success was certainly spurred on by exceptional weather during the construction season: the summer was sufficiently warm and not that rainy, and the winter did not come early either.

Challenges faced by the Planning Department concerned the preparation of major projects for upcoming years, the objectives of which were clarified thanks to the amendment of the road maintenance plan approved by the government in September. The government's approval set a clear direction for projects regarding Pärnu–Uulu, Pärnu–Sauga, Aaspere–Haljala and Are overtaking area, which were launched a year and a half ago. The year also brought on various ideas and collaboration obligations, which were quite time-consuming, but which the Planning Department addressed head on and managed to successfully realise, whether it involved preparation of joint projects with Rail Baltic or another idea for the Saaremaa bridge, which was discussed and thought through in quite some depth with the Road Development and Investment Department.

Actual cooperation activities with Rail Baltic were launched, most likely bringing along more joint projects in the upcoming years, in addition to the construction procurement for the Luige–Saku section of Tallinn ring road, which was jointly announced in the end of 2018. The procurement seeks a constructor for a section that will also involve the establishment of a new overpass over the future Rail Baltic route. The procurement is carried out by the Road

Area of Construction

Administration, however, the Rail Baltic structure shall be responsible for funding the overpass and provision of quality surveillance over railway safety. It has currently been agreed that another 18 hubs or intersections shall be established in the coming three years on the basis of the same cooperation model, while the construction solutions, schedules and costs shall be jointly specified.

The possibility of managing data better and more efficiently thanks to digitisation has benefited various areas by now. As a trendsetter in the sector, the Road Administration has an important role to play in order to ensure that it also manifests in the area of roads. In 2018, the Road Administration carried out two first time pilot projects for the implementation of InfraBIM in road construction in Estonia. These projects showed us that the learning process in implementing BIM will not be ending any time soon. In addition to the supplementation of the structure of data and files, the roles and limits of liability of the parties must also be defined in more detail. We can implement all of this next year when we plan to utilise BIM instruments in six road projects.

We are glad to say that relations between the Road Administration and the Asphalt Pavement Association improved significantly in 2018. Several workgroups were established and they are continuously debating over the requirements for pavement materials as well as durability of pavement. Furthermore, we carried out pilot projects, in the context of which we established in procurement terms that the contractor would receive a bonus if they use vehicles with a heated load space during transportation of pavement mixtures and a pre-feeder on asphalt pavers. Both projects were successful and both contractors earned the bonus. We received a lot of positive feedback from contractors, even though the amounts were not enormous. The success of these pilot projects confirmed that if contractors are provided a bonus for excellent work, they are willing to put in a lot more effort by evolving on a technological level as well as by working for a common objective to improve quality and durability over time.

Since the Area of Construction is currently economically on the rise and our experienced engineers and project managers are valued on the job market, many regions and departments suffered labour losses last year. The programme “Engineers back to school” was all the more important in terms of ensuring sufficient succession for engineers in 2018. During the programme, engineers of the Road Administration introduced their area and possibilities for development to the youth. Several eager Road Administration engineers managed to visit even more than two schools to invite young people to continue their education either at the Tallinn University of Technology or TTK University of Applied Sciences. Succession is currently a concern for all of us and we will certainly continue with the programme in 2019 in order to ensure a sufficient amount of road engineers in the future as well.

Granting qualifications for engineers continues to be an important topic as well. The Road Administration concluded a cooperation agreement with the Asphalt Pavement Association for participating in the committee for the approval of engineering qualifications and we will also be contributing to the establishment of standard requirements for the levels of qualification in the future. We have made it our goal to ensure that the engineers of Road Administration are well-educated, experienced, have completed continuous training, and that they would also aim to verify that they comply with increasingly higher standards of qualifications in the engineering area.

The primary focus of 2018 was on the preparation of the structural reform. I was really expecting that we would be able to launch our processes quicker and that the new structure would enter into force on 1 June 2018. Things did not work out quite like that, however, we made significant steps as a result of thorough discussions in workgroups for the establishment of the Area of Road Maintenance. The Area of Construction and Development along with the Area of Road Maintenance will be working hand in hand as of spring 2019.

Implementation of Road Maintenance Plan investments 2018 (including external resources)

Accrual based; in thousands of euros

Name of the project	*Type of budget*	*Budget*	*Budget implementation*	*Implementation %*
Construction	National resources	43,314	41,667	96%
	External resources	29,717	22,268	75%
	Total	**73,031**	**63,935**	**88%**
Reconstruction	National resources	58,993	57,053	97%
	Own resources	465	465	100%
	Total	**59,458**	**57,518**	**97%**
Maintenance repairs of paved roads	National resources	19,945	20,283	102%
	Total	**19,945**	**20,283**	**102%**
Restoration repairs of paved roads	National resources	21,067	21,354	101%
	Total	**21,067**	**21,354**	**101%**
Reconstruction of places that pose a traffic hazard	National resources	7,837	9,071	116%
	Own resources	-	45	-
	Total	**7,837**	**9 116**	**116%**
Planning	National resources	0	1,041	-
	Total	**0**	**1,041**	-
Maintenance repairs of gravel roads	National resources	10,024	11,292	113%
	Total	**10,024**	**11,292**	**113%**
Restoration repairs of bridges	National resources	5,153	4,833	94%
	Other resources	724	724	-
	Total	**5,877**	**5,557**	**95%**
Roads dust-free	National resources	7,894	5,979	76%
	Total	**7,894**	**5,979**	**76%**
Noise barriers	National resources	484	522	108%
	Total	**484**	**522**	**108%**
Total		**205,617**	**196,597**	**96%**

Volumes of Road Maintenance Plan 2018

Type of work	*Planned volume*	*Actual volume of accepted works*
Maintenance repair of gravel roads	**286 km**	**277 km**
Maintenance repair of paved roads	**1,222 km**	**1,442 km**
Restoration repair of paved roads	**224 km**	**250 km**
Construction and reconstruction	**194 km**	**192 km**
Construction	14 km	16 km
Reconstruction	180 km	176 km
Paving of gravel roads	**80 km**	**78 km**
Reconstruction and repair of bridges	**20**	**24**
Reconstruction of places that pose a traffic hazard	**54**	**54**

Total length of constructed and repaired roads 2,240 km

Selection of bridge objects in 2018

Road nr	*Road name*	*Location, km*	*Name of the bridge*	*Activity*	*Type of bridge*	*Length of bridge, m*
19331	**Rannametsa–Ikla**	0.4	Timmkanali bridge	Renovation	3-span simply supported beam bridge	30.4
13161	**Lohusuu–Maetsma**	26.7	Vadi bridge	Renovation	3-span cantilever RC bridge	24.6
24172	**Sultsi–Abja-Paluoja**	6.6	Ülemõisa bridge	Renovation	3-span simply supported RC beam bridge	24.2
22232	**Vedu–Kikivere**	4.1	Kikivere bridge	Recontstruction	1-span cantilever RC clapper-style bridge	18.3
20175	**Valgu–Libatse**	9.6	Lebenesi bridge	Recontstruction	1-span RC beam bridge	14
11421	**Laagri–Hüüru**	1.8	Karutiigi bridge	Recontstruction	1-span steel arch box girder bridge	7.1
20170	**Märjamaa–Konuvere**	6.1	Postikõrtsi bridge	Recontstruction	One-span RC clapper-style bridge	6.0
6	**Valga–Uulu**	34.9	Koriste bridge	Recontstruction	1-span RC rigid-frame bridge	5.0
46	**Tatra–Otepää–Sangaste**	20.1	Kintsli bridge	Recontstruction	1-span RC rigid-frame bridge	5.0
27	**Rapla–Järvakandi–Kergu**	22.4	Lihuveski bridge	Recontstruction	1-span steel arch box girder bridge	4.6
11	**Tallinna ringtee**	4.3	Lagedi viaduct 1 and 2	New construction	5-span precast RC beam bridge	115
11	**Tallinna ringtee**	2.2	Väo viaduct 1 and 2	New construction	4-span precast RC beam bridge	100.6
11	**Tallinna ringtee**	8.3	Rae viaduct	New construction	2-span post-stressed RC clapper-style bridge	49.3
11	**Pirita–Ülemiste kanal**	7.7	Rae bridge	New construction	1-span RC rigid-frame bridge	18.2
11	**Tallinna ringtee**	1.1	Veneküla tunnel	New construction	1-span RC rigid-frame bridge	16

NORTHERN REGION

Construction of the 2+1 road on Ääsmäe–Kohatu section on Tallinn–Pärnu–Ikla road

Location: **km 28–37 of national road No. 4 Tallinn–Pärnu–Ikla**
Engineer: **Tinter-Projekt OÜ**
Contractor: **Nordecon AS**
Supervision: **Sweco EST OÜ**
Total cost: **13.7 million euros**
The project was co-funded by the Cohesion Fund of the European Union

The aim of the 2+1 lane road is to improve traffic safety, smoothness and road environment. The 2+1 Ääsmäe–Kohatu overtaking sections reduce traffic stress upon overtaking heavy vehicle rows on the Via Baltica.
Km 28–37 of the Ääsmäe–Kohatu road section were reconstructed into a 2+1 lane road and equipped with a median barrier during the project. Six overtaking sections with a length between 0.9 and 1.5 km were constructed.
A wildlife crossing (for moose, roe deer, wild boar, foxes, raccoon dogs) with a width of 50 to 65 metres was built in the Kohatu area. The road was fenced in order to restrict access to the road for animals. New accessways and U-turn spots were established for local traffic.

Construction of 2+2 section of Väo–Veneküla road on Tallinn ring road

Location:
km 0.6–2.8 of national road No. 11 Tallinn ring road
Engineer:
Selektor Projekt OÜ
Contractor: **Nordecon AS**
Supervision: **Esprii OÜ**
Total cost: **13.7 million euros**
The project was co-funded by the Cohesion Fund of the European Union

The multilevel intersection of Veneküla provides new opportunities for the development of companies in the area as well as public transport at the border of Tallinn.
The project saw the road section of km 0.6–2.8 of Tallinn ring road reconstructed into a class I 2+2 lane highway. The Veneküla tunnel and two new overpasses over the Ülemiste–Maardu railway were constructed. Noise barriers were established for the protection of dwellings in the area. The Veneküla multilevel intersection shall be completed as part of a separate project between 2019 and 2020.

Construction of 2+2 section of Lagedi–Karla road section on Tallinn ring road

Location:
km 2.8–6.0 of national road No. 11 Tallinn ring road
Engineer:
Skepast&Puhkim OÜ
Contractor:
AS TREV-2 Grupp
Supervision:
OÜ Telora
Total cost:
10.5 million euros
The project was co-funded by the Cohesion Fund of the European Union

The reconstruction of Tallinn ring road included the construction of the Karla multilevel intersection and a new bridge over the Vaskjala–Ülemiste channel. Karla multilevel intersection enables vulnerable road users to safely travel on the Tallinn–Jüri route.

EASTERN REGION

Reconstruction of the Võtikvere–Mustvee road section

Location: **km 33.7–38.9 of national road No. 36 Jõgeva–Mustvee**
Engineer: **Roadplan OÜ**
Contractors: highway section **Verston Ehitus OÜ**, urban section **YIT Infra Eesti AS**
Supervision: **Toomtsentrum OÜ**
Total cost: **2.5 million euros**

The aim of the project was to improve the condition of the pavement and load bearing capacity on said road section in order to enhance travel comfort and traffic safety. In addition, the intersection with national road No. 13114 was reconstructed and dangerous parking options were eliminated.
A pavement structure with a width of 8 metres was constructed, corrections were made to the longitudinal profile, side ditches were dug, culverts were cleaned and built, and new traffic control devices were installed on the highway section. The road area was cleaned and organised, deforestation and uprooting works were executed.
A pavement structure with a width of 7 metres was constructed, corrections were made to the longitudinal profile, ditches and culverts were cleaned, new culverts were built, dangerous parking spaces were eliminated, the car park and intersection located on the Lake Peipsi side were made safer, a rainwater sewage system was established, street lighting and electricity supply was relocated at places, and new traffic control devices were installed on the urban section.

A selection of key objects for the Road Administration in 2018

WESTERN REGION

Reconstruction of the Narva-Jõesuu–Hiiemetsa road

Location:
reconstruction of km 19.1–26.3 of national road No. 91 Narva–Narva-Jõesuu–Hiiemetsa
Engineer:
Selektor Projekt OÜ
Contractor:
Viaston Infra OÜ
Supervision:
Infragate Eesti AS
Total cost:
3 million euros

The aim of the reconstruction was to improve the condition of pavement, travel comfort and traffic safety. The entire road section was unlevel and the edges had sunk due to the insufficient width of the surface area. Considering prospective bus lines, the bus stops were constructed along with extensions and platforms.
A new two-layer asphalt concrete pavement with a width of 8 metres was constructed. Side ditches were dug, culverts were built. Sidewalks were built in the area where the Shishkin's pine, i.e. Meriküla pine, and the memorial commemorating those who fell in the battles of 1944 are located.

Construction of the service road of Narva road on the Sillamäe section

Location:
service road of Tallinn–Narva road in the city of Sillamäe, starting from Pavlov street and ending at the city's eastern border
Engineer:
Selektor Projekt OÜ
Contractor:
YIT Infra Eesti AS
Supervision:
Eastconsult OÜ
Total cost:
1.5 million euros

The aim of the construction of the service road was to improve traffic safety on the eastern part of the Sillamäe section of Narva road. Dangerous exits from Narva road were eliminated in the course of the works. Street lighting, cycle and pedestrian tracks and bus stops were established on the service roads, so that pedestrians and cyclists would not have to use the Narva road.

Reconstruction of Pärnu-Tori road

Location:
km 5.9–12.1 of national road No. 59 Pärnu–Tori
Engineer:
Selektor Projekt OÜ
Contractor:
YIT Infra Eesti AS
Supervision:
Teehoiu Partnerid OÜ
Total cost:
3.1 million euros

The aim of the reconstruction was to enhance the level of traffic safety and to improve travel comfort as well as to extend the lifespan of the road. The project saw the establishment of a proper width gauge, reconstruction of intersections and exits, improved safety on the road section between Sindi built-up area and the intersection on Silla street along with the establishment of street lighting. The asphalt removed from the object was used to establish a dust-free pavement for km 16.1–22.6 of national road No. 19333 Uulu–Soometsa–Hääde-meeste.

Reconstruction of the Seljaküla-Keedika section

Location:
km 44.6–54.9 of national road No. 17 Keila–Haapsalu
Engineer:
Selektor Projekt OÜ
Contractor:
Nordecon AS
Supervision:
Sweco EST OÜ
Total cost:
3.1 million euros

In order to improve travel comfort and the load bearing capacity of the road, the unlevel pavement was removed, a new pavement structure was established and new traffic control devices were installed.

SOUTHERN REGION

Reconstruction of the Loodi–Sultsi section

Location:
km 58.9–64.7 of national road No. 49 Imavere–Viljandi–Karksi-Nuia
Engineer:
Tinter-Projekt OÜ
Contractor:
AS TREV-2 Grupp
Supervision:
Taalri Varahaldus AS
Total cost:
3.0 million euros

A new base was established and asphalt concrete pavement was laid during reconstruction. As a result of the project, the proper width gauge was ensured for pavement, intersections and exits were reconstructed and the safety of the road section between Sultsi was improved.

Construction of the 2+1 Valmaotsa–Kärevere road on Tallinn–Tartu–Võru–Luhamaa road

Location:
km 160.7–168.1 of national road No. 2 Tallinn–Tartu–Võru–Luhamaa
Engineer:
Skepast&Puhkim OÜ
Contractor:
Nordecon AS
Supervision:
Toomtsentrum OÜ
Total cost:
8.1 million euros
The project was co-funded by the Cohesion Fund of the European Union

During the project, Valmaotsa–Kärevere road section was transformed into a 2+1 road equipped with a median barrier. Four overtaking areas were built (two in each direction). The road section was fenced in order ensure that animals cannot access the road. New accessways and U-turn spots were established for local traffic. Noise barriers with a total length of 900 m were built for the protection of locals.

Reconstruction of the Tsiiruli–Missokülä road section on the Riga–Pskov road

Location:
km 195.5–205.8 and 207.8–209.2 of national road No. 7 Riia–Pihkva
Engineer:
Toner-Projekt OÜ
Contractor:
Nordecon AS
Supervision:
Sweco EST OÜ
Total cost:
5.1 million euros

The unlevel road surface and the base, which had been stabilised with oil shale ash, were removed and a new pavement construction was established during the project. During the construction, side visibility was improved, the embankment was repaired, a new drainage layer was constructed, ditches were dug and cleaned, old culverts repaired and new ones established. The new pavement is a two-layer asphalt concrete pavement laid on a complex-stabilised base. New traffic control devices were installed throughout the length of the road.

Reconstruction of Mikitamäe–Värska and Karisilla–Treski roads

Location:
km 78.2–85.6 of national road No. 45 Tartu–Räpina–Värska and km 0.0–3.2 of national road No. 63 Karisilla–Petseri
Engineer:
Roadplan OÜ
Contractor:
Verston Ehitus OÜ
Supervision:
OÜ Esprii
Total cost:
4.2 million euros

Unlevel road surface was removed and a new pavement structure established in order to improve traffic safety, travel comfort and load bearing capacity on the roads. On the Mikitamäe–Värska section,the pavement was repaired, intersections were reconstructed, footpaths and bus stops were constructed, landscaping and ditching works were carried out.
A cycle and pedestrian track was established in Värska along with street lighting. An information point on Seto region and a rest area along with a car park were established by the Värska–Reha intersection.
The Karisilla–Treski road section was mostly reconstructed on the existing embankment, except for a steep plan curve on km 1.6, where a correction was made. The pavement is repaired, intersections reconstructed, landscaping and ditching works as well as earthworks are carried out, new bases and pavements are built.

BEST ROAD BUILDER – **Nordecon AS**

1. Reconstruction of the Seljaküla-Keedika road section on km 44.6-54.9 of basic road No. 17 Keila-Haapsalu
The aim of the project was to improve traffic safety of the road section, reconstruct the road pavement to improve load bearing capacity and improve the condition thereof. A new two-layer asphalt concrete pavement and new drainage channels were established on a complex-stabilised base and new traffic control devices were installed. Embankments that posed a danger of shifting during the cold were also replaced in some sections.

Works were carried out quickly and were always on schedule. The contractor had a qualified team: there was a constant overview of the object and works carried out and the works were planned in a thought-out manner. Even though it was not required, crates with 30% heating were used upon transporting asphalt concrete on site. In conclusion, the completed road section is level, convenient and safer, and the road maintenance provider has stated that this has also resulted in significantly more road users.

2. Construction of the 2+1 overtaking sections on km 28-37 of main road No. 4 Tallinn-Pärnu-Ikla
The aim of the project was to reconstruct the road section into a highway with 2+1 overtaking sections along with U-turns and organisation of local traffic. The Kohatu wildlife crossing and the new Kernu bridge were established. Animal fences along with escape ramps were established on both sides throughout the entire length of the object.

The contractor had assembled a team of sufficient size and competences for executing the work. The object was complicated due to the fact that 1+1 lane passage had to be ensured simultaneously throughout the area of construction. It was the first of such traffic solutions to be constructed in Estonia and the end-result ensures safer overtaking opportunities than previously.

3. Reconstruction of the Tsiiruli-Missokülä road section on km 195.6-205.8 and 207.8-209.2 of main road No. 7 Riga-Pskov
The aim of the project was to improve travel comfort and the load bearing capacity of the road. To this end, the unlevel road surface and the base, which had been stabilised with oil shale ash, were removed and a new pavement construction was established.

The object, incl. documentation, was completed on time. Work was quick, high-quality and the entire administration and temporary traffic organisation during construction was handled correctly. The team was practical and cooperation between the contracting entity and the engineer was great.

Best in construction

BEST ROAD ENGINEER – **SWECO Projekt AS**

In 2018, SWECO Projekt AS designed km 1.6–3.4 of basic road No. 33 Jõhvi–Kose and km 0–2.9 of secondary road No. 13101 Jõhvi–Ereda. The engineer executed their work carefully. The structures of both projects were optimal and construction costs did not exceed the budget. No volume-related or technical errors occurred during construction. The execution of traffic safety audits, which was carried out after the end of construction works, involved no significant additional costs.

BEST ROAD BUILDER – **Järelpinge Inseneribüroo, Kikivere bridge**

Kikivere bridge is located near Tartu on km 4.3 of secondary road No. 22232 Vedu–Kikivere. The old bridge was demolished and a new integral bridge with a width of 10.3 metres was constructed. The total length of the bridge is 18.3 metres. The median passage of the bridge is 15 metres. Construction works were conducted quickly and the quality of work was excellent. The works lasted a total of 2.5 months. No deductions were made in regard to the bridge. The contracting entity is pleased with the team of the contractor as well as that of owner supervision. Works were conducted in a planned and efficient manner, resulting in a fine-looking and high-quality bridge.

BEST BRIDGE ENGINEER – **Margo Märdin (Skepast & Puhkim OÜ)**

In 2018, Skepast & Puhkim OÜ executed projects for new structures on the bypasses of Pärnu–Uulu and Are–Libatse on main road No. 4 Tallinn–Pärnu–Ikla. Projects included various overpasses between 50 to 80 metres as well as pedestrian tunnels, the solutions of which are spacious and bright, while also remaining simple and easy on the eye. The solutions offered by the engineer were innovative, thought-through and calculated. These projects as well as previous works ordered by the Road Administration did not have any deficiencies and the deadlines were met. The engineer accommodated changes to the project and proposals set forth by the contracting entity.

BEST ASPHALT PAVEMENT LAYER – **TREF AS**

The contractor used a pre-feeder and trucks with a partially heated load space, which helped achieve excellent quality. The contractor executed the works quickly and achieved level pavement. The works were completed on time.

BEST OWNER SUPERVISION – **Tõnis Villmäe (Lindvill OÜ)**

Tõnis Villmäe is an extremely operative and competent engineer. He was chosen as the best owner supervision inspector, as his competences in owner supervision include the area of bridges as well as roads. In recent years, Villmäe has also acquired experience in carrying out supervision over larger projects (incl. construction objects on Tallinn ring road, Äsmäe–Kohatu, etc.).

Villmäe is excellent in planning, organising and keeping an eye on his own documentation as well as that of the contractor. He monitors adherence to contractual obligations, is focused on good results and is ready to take necessary measures to manage contractors. Villmäe has always actively voiced his opinion in regard to preparing and developing new contractual terms for owner supervision, and we expect to see him continue this in the future as well.

BEST PAVER – **Eesti Teed AS**

In 2018, Eesti Teed AS was the contractor in pavement works carried out in Ida-Viru, Lääne-Viru, Järva, Harju, Rapla, Hiiu, Saare, Pärnu and Viljandi county. Cooperation with Eesti Teed AS was pleasant and direct throughout the entire contractual period. No problem remained unsolved or unanswered. The project manager as well as their team were focused on completing the works quickly, correctly and in due time.

A great example comes from Harju and Rapla county, where the contractor organised works in such a way that preparation works for paving (such as correcting the asphalt concrete profile) commenced as early as possible, enabling the contractor to report the pavement works complete as early as in July, with only a few road marking works to be carried out after that. Questions by the contracting entity received quick responses and various hindrances were resolved by cooperation. The quality of works was excellent and, taking into account the relatively hot summer of 2018, there is not much reason to complain about the so-called sweating of pavements or loose gravel. The contractor reacted in an efficient manner in the few cases of pavement sweating and loose gravel. Eesti Teed AS is a company who carries out high-quality pavement works and has extensive experience in the field.

2+1 roads

2+1 roads – ten years of preparations and over a year of practical use.

As of 2008, the Road Administration has conducted preparatory works with regard to the establishment of 2+1 lane roads in Estonia. Practices of neighbouring countries have been studied, incl. examination of solutions on-site as well as organisation of trainings. The first preliminary survey, which examined the possible applications of the 2+1 cross-section in development of the Estonian road network in more detail, was carried out in 2012. The survey covered the Ääsmäe–Kernu section of Tallinn–Pärnu–Ikla main road. On the basis of the principles set out in the preliminary survey, preparation of projects commenced with regard to the development of the Tallinn–Pärnu–Ikla as well as the Tallinn–Tartu–Võru–Luhamaa road. The first 2+1 road sections were opened for road users in 2017. A little over a year of practical use is certainly not enough to assess all functional aspects of 2+1 road sections, however, a few nuances that require greater attention have already been detected.

Intersections

All intersections at grade are known to be a source of additional traffic hazard. Therefore, to mitigate the traffic hazard arising from intersections, it is first and foremost necessary to figure out a way to optimise the number of intersections on roads with high traffic volume.

Vulnerable road users

In terms of the distribution of populated areas, it is essential to thoroughly analyse the movement options of vulnerable road users, incl. users of public transport. On road sections where populated areas directly border a main road, it is necessary to separate vulnerable road users from main road traffic for the purpose of traffic safety, and to ensure safe road crossing options for them. Multilevel crossings are safer than level crossings, however, these are not always economically sound in terms of traffic volume and the number of vulnerable road users. Therefore, level crossings on 2+1 lane roads and the safeguarding thereof still remain on the agenda in terms of making these solutions safer.

Service roads

Establishment of service roads that run parallel to the main road would solve quite a few of the aforementioned issues. Those roads could be used by agricultural machinery, vulnerable road users and, in some cases, maintenance equipment. Parallel service roads would also enable access to properties located by the main road and therefore optimise intersections on main roads. All of this improves traffic safety and smoothness. Furthermore, service roads could also be used to redirect traffic in the event of accidents and, in some cases, to ensure more operative arrival of rescue equipment at the site of the accident. Planning of service roads requires additional funding for the establishment of the road itself as well as for the acquisition of additional transportation land, and also for the maintenance of such roads.

Traffic safety

Consequences of accidents that have occurred on 2+1 road sections have been less severe and have mostly been limited to vehicles hitting the median barrier that separates different directions. Considering the traffic volume of 2+1 road sections, it is always worth to think about what could have happened if the median barrier had not been there to separate different directions. There is a chance that the vehicle would have deviated to the oncoming traffic lane for a moment and then back to its own, however, as we know, most deviations to oncoming traffic end in head-on collision. Unfortunately, the consequences of such accidents are always tragic. Therefore, a solution that helps to prevent at least one serious traffic accident is justified. The same goes for dangerous overtaking.

Conclusion

Considering the experience of neighbouring countries and the practical experience of 2+1 roads in Estonia, it can be said that in the case of certain traffic volumes, 2+1 roads represent an optimal solution in the development of the road network, improving traffic safety as well as smoothness. Therefore, the planning of 2+1 cross-section roads should be continued in Estonia. At the same time, it is important to design sustainable solutions that enable the roads to be expanded into 2+2 cross-section solutions in the case of increased traffic volume.

In 2018, the Road Administration carried out two pilot projects for the implementation of InfraBIM in road construction.

Implementation of InfraBIM in road construction

Digital construction has become increasingly topical in the Estonian construction sector in the last couple of years. Building Information Model/Modelling/Management (BIM) is a methodology for managing and exchanging building information between various parties. This results in higher quality, better cooperation and sustainability in the entire construction sector.

The Road Administration and other public contracting authorities signed a common intentions declaration in 2017, the aim of which is to implement digital model design (BIM) in all construction stages among public contracting authorities.

Part of the agreed action plan is to carry out planned pilot projects and the Road Administration initiated two pilot projects in 2018 to test the BIM methodology at road construction objects.

The first pilot project was the reconstruction of the Tõrva centre junction, i.e. intersection of the Valga–Uulu main road and Tõrva–Pikasilla basic road. The project, which had actually been completed earlier, was supplemented by a more detailed 3D part during the pilot. The road model was managed in the Trimble Quadri cloud server. In addition to the design works, the pilot also involved testing of digital tools in the construction stage.

The other pilot project is the reconstruction repairs of Rakvere–Väike-Maarja–Vägeva basic road section between km 3.12 and 10.37 as well as the reconstruction of parts that pose a traffic hazard on that same section. The applied Infrakit solution enables to manage building information and files in the construction stage in particular, as the solution makes it possible to manage the LandXML extraction of the road model not the model itself.

Both projects focused on the use of a common information environment, where information was exchanged during design and construction stages. The main observation was that the structure of data and files is in need of improvement, necessary accuracy levels and applicable file formats must be established. Moreover, the roles and limits of liability of parties must be further refined.

The plan is to continue the implementation of BIM in pilot projects in 2019 and the current plan is to use BIM tools in six road projects. Furthermore, the BIM-based approach shall also be implemented in cooperation with Rail Baltic, and in accordance with the guidelines provided by them, in the construction project of Tallinn ring road Luige–Saku 2+2 road section, where the main road intersects with the Rail Baltic route.

Non-destructive testing of surface courses

The strategic aim of the Road Administration is to ensure that the solutions used on roads are safe, economic, durable and meet the needs of road users.

Over 400 km of repair and reconstruction works are carried out annually on the national road network, during which roads are covered with a new asphalt concrete surface course.

The quality and durability of installation works are determined by the residual voids content, compaction index and thickness of the installed course. For their laboratory determination, it is necessary to drill 12 boreholes per kilometre of newly installed course during approval testing. This in turn implies the drilling of nearly 5,000 boreholes throughout the entire national road network, which will later have to be reconstructed.

Filling boreholes to match the rest of the pavement has turned out to be quite a challenge and generally needs to be addressed throughout the entire guarantee period. Nevertheless, many boreholes may evolve into defects after the end of the guarantee period, compromising the local load bearing capacity of roads.

Despite the relatively large amount of drilling, the resulting assessment of the quality of the surface course is rather subjective since laboratory tests are conducted once per 500 m long section and the results obtained are only a theoretical reflection of the pavement that precedes and follows it. As of 2017 procurements, it became compulsory to carry out compaction index and residual voids content inspections with a land radar by using the continuous method on objects that exceed 5,000 m². Unlike during traditional inspections conducted with cores collected during quality controls, radar measuring provides uninterrupted information on residual voids content values of asphalt concrete pavements on the measurement track. Since the measurement capacity is thousands of times bigger with the radar than on the basis of the traditional core number method, it significantly reduces the randomness of residual voids content determination.

Measurement results are calibrated by taking only eight cores from the inspected section covered with the same asphalt mix, irrespective of the length of the object, which reduces the need for test boreholes that damage the new pavement. This method is restricted by the fact that measurements cannot be taken when the pavement is wet or frozen or following de-icing with chlorides. Measurement of the compaction index and residual voids content with a land radar was applied in full in 2018, however, it has only reduced the number of boreholes per one kilometre of road to ten. Depth measurements must still be conducted throughout the entire cross-section, resulting in five boreholes per cross-section after every 500 metres.

In 2018, the electromagnetic course thickness measuring technology, the ongoing development of which is being carried out by AS Teede Tehnokeskus, was used on several objects on a pilot basis. During electromagnetic measurement, reflectors, which enable to assess course thickness much more closely and without using drilling technologies, were installed underneath the surface course at 50 m intervals before laying thereof. Contractors carried out test drills in places where the measured course layer was significantly thinner than designed and the results confirmed that electromagnetic measurement of course thickness is accurate.

Three pilot projects were carried out in 2018 in order to test the quality assessment of laying asphalt pavement with the help of thermal images. To this end, the asphalt paver had to be equipped with a thermal camera that records thermal images along with temperature data, location and a time stamp. The pilot projects have resulted in a preliminary dataset on the efficiency in various settings and upon implementation of various quality enhancing measures.

Last year served as a clear compass, indicating that asphalt works can also be assessed without extensive drilling and the resulting quality assessments can be used to assess the entire object in far more detail than before.

Environmental measures

In 2018, the Estonian Road Administration constructed 14 noise barriers with a total length of 2,887 meters.

Noise barriers were constructed beside the roads of Tallinn-Narva, Tallinn–Tartu–Võru–Luhamaa, Tallinn–Pärnu–Ikla, and the Tallinn Ring Road. The volume of investments related to noise relief was 1,344,200 euros.

Mitigation of noise
Valmaotsa–Kärevere section of the Tallinn–Tartu–Võru–Luhamaa road
Six noise barriers were established on the Valmaotsa–Kärevere section from km 160.7 to 168.1 of the Tallinn–Tartu–Võru–Luhamaa road: combination noise barrier on an embankment and noise wall and noise embankment solutions with a height of 3 to 4.5 m, total of 781 metres. Mitigation measures were designed and constructed by Nordecon AS. Cost of the works was 480,000 euros.

Ääsmäe-Kohatu section of Tallinn-Pärnu-Ikla road
Two noise barriers were established on the Ääsmäe–Kohatu section from km 27.9 to 37.1 of Tallinn–Pärnu–Ikla road: noise wall and noise embankment with a height of 2 to 3.5 m, total of 674 metres. The actual amount of constructed noise barriers on the Ääsmäe–Kohatu section was higher, however, the rest were established in agreement with land owners. Mitigation measures were designed and constructed by Nordecon AS. Cost of the works was 162,000 euros.

Tallinn ring road
The Road Administration established three noise barriers on the Väo–Lagedi, Lagedi and Lagedi–Karla sections of the Tallinn ring road: two noise walls and noise embankments with a height of 3 to 3.5 metres, total of 827 metres. Mitigation measures were constructed by Nordecon AS, Trev-2 AS and Lemminkäinen Eesti AS. Cost of the works was 352,000 euros.

Noise barriers established on the basis of the "Noise mitigation action plan 2014–2018"
The establishment of noise barriers set out in the "Noise mitigation action plan 2014–2018" document continued in 2018. Three noise walls with a total length of 605 metres were selected and established for the protection of single dwellings. A noise wall with a length of 175 metres was established on km 37.1 of Tallinn–Narva and two noise walls with a length of 180 and 250 metres were established by Tallinn–Tartu–Võru–Luhamaa road. Cost of the works was 349,600 euros.

Noise barriers were constructed with aluminium (CALVERO Sp. z o.o Sp.k) acoustical panels manufactured in Poland. Works were carried out by Roadservice AS.

During the period of 2014–2018, the Road Administration mitigated airborne noise levels caused by traffic for 46 noise-sensitive buildings. It is estimated that the noise situation improved for 167 residents.

„Noise mitigation action plan 2019–2024"
In 2018, the noise mitigation action plan for 2019–2024 was completed, based on prior action plans, the strategic noise map of road sections, which was updated in 2017, and the national road maintenance plan for 2014–2020. The road projects included in the action plan, their solutions and anti-noise measures, as well as estimated completion times pursuant to the current road maintenance plan and its new period, have been taken into account.

Compliance with national noise reference levels was used as the criterion during determination of priority situations that require improvement: limit value of day noise indicator Ld over 65 dB and/or limit value of night noise indicator L_n over 60 dB on the road-facing facade of the building (category II noise-sensitive building).

In the framework of the action plan for reducing noise, mitigation measures were found for 41 noise-sensitive buildings and an estimated 117 residents. The initial volume of noise barriers is 3,681 metres, which requires investments in the approximate sum of 2.2 million euros. Also highlighted were 67 noise-sensitive buildings that are located in the area of known planned / currently planned road projects and the noise mitigation measures of which have been developed within the framework of respective projects.

Development of the noise mitigation action plan for 2019–2024 was funded by foundation Environmental Investment Centre with 15,000 euros. The noise mitigation action plan was compiled by ELLE OÜ.

Noise monitoring 2018
The aim of the work was to execute traffic noise measurements in order to inspect noise levels calculated in noise surveys and the efficiency of noise barriers.

Locations of measurement points were selected on the basis of noise surveys of road projects, a strategic noise map and complaints filed. Measurements were performed at 23 points, and both day- and night-time traffic noise was measured at five of the points (measurement points of Juuliku interchange).

Measurement results coincided largely with the results modelled in the noise survey (+/- 1–2 dB).
The noise monitoring survey was compiled by ELLE OÜ and it cost 7,600 euros.

Flooding and climate change
A two-part analysis "Action plan of the Road Administration for determination of flood zones and possible climate changes" was completed in 2018 by AS Maves by order of the Road Administration. Adjustment of roads and related

waterworks in accordance with the changing climate impacts helps to prevent and mitigate possible damages.

The objective is to ensure that activities for adjustment with climate changes are carried out in a careful and coordinated manner. The analysis was used to create a permanent input on Estonian roads to the Estonian climate change adjustment strategy and accompanying implementation plan, which is also an action plan of the Road Administration.

Relevant legislation, research and guidance materials have been analysed, and periodically flooded national road sections have been inspected periodically on historical and modern maps, as well as in reality. Solution proposals have been set out for mitigation of flooding on such road sections. Applicable Finnish rainwater management guides have been compared with the Estonian road design guide, and Road Administration's guidelines for prevention of flooding effects on roads have been compiled on the basis thereof.

In terms of resolving traffic issues arising from rainwater, stormwater or flooding, targeted cooperation between local governments (designs, rainwater systems in heavily populated areas), the Agricultural Board (land improvement systems), Ministry of the Environment and the Environmental Board (overall water management, nature protection) and land owners of areas located by problematic road sections is essential.

In the context of Estonia, flooding is primarily caused by flooding of watercourses due to rainfall (rain, melting snow) and the rising sea level. Flood zones will begin to expand due to the rising sea level already in 2030. In recent years, flooding issues have occurred on 74 national road sections with a total length of approximately 40 km.

Elimination of barrages that hinder fish migration

In 2018, the Road Administration implemented three environmental projects, the aim of which was to improve the condition of salmon rivers.

To this end, bridges with a structure that caused barrages were eliminated on national roads.

To solve the fish migration problem, a new bridge had to be constructed in place of the existing bridge, ensuring torrential river flow. The sediments upstream and downstream from the bridge were cleared from the river. Elimination of the barrage also increased the flow rate of the river. In order to ensure sufficient water level, stones were placed to the river bed based on flow patterns. This results in downstream water pockets during low water, in which fish can wait for the water level to rise. In order to increase the roughness of the river bed and to slow down the water flow, especially during high water, larger rocks were placed in the river, behind which fish can find shelter and rest. In order to ensure the necessary torrential flow, the landscape had to be reshaped and turns of the river had to be made longer to ensure a longitudinal tilt which fish can swim over. Reconstructed river sections are natural and fit in with the environment.

For instance, in the case of Ehavere barrage, the river bed was cleared from sediments up to 300 m upstream and the old muddy reservoir was eliminated. The old saw and gristmill from 1889, which is under heritage conservation protection, made the works more complex. Since the buildings of the mill had deteriorated, the ruins of the existing watermill had to be preserved and conserved in order to avoid further degradation.

Fishing specialists were involved in the reconstruction of the three bridges, providing consultation and making sure that mobility of trout and salmon is ensured. Mobility of 13 migratory fish species (roach, white bream, minnow, gudgeon, ruffe, European bullhead, goby etc.) was ensured through elimination of the barrages. Cost of the project was 800,000 euros. Activities were funded by the European Cohesion Fund through the Environmental Investment Centre.

Reconstructed bridges

- Ehavere bridge located on km 1.5 of Luua–Vaidavere road in Jõgeva county
- Märdi bridge located on km 3.1 of Restu–Sihva road in Valga county
- Valtina bridge located on km 10.3 of Vana-Antsla–Lüllemäe road in Valga county

Public services

The Road Administration is responsible for managing 40 public services, four of which are provided by the Land Unit.

Upon applying for a position in regard to preparation of designs and the coordination thereof, the organiser of planning activities involves the Road Administration for the issue of a position. This relates to zoning plans, general plans, county plans and special plans. For instance, in the case of zoning plans for local governments (LGs), the Road Administration shall, first and foremost, provide an input for the use of the road protection zone and traffic solutions.

2018 marked the beginning of the preparation of Estonia-wide general plans following the merger of various LGs, in order to establish common planning and construction conditions and restrictions in all LGs. The Road Administration updated the reference points regarding the preparation of general plans by adding more clauses relating to the planning of transportation and land use as well as the obligation to determine road functions. Therefore, the functioning and accessibility, incl. public transport options, of the road network must be better analysed upon the planning of new commercial and residential lands. The functions of existing and planned roads shall be determined as well (e.g. local road and national road). It is important to register prospective road routes that are essential to the Road Administration, thereby enabling to design and construct new roads in desired areas later on.

An interesting trend has appeared with regard to zoning plans: construction of traffic solutions is usually efficient if the interested party to the zoning plan is either the developer or land owner.

However, if the interested party is an LG, obligations tend to be forgotten or left out. For instance, the Road Administration visited the mediation committee of the Ministry of Finance at the end of the year, since the rural municipality was unwilling to replace an existing narrow exit road with the type of exit established by the Road Administration in the first stage. Another example is a case where the zoning plan obliged an LG to construct a ring road prior to the authorisation of use for serving a public upper secondary school, which was however not done. Positive sides include great cooperation with and fulfilment of agreements by Harku rural municipality.

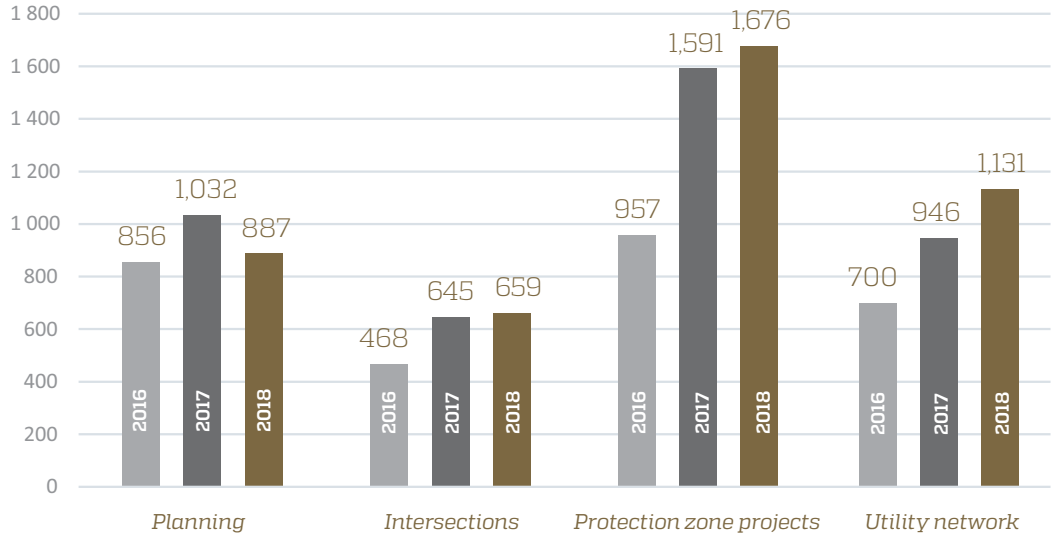
Planning activities must be more centrally managed in terms of modes of transport and structures, in order to ensure quick and safe accessibility; the view and position must come from a higher level than that of the LG. The construction of traffic solutions is not always proportional in relation to the interested party and LGs are not able to finance larger traffic solutions, such as multilevel intersections on main roads, and to accept later fees from developers that join at a later stage. There are currently no institutions to take on the construction obligation, whose word would be final in planning transport solutions and who would have the right to set off charges later on.

Another public service provided is **applying for a right to connect a road to an existing national road or to reconstruct a national road**. The service provides approval for the establishment of intersections. Intersections are further divided into two: small exits to a specific property and large-scale reconstructions of intersections, such as the establishment of a ring road in front of a mall.

The minimum distances set out in project obligations and standards for the construction of exits on smaller roads have been the subject of debate for years. The Road Administration has proposed an amendment to the standard, which would make the construction process on smaller roads less restricted by changing minimum distances and increasing the maximum number of exits per kilometre of national road. In the event that there is even the slightest evidence of an existing exit, we shall use the definition for the replacement of road section with an equivalent, as set out in regulation "Definitions of road construction and maintenance", so that the land owner can simply remove the soil layer and cover it with gravel. It is important to also address the construction of new smaller exits in a similar manner that would not require a construction permit and preparation of a project. This makes the Road Administration additionally responsible for determining visibility, need for culverts and the need for the protection of communications or electrical cables on objects; issues that are currently resolved by a project.

In terms of large-scale reconstructions, we have reached a point where the interested party is responsible for finding a constructor, whereas the Road Administration is stated as the contracting entity in the contract for services and the

Change in volume of work 2016–2018



interested party is stated as the financer. It has currently not been determined whether owner supervision and auditing of traffic safety of the object shall be ordered by the financer or the Road Administration as part of a framework procurement from a specific service provider.

Applying for approval of activity in the protection zone of a national road (construction in a protection zone) is a service by which the Road Administration provides approval for construction activities in the protection zone of a national road. Applications are submitted for the construction of woodsheds as well as fences, but are also submitted by LGs in regard to draft design provisions relating to the construction permit obligation for buildings. Review of projects relating to cycle and pedestrian tracks constructed by LGs comprise a large proportion of such applications.

The topic of bus stops has been discussed the most. Public transport is free in most counties, due to which LGs have eliminated various student transport lines, which has proved to be problematic. Since transport lines for students are considered special carriage, persons responsible for children have been determined and the bus may stop at any place. This is not the case with county lines.

County line buses are only allowed to stop at designated places and LGs and public transport centres are currently pressuring the Road Administration to either establish or designate new bus stops. The Road Administration is willing to do this in the context of road construction projects, but in other cases we are relying on the Public Transport Act and ask LGs to either build the stops themselves or designate stops in accordance with the requirements provided by us.

In terms of cycle and pedestrian tracks, it seems that the situation has improved and most engineers are familiar with the Road Administration's principles in regard to ensuring the proper distance between the national road and the cycle and pedestrian track.

Applications for a right to construct and tolerate a utility network and utility works on the land of a national road.
Establishment of various utility networks often coincide with national roads. The Road Administration issues claims (under which conditions utility networks can be established) for the design of crossovers between utility networks and national roads, as well as for the design of cables parallel to the road on the land of a national road, if possible, and also coordinates projects that fulfil requirements. A Utility Network Guide, which shall set out the options for installing utility networks within the road embankment in more detail, is currently in development. The activity of the Road Administration is also affected by the new Acquisition of Immovables in Public Interest Act, which has entered into force.

Road studies

Mobility survey of moose with GPS/GSM collars

In 2015, the Road Administration signed an agreement with the University of Tartu to carry out science and development study "Mobility survey of moose with GPS/GSM collars in the area of Tallinn-Tartu-Võru-Luhamaa Kose-Mäo section (40.0–85.0 kilometres) of national main road 2". The study involved equipping ten moose with telemetric surveillance devices to uncover their movements during two years. The aim of the study was to research the effect of road construction and traffic on the movements of moose.

The preparation of the study involved a thorough examination of the project's area, reaching agreements with local hunting organisations, acquiring surveillance equipment, and getting necessary permits from the Environmental Board.

Shooting the animals with tranquilizer guns was more difficult than expected. Within more than one year, ambushing was done on salt pans, twice the shooting was attempted from an air-borne helicopter. Involving the hunters and shooting moose feeding on a feeding field with a tranquilizer dose from a slowly moving car was finally successful. Ten animals were equipped with radio collars: eight bulls in various ages and two cows. Until the end of 2018, eight moose were observed, as one radio transmitter stopped working during the study period and one animal perished during a hunt.

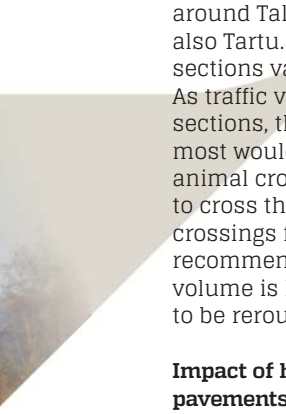
From the collaring of the first moose until the end of November 2018, it was established that six different specimen crossed the Tallinn–Tartu road 78 times: the bulls crossed the roads 72 and one cow six times. The moose crossed the road more frequently in the night and early morning.

The construction of Kose-Võõbu road section has affected the animals individually. After the beginning of the road construction, a moose named Priit started to avoid the Kose side part of its home area and prefers to move on the south and southeast side. At the same time, Mari who is the most sedentary among the observed moose (two calves in both years of the observation period) has stayed on the previous area near the route. In general, the deforested route enticed the animals as a food source before the road construction.

In regard to planned and constructed passages (wildlife crossing, level road crossings) for the new Kose-Mäo route, the study team finds that the locations are suitable. In addition, the study indicates that an additional crossing should be constructed on the 80th kilometre near Korba Village. The conclusion of the study mentions an important fact that the traffic frequency of 10,000 vehicles in a 24-hour period forms a significant barrier for moose, on account of which the possibility of constructing wildlife crossings should be considered instead of level road crossings (openings in fences).

Technical analysis of concentration points of accidents involving wild animals

Numerous collisions of vehicles and animals occur each year, resulting in damage to humans or their property, and affecting wild animal populations. Roads with high traffic volume fragment the habitats of wild animals. In 2017 and 2018, Rewild OÜ carried out the survey "Technical analysis of concentration points of accidents involving wild animals" in order to prepare a ranking of the most dangerous road sections in Estonia between 2009 and 2013 in terms of wild animals, compile an analysis of 50 most dangerous sections based on traffic hazardousness as well as natural aspects, as well as offer solutions for implementation of mitigation measures for each location. Attention was primarily focused on preserving natural environment.



Most dangerous road sections in Estonia in terms of wild animals are mostly concentrated to main roads around Tallinn and to a lesser extent also Tartu. The length of such sections varies from 100 m to 5.2 km. As traffic volume is high in most sections, the preferred solution for most would be multi-levelled wild animal crossings that enable animals to cross the road safely. Level crossings for wild animals are recommended in places where traffic volume is lower or the road is planned to be rerouted in the near future.

Impact of heavy vehicles on road pavements

The primary aim of the study addressing the impact of heavy vehicles on road pavements was to measure the impact of various vehicle types and maximum masses on road surfaces, i.e. formation, manifestation and development of permanent deformations in the pavement.

The impact of vehicles with a maximum mass of 52 and 60 tonnes on the conservation and durability of the road network was analysed as well.

The study also required development of a measurement and observation methodology for monitoring deformation of road structures, which third parties could use to organise similar tests and to implement measures to extend the life span of the road network.

Two new testing stations with 15 different sensors were established as part of the research, and two new sensors were installed to an existing testing station.

The study showed that the impact of the maximum mass of a vehicle is, first and foremost, dependent on the number of axles and width of tyres, as the wider the distance between axles and the wider the tyres, the less it burdens the pavement. Furthermore, the impact of the maximum mass also depends on the humidity regime and the load bearing capacity of the pavement. Deterioration of the road surface is most affected by overloaded vehicles with old narrow single tyres with a width of less than 490 mm during spring and autumn melting and freezing periods.

Heavy duty vehicles that travel at close intervals do not cause significant permanent deformation, i.e. ruts, on road pavements that are of satisfactory condition and dry.

The study was conducted by TTK University of Applied Sciences together with Adek OÜ and AA-SAT OÜ.

Monitoring of vehicle masses and axle load on bridges and overpasses located on national roads

The aim of the study was to gather information on the laden mass and axle loads of vehicles by using portable measuring devices installed on bridges and overpasses.

Heavy vehicles (maximum mass over four tonnes) constituted 1.5 million (23.6%) out of the total weighted amount of 6.3 million. The maximum mass of 6.9% of these vehicles exceeded the limit permitted by the number of axles, whereas 8.9% of heavy vehicles had at least one axle that exceeded the permitted limit. Since most vehicles were overloaded in terms of their maximum mass as well as their axle load, 11% of heavy vehicles may be considered overloaded.

The maximum weight limit policy of Finland, Sweden and Norway as well as the masses of vehicles in use in these countries were compared during the study.

31 measurements were taken in the course of two years. Measurements were taken on selected bridges in two consecutive years in order to gain an overview of the actual load and changes across years. The length of one measurement at each measuring point was at least seven days.

The study was conducted by AS Viacon Eesti together with TTK University of Applied Sciences, Skepast&Puhkim OÜ and T-Konsult OÜ.

Development of a pavement design guide for roads with low traffic volume

Roads with low traffic volume (mostly with transition-type pavement or earth-tracks) constitute nearly 86% of the road network in the developed world. In terms of Estonian roads, there are nearly 12,500 km (75.6%) of secondary roads, 5,600 km of which are gravel roads (34.1%). 25% of traffic on national roads takes place on Estonian secondary roads.

Secondary roads are an important part of the state's infrastructure and their design and construction must incorporate principles and requirements that enable to implement economical solutions and prevent premature deterioration. For instance, the insufficient load bearing capacity of paved gravel roads cause the coating to deteriorate and its repairs are more complex and expensive than in the case of gravel coating. The durability of roads are affected by inconsistent pavement courses, poorly functioning drainage, inappropriate gradation of certain course materials, which result in (especially during springtime) plastic deformation in loads. Clear and detailed reasons for these problems must be determined in order to improve the situation.

The development of a separate pavement design guide for roads with low traffic volume and the testing thereof on actual objects reached the final stage in 2018. Measurements were extensive: 114 km of roads measured and observed, 29 objects, 2,061 load bearing capacity points measured, 231 engineering geological boreholes drilled along with a soil analysis, and all roads were covered by land radar measurements.

The conducted measurements enabled to consider actual road conditions. Preliminary results of the analyses suggest that the cost of improving weak gravel roads and pavement thereof is up to 20% cheaper according to the new gravel roads repair guide. The total cost of studies and analyses is comparable to regular engineering geological studies according to the requirements of the Road Administration's guide for geotechnical soil studies, however, current collection of more and better linked data makes the design process of road pavement faster, more understandable and transparent. The main difference stems from the fact that soil studies are only conducted in places where it is necessary based on the condition of the road and load bearing capacity measurements. The most significant benefit of this solution is that the information collected during the research process can be used to prepare a road pavement project solution that is neither over- nor under-dimensioned.

MEELIS TELLISKIVI,
Deputy Director General in the Area of Traffic Safety and Public Transportation at Road Administration

I will remember 2018 as a year of major changes in the area of public transport. The biggest challenge was to implement free public transport within counties, as requested by the Government of the Republic.

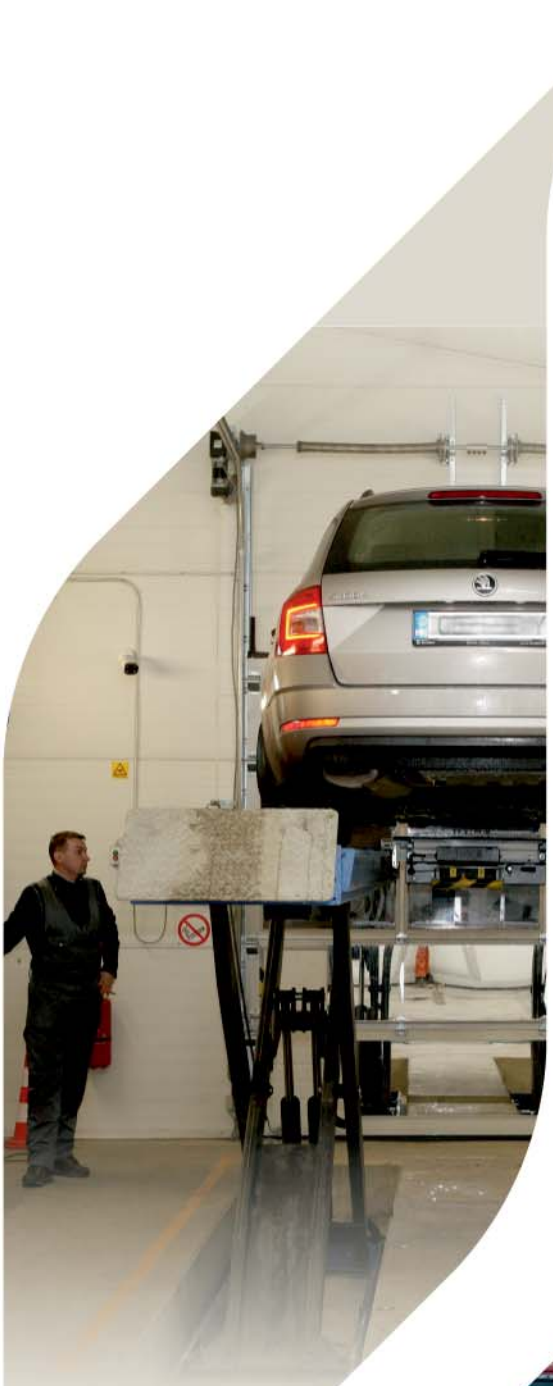
Even though the time for the launch of free buses was set, the project itself was constantly changing, which made everything especially difficult. As of 1 January, the obligation to organise bus transport within counties, which was taken over from county governments, entered into force and public transport centres were established. We also began organising public transport surveillance, for which we established the Supervisory Division of Public Transport Department. Moreover, as of the beginning of 2018, the Road Administration is also in charge of organising ship and plane connections for larger islands, which have certainly posed a challenge for the Public Transport Department.

In 2018, there were 1,464 traffic accidents that involved human fatalities in Estonia, in which 67 people were killed and 1,824 injured. These numbers are upsetting, however, the Traffic Safety Department has improved the efficiency of cooperation with various partners who contribute to improving traffic safety. For instance, we obtain more accurate data regarding accidents thanks to our cooperation with the police, which we can use to make conclusions and implement necessary changes. The representatives of the Ministry of the Interior, the Police and Border Guard Board, the Ministry of Economic Affairs and Communications and the Road Administration held an emergency crisis meeting during summer, when the number of victims of traffic accidents increased significantly. Several solutions were discussed and one of our proposals involved requesting increased surveillance on our roads in order to calm traffic, which proved successful. It is good to see that we were able to sit down and look for a resolution together at critical times.

Speeding, use of smart devices and drunk driving remain the biggest issues in our traffic. It is good to see that the majority of people no longer accept drunk driving. Unfortunately, slight speeding and use of smart devices while driving are still considered normal by many. Our Prevention Department tackles these topics on a daily basis by organising trainings and campaigns. I am glad to see that spreading the message of traffic safety is no longer only of interest to the Road Administration, but numerous organisations and associations have also made it their goal to improve traffic safety. For instance, the news portal Delfi independently initiated a social campaign “No reading while driving!”, which invited people to say “no” to the use of smart phones while driving.

The Examination Department also has an important role in shaping the behaviour of road users. The results of theory tests and practical driving exams have declined in recent years, as in some regions, only a little over 20% of driving candidates passed their practical driving exam. This prompted the Road Administration to review the entire process of acquiring a driving licence – learning arrangement as well as examinations. To this end, several meetings were held with driving schools in order to gain ideas on what could be improved. It was found together that current regulations are outdated, legally clunky and ambiguous. Therefore, the Examination Department began preparation of a new regulation. The aim is to make the new regulation specific, take into account the skills required in everyday traffic and to ensure that the learning process facilitates examination and vice versa. The Road Administration has currently forwarded proposals for the amendment of the regulation to the Ministry of Economic Affairs and Communications.

Area of Traffic Safety and Public Transport



The year of the Technical Department involved changes as well. Their biggest challenge was the instalment of cameras at technical inspection stations in order to minimise risk of corruption and to ensure that technically unsound vehicles could not enter traffic. This change was initially met by an incomprehensible and surprisingly big resistance from the executors of roadworthiness tests. However, once the project commenced, they realised that the camera provides them with protection. Currently, if any dangerous faults are detected with the vehicle during roadworthiness testing, owners of vehicles no longer usually try to bargain to pass the test regardless.

The employees at our service bureaus are incredibly hard-working and pragmatic. Client satisfaction with services provided at our service bureaus is constantly increasing. At the instigation of the Vehicle Registry Department, the obligation of clients to fill out forms at the bureaus was eliminated and they can now just turn to the customer service attendant.

It is great to see that more and more clients are finding their way to our e-service. The proportion of leasing companies increased significantly this year.

I am pleased to see that the area of traffic has hard-working and pragmatic employees. All of our achievements are only possible thanks to our united team. I would like to thank everyone for their contribution!

The key word in 2018 in the area of public transport was principal changes in the organisation of public transport in Estonia.

As of 1 January 2018, the Road Administration took over the role of competent authority from county governments in regard to organising public transport by bus, ship and plane between counties.

Administrative contracts transferred a large proportion of the responsibility of organising public transport to nine public transport centres (Ida-Viru county, Jõgeva, Järva county, Southeast, Northern Estonia, Pärnu county, Tartu county, Valga county and Viljandi county public transportation centres) established by the beginning of 2018 and to two island local governments (rural municipal governments of Hiiumaa and Saaremaa). The Road Administration remained in charge of organising connections between Hiiumaa and Saaremaa by ferry and plane as well as overall coordination and supervision of public transport organisation, incl. monitoring ticket sales on buses and trains. For the execution of the latter, a Supervisory Division of Public Transport Department was established, the employees of which are located in Tallinn, Tartu, Jõhvi and Saue.

The Road Administration also became responsible for establishing ticket prices on county lines, which are served under the public service contract. One of the most significant changes was the fact that as of 1 July 2018, users of county bus lines are no longer charged for their ride (free travel), meaning that the absent ticket revenue and contribution of local governments was replaced by state budget subsidy in counties that wished to join this model. Relevant ticket prices, either zero or more euros, were established by the Road Administration.

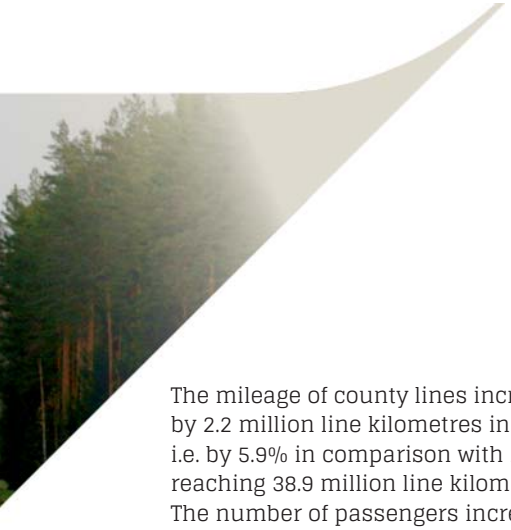
Hiiu, Ida-Viru, Jõgeva, Järva, Lääne, Põlva, Saare, Tartu, Valga, Viljandi and Võru county chose to join the free travel model. The remaining counties wished to provide a right of free travel to passengers up to the age of 19 and over the age of 63 (incl.). The free travel right is also not applicable to any long-distance lines organised by public transport centres.

The number of valid contracts was 48 in the beginning of 2019, indicating an average of 3.2 contracts per county. Seven of these have been concluded in regard to serving long-distance lines. In terms of contracts concerning higher transport volumes, four new contracts entered into force in 2018 for serving county lines in Lääne, Pärnu and Viljandi county. Procurement procedures were concluded and new contracts were entered into in regard to serving county lines in Hiiu, Valga and Pärnu county, as of 1 January, 1 September and 10 October of 2019 respectively.

Surveillance results

busses inspected	3,128
trains inspected	2,283
passengers inspected	113,235
misdemeanour documents processed	293
precepts prepared	30
fines collected	7,228 euros
proceeding protocols prepared	195
penalty payments imposed	5,630 euros

Public transport



The mileage of county lines increased by 2.2 million line kilometres in 2018, i.e. by 5.9% in comparison with 2017, reaching 38.9 million line kilometres. The number of passengers increased by 1.9 million persons, i.e. 9.5%, in the course of the year, which is largely a result of the free travel opportunity as of the second half of 2018. The number of passengers decreased in the first half of the year, however, it grew by 873,000 passengers, i.e. 23%, in the third quarter and by 1.1 million, i.e. 24%, in the fourth quarter. The number of passengers exhibited the biggest growth in Harju, Ida-Viru, Valga and Viljandi county.

The state funding of public transport centres for the organisation of public transport increased by 11.7 million euros, i.e. 53%, in 2018 in comparison with 2017. This was due to the adoption of free travel, growth of the public transport price index and increase of public transport volumes. The service volume has increased due to new travel needs arising from the administrative reform, elimination of some commercial lines and the increase of travel demand in regard to the entry into force of free travel.

In 2018, 51 permits for domestic commercial and long-distance lines were issued and 58 amendments to the schedule of service lines operating under existing line permits were approved. Carriers terminated the service of 30 lines prematurely (incl. five commercial lines in Harju county and one in Rapla county) and relevant permits were revoked. Request for a line permit was denied on one occasion.

The employees of the Road Administration participate in the decision-making process concerning the execution of public service contracts by county lines and also regarding issues related to state budget subsidies and in regard to major amendments. It was also necessary to involve officers authorised by the Road Administration in the process of planning the organisation and project costs of public transport centres, and for making larger payments.

As of January 2018, employees of the Road Administration are exercising their membership rights in public transport centres as follows:

- Kirke Williamson – Viljandi County Public Transport Centre, Tartu County Public Transport Centre, Southeastern Public Transport Centre;
- Aini Proos – Ida-Viru County Public Transport Centre, Valga County Public Transport Centre, Järva County Public Transport Centre, advisory role in Hiiumaa rural municipality;
- Mika Männik – Northern Estonia's Public Transport Centre;
- Kelli Toime – Pärnu County Public Transport Centre, member of the Pärnu county public transport committee, Jõgeva County Public Transport Centre, advisory role in Saaremaa rural municipality.

The development of the new board application commenced in 2018 and it should became functional in the first quarter of 2019. The application can be used to display scheduled and actual departure times for passengers on the boards installed at bus stops. Furthermore, the process of updating the travel planner commenced as well and is also to be completed in 2019.

Public transport users visited the Peatus.ee website a total of 3.8 million times in 2018, while the mobile application m.peatus.ee site was visited 5.1 million times. The number of visits grew by 22% in comparison with 2017 and was also affected by the adoption of free public transport.

Public transport surveillance

In the context of the administrative and state reform, the obligation of organising county lines along with the obligation of public transport surveillance was fully transferred to the Road Administration. In order to fulfil this task, the Road Administration created a Supervisory Division of Public Transport Department, which became operative on 1 January 2018.

Public transport surveillance includes the following:

- inspection of the quality of the public transport service and compliance with the agreed terms and legislation by public as well as commercial lines,
- inspection of the technical condition of public transport vehicles and the fulfilment of work and leisure time requirements in cooperation with the police,
- verification of the right of travel on buses, trains and ferries.

2018 marked the first time that tickets were inspected in regard to ferry traffic, resulting in 21 misdemeanour procedures. It showed that execution of supervision is necessary in this area.

In terms of bus traffic, focus was turned on the functioning of the service, i.e. adherence to the schedule and regularity of line-based public transport vehicles was inspected. Issues have arisen with respect to leaving earlier than set out in the schedule or cancellation of travel and failure to serve the station.

The division prepared complex service consistency analyses in regard to Valga, Viljandi and Jõgeva county. The results revealed that issues regarding the public transport infrastructure are extremely intense. Station markings are missing, only present in one direction, deteriorated or even dangerous at several locations. Another problem is the lack of current and up-to-date data on lines that pass through the station.

2018 was also significant for the fact that the Road Administration began actively organising the work of regional public transport centres and resolving issues related thereto. Several problems have been detected in the activity of Ida-Viru County Public Transport Centre during monitoring of the administrative contract. Said problems have not been fully resolved and will be addressed further in 2019.

Supervisory Division of Public Transport Department employs 14 officers who are distributed between the Northern and Southern Region.

The inspection of commercial vehicles in 2018 differed from that of previous years in that the Police and Border Guard Board decided to carry out inspections within prefectures, due to which the number of collective raids was smaller than in previous years.

A total of four collective raids, which lasted several days, were carried out, during which 920 vehicles were inspected: 45 public transport vehicles, 643 heavy goods vehicles, 20 mobile machinery and 212 passenger cars. Offence proceedings were initiated in relation to 268 drivers and a total of 439 violations were detected. 70 vehicles were sent for re-inspection and a driving ban was issued on nine occasions.

In terms of public transport vehicles, 16 violations were discovered, ten of which were violations concerning work and leisure time.

371 violations were detected in regard to heavy goods vehicles, 55 of concerned mass load, 16 violations concerned dimensions, 164 violations concerned work and leisure time, 10 violations concerned securing of cargo, three drivers lacked the right to drive, the road toll had been unpaid on 53 occasions, and there were also 50 other violations.

In general, it can be said that manipulation with work and leisure time is becoming an increasingly significant problem. The old school use of magnets is becoming rarer, however, discovery of modules that interrupt tachographs and cases where the software of the tachograph has been overwritten are becoming more frequent. Detection and verification of both violations is complex and time-consuming.

The Road Administration also participated in a few events held within prefectures, the most remarkable of which took place at Luhamaa and Koidula border posts. In addition to everyday work, border guards were trained to assess the technical condition of commercial vehicles. Further travel was prohibited for all four inspected buses, since the technical issues discovered were so severe: fractures in the chassis, oil and fuel leaks, lack of a sway bar in the front axle, a silencer that was tied together with a thread, etc. It can also be said that heavy goods vehicles equipped with a Russian registration plate that are travelling from Russia are mostly in poor technical condition, as inoperative breaks, broken frames, tyres with excess wear were common finds.

The Road Administration also carried out inspections at Narva border post, where work and leisure time violations proved to be the most common issue.

We also paid attention to school buses operating in Harju county. We began the review of buses in August 2018 when local governments asked for our help in assessing the compliance with contractual terms of buses provided by a carrier selected via procurement. We determined numerous technical errors, which could have served as a basis for sending the buses for re-inspection. A driving ban could have been imposed on three of the buses.

We also carried out two raids in Harju county, one in the beginning of the year and the other in September. Two school buses were sent for re-inspection and a travel ban was issued to another two during the last raid carried out in Laulasmaa, Harku and Saue. One of the busses that was issued a travel ban had a fuel leak onto a hot silencer, whereas in the case of the other bus, the bushes that hold the rear axle in place were so severely deteriorated that the rear axle had begun to live a life of its own separately from the bodywork of the bus.

Collective raids

Making sites that pose a traffic hazard safe

In order to improve traffic safety, the Road Administration is constantly working on determining and reconstructing road sections and intersections on national roads that pose a traffic hazard.

The annual action plan for safety-related priority objects is compiled in the extent of the budget allocated for this purpose under the road maintenance plan.

The hazard level of a road section or intersection cannot be assessed on the basis of accidents that have already taken place, the risk for potential accidents must be considered as well. Therefore, information on road sections and intersections that pose a traffic hazard is collected from three sources.

1. Sites that pose a traffic hazard found on the basis of risk calculations. The safety of national road sections and intersections is assessed on the basis of the number of estimated traffic accidents. The estimate is made on the basis of a statistical method that considers traffic accidents that have taken place on the specific road section or intersection as well as on other similar road sections or intersections. A ranking of most important sites that pose a traffic hazard is compiled on the basis of the estimated results.

2. Sites that pose a traffic hazard found on the basis of qualitative estimates of county traffic committees. 20% of the annual budget for the reconstruction of sites that pose a traffic hazard is allocated for reconstruction of sites proposed by country traffic committees. They namely mediate problematic sites on national roads, brought to attention by the local community.

3. Sites that pose a traffic hazard found on the basis of other qualitative assessments. Third parties such as the Police and Border Guard Board, inspection committee for serious traffic accidents and local governments also provide the Road Administration with information regarding sites that pose a traffic hazard, based on accidents that have taken place.

In 2018, various traffic safety measures were applied on 54 objects for a total cost of 7.8 million euros.

The focus was on the safety of pedestrians and measures that facilitate their safety, such as establishment of sidewalks, cycle and pedestrian tracks and crossing points and reconstruction of existing bus stops. A multi-level pedestrian crossing tunnel was also constructed.

In terms of vehicle safety measures, construction of dangerous intersections, establishment of safety barriers and construction service roads were most common. In regard to calming traffic and reducing travel speeds, speed-limiting road humps and chicanes in built-up areas were constructed. The lighting of eight objects was improved, on intersections as well as footpaths.

20 sites that pose a traffic hazard were eliminated on secondary roads and 17 sites on main and basic roads each. The fact that the most measures were applied on secondary roads implicates the flexibility of the programme for sites that pose a traffic hazard to determine and eliminate threats on roads with lower traffic volume as well.

Sites that pose a traffic hazard were eliminated in 13 counties. Most dangerous objects were safeguarded in Harju county which also has the highest traffic volume on national roads.

Objects that cost the most were mostly located on main and basic roads and the construction thereof was distributed over two or three years. The largest objects include the following:

- Construction of a service road and footpaths from Sillamäe on km 185.7–187.4 Tallinn–Narva road (commenced in 2017).
- Construction of the southern service road on km 17.2–18.7 of Tallinn–Narva road for closing down the Võerdla U-turn spot (commenced in 2016).
- Construction of the pedestrian tunnel at Kanama interchange on km 18.8 on Tallinn–Pärnu–Ikla road (commenced in 2017).
- Design and reconstruction of intersections on km 0.1–3.5 of Tartu–Jõgeva–Aravete road (commenced in 2017).

7.5 million euros have been allocated for reconstruction of sites that pose a traffic hazard in the budget of the Road Administration for 2019. This includes implementation of traffic safety measures on 76 objects.

Database of traffic accidents

The Road Administration has collected and analysed traffic accident data since the 1990s. In 2010, it was decided to establish a modern Road Administration traffic accident information centre (MALIS), the development of which took longer than expected and active development was suspended in 2017.

Since traffic accident data is extremely important for the Road Administration as well as to many other partners, it is clear that the system must be preserved.

The specific needs and development outlooks of the database of traffic accidents were thoroughly analysed in 2017. Establishment of an entirely new system was agreed upon in order to achieve the best results and prevent errors made with the previous database (complexity and display of incorrect results). Creation of the new system ensured that x-road transfers will become functional right away, and possible faults in the systems are thus avoided. A new database was created, the structure and data exchange logic of which is in accordance with all modern requirements.

In 2018, the Road Administration began the development of the new database of traffic accidents in cooperation with OÜ Resta. The development period was estimated to last one and a half years, however, work was so successful that the capacity of the previous system was reached in six months: databases of the Police and Border Guard Board (PBGB) and traffic register had been linked and data exchange was 40 times faster than previously. Data exchange was also established with the database of the Estonian Motor Insurance Bureau (LKF).

In summer 2018, the Government of the Republic adopted the statute of the database of traffic accidents, regulating the operating principles of the database. In addition to established obligations, the database was granted legal basis for data enquiries from the databases of the PBGB, LKF and the traffic register.

A functional system had been established by the end of the year, under which traffic accident data is loaded to the Road Administration's traffic accident database from the databases of the PBGB and LKG at six o'clock each morning and it is then supplemented by information regarding driving licences and vehicles from the traffic register. The database of the Road Administration includes traffic accident data as at the previous day.

The database is planned to be linked with the Land Board and road register in 2019, which would improve the accuracy of determining the location of traffic accidents in the system. The database will also be aligned with applicable data protection rules. This is also the most important condition for obtaining national approval for the database.

Even though traffic accident data is already available to interested person at the website of the Road Administration, we will develop if further in 2019. The plan is to compile thorough analyses that are updated on a daily basis and available to all departments of the Road Administration who might need them. We shall establish a thorough data monitoring system for traffic accident data in cooperation with the PBGB. This will result in accurate and correct data, which will lead to more informed decisions than ever before.

Traffic counting

As of 2017, traffic counting systems also collect data on travel speed in addition to counting vehicles. 2018 was the first full year of data collection, which can be used as a basis for better informed decisions.

Therefore, travel speed data was used to assess the impact of the new alternative procedure on travel speed and how it affects traffic safety. The analysis indicated adverse affects, i.e. travel speeds tend to be increasing.

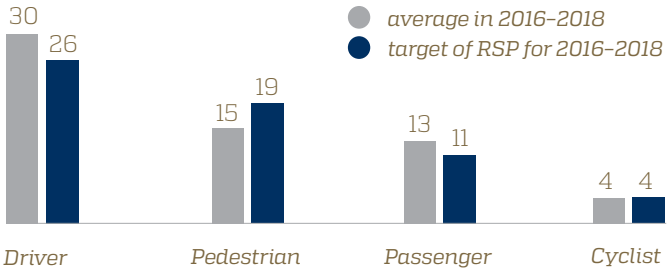
In terms of assessing the causes of serious traffic accidents, the speed of traffic flow at the time of the accident can now be determined. In 2019, the developments should make it possible to measure travel speed on a vehicle-basis (vehicle is not identified during data collection).

“Traffic behaviour experiment on Tallinn–Tartu road” was one of the bigger projects, during which the impact of police patrols on speed was monitored, using data received from traffic counting points.

The objective for 2019 is to add all databases of traffic counting points to the Road Administration's servers, enabling to monitor road activity in real time. A vehicle-based travel speed function will be added as well. In addition to its benefits to the Road Administration, the application can also benefit the Emergency Centre and PBGB who can apply operative management on roads in real time in places where changes in travel speed are detected.

On 17 February 2017, the Government of the Republic approved the Road Safety Programme for 2016–2025 and its implementation plan for 2016–2019.

Number of traffic fatalities among road users in 2016–2018



Reduction of traffic fatalities. The aim was to ensure an annual average of 60 or less traffic fatalities in 2016–2018. The three-year average (2016–2018) was 62 traffic fatalities. Even though the target was achieved in terms of ensuring the safety of pedestrians and cyclists, the three-year average still exceeded the maximum limit with regard to drivers and passengers.

Improvement of safety awareness of road users and development of traffic safety. Baseline values and expected target values of indicators in the area were established in order to assess the change. Even though 17 indicators out of 26 showed improvement, the other nine indicators exhibited negative evolution, differing from the baseline established in 2014: use of safety belt in a passenger car – passenger in the front seat; use of reflex reflector by pedestrians – children; percentage of people who pass the practical driving test on their first attempt; mileage of additional central line rumble strip on national roads; percentage of vehicles in traffic that are over ten years old and the percentage of motor vehicles of category M1 (passenger car), category M3 (bus), category N2 (truck between 3.5–12 tonnes) and category N3 (truck over 12 tonnes), which passed the roadworthiness test on the first attempt.

The implementation plan set out 114 activities for the improvement of traffic safety in 2018. Eight of these activities were directed to 79 local governments[1]. Implementation of five activities required additional funding, which was not reflected in the state budget strategy. It is positive that a solution was found for funding local government units set out in the "Implementation plan for the road safety programme for 2016–2019" on a case-by-base basis from the expenditure of the area of government of the Ministry of Economic Affairs and Communications, thus ensuring the realisation of four activities. Realisation of the fifth activity was made possible thanks to an additional budget. 67 activities out of the rest of the 102 were completed in full, 23 in part and 12 activities remained unrealised, were postponed or abandoned.

Most activities involved shaping road users to be responsible and aware of dangers, primarily focusing on two different aspects: ways of thinking and perceptions of road users, and traffic environment. All activities on ensuring the safety of cyclists were realised, as well as the bulk of activities regarding contribution to traffic education measures. In terms of surveillance activities, requesting funds for purchasing eight mobile speed cameras is noteworthy here.

Measures regarding safe traffic environment focused on developing and managing traffic environment in a way that ensures that the traffic environment is easily comprehensible, road users could be aware of dangers in it, the number of potential mistakes would be reduced and that consequences of mistakes would be less severe. A total of 24 km of median barriers were built on 2+2 and 2+1 roads in order to prevent deviating to the oncoming traffic lane and to avoid head-on collisions. A total of 25 km of side barriers were built to prevent running off road and to avoid single vehicle accidents and 102 km of central line rumble strips were established to prevent deviating to the oncoming traffic lane. Variable message signs were adopted on the Laagri–Ääsmäe 2+2 road section and on the Pärnu Papiniidu bridge, enabling to make the permitted travel speed dependent on road and weather conditions.

Safe vehicle measures were aimed at improving the safety and functionality of transport. Cameras were adopted at technical inspection stations as of 1 July 2018, thanks to which the number of surveillance inspections handled by the Road Administration in the second half of the year increased by 67%. The adoption of cameras was also accompanied by an unexpected factor: technical inspection stations detected 21% more deficiencies in vehicles than before.

[1] The activity report on the activities of local governments is being prepared and shall not be reflected in this overview.

Road Safety
Programme 2016–2025

Expert committee in determining the causes behind serious traffic accidents

2018 marked the second Estonia-wide, and unfortunately very busy, operating year of the expert committee in determining the causes behind serious traffic accidents. The number of traffic accidents as well as fatalities increased.

In addition to accidents involving fatalities, the committee also determines the circumstances concerning accidents in which five or more people were injured. In 2018, the number of such accidents also increased in comparison with 2017.

The committee opened a file on a total of 85 traffic accidents, whereas the number of such accidents remained at 50 in 2017. The number of accidents involving fatalities was 64, incl. three accidents with two fatalities. Eleven accidents involved five or more injured persons with a total of 101 injured road users.

Primary causes of serious traffic accidents are driving while intoxicated or exceeding the permitted speed limit. It is noteworthy here that the excess speed is not a couple of kilometres per hour, but starting from 20 km/h over and even reaching twice the permitted speed limit. This indicates that the driver chose the speed knowingly. Drunk drivers sat behind the wheel knowingly as well, as it was mostly not the case of residual alcohol remaining in the system the next day. The level of intoxication of those drivers often exceeded the criminal amount with over 1.5 mg/g of alcohol in their blood.

Failure to use safety equipment took its annual toll as well: an unfastened safety belt acted as a factor in the death of 16 people. As in previous years, accidents that involved all three factors – intoxication, great speed and unfastened safety belt – occurred in 2018 as well. In most cases, the accident manifested in the car running off the road.

24 persons were killed in 2018 due to running off the road. The main risk factor for half of such accidents was speed, whereas in seven cases out of ten, the safety belt was unfastened.

Accidents involving collisions often end tragically. Collisions between motor vehicles claimed 25 lives in 2018, whereas almost all collisions occurred on highways (except for one). 14 collisions happened due to deviating to the oncoming traffic lane, eight collisions occurred at intersections, incl. two rear-end collisions, and one rear-end collision in an area between intersections.

Accidents on intersections are often linked with carelessness, whereas deviating to the oncoming traffic lane is often related with failure to consider road conditions. At the time of eight of the accidents, road conditions served as a risk factor for the collision, in six cases, it was wintertime and the road was either slippery or snowy. The traffic accident that received perhaps the most media attention happened in Jõgeva county in March 2018, when a Turkish heavy goods vehicle, which was transporting special carriage, deviated to the oncoming traffic lane and collided with a passenger car. The driver of the passenger car, a well-known TV host, died from the injuries at the hospital. Several similar collisions between a heavy goods vehicle and a passenger car occurred in the course of 2018. It can only be assumed that these were caused by extraneous activities, as no other risk factors could be detected.

Alcohol can also result in deadly situations among pedestrians. Six pedestrians were killed in accidents that occurred on highways: five accidents took place during night-time and three pedestrians were heavily intoxicated. The blood alcohol content of the aforementioned people was over 2 mg/g and they were either staggering along the road or already lying on the ground. None of them wore a reflex reflector. Two of them had already been transported home or to a drunk tank several times before.

Six accidents involving pedestrians occurred in a city or built-up area and all of them took place in daylight. Four pedestrians got into an accident while crossing the road, incl. two who were crossing an unregulated pedestrian crossing. Both accidents were caused by the fact that the driver ignored his

obligation to give way to pedestrians and the pedestrian was not paying attention.

Two elderly pedestrians, women aged 93 and 85, were run over by reversing vehicles in Tallinn. The first was hit by a garbage truck that was backing up towards a garbage building in a calm traffic area and the other was hit by a passenger car that was backing out of a parking space. Both vehicles were equipped with a back-up camera, and the passenger car had back-up sensors as well. It should be noted that this was the third consecutive year, during which a person lost their life due to a reversing garbage truck.

The nice and warm summer of 2018 attracted more motorcyclists and cyclists to roads, which also led to more accidents than the year before. Six motorcyclists were killed in the course of the year, three of them were unable to keep the motorcycle on the road and ran off it. One of the motorcyclists who ran off the road was intoxicated. Three motorcyclists were killed in collisions, whereas in two cases, they were also speeding.

The number of fatalities of cyclists was four (two in 2017). Two of the accidents took place in Tallinn. In one case, a heavily intoxicated man hit a street light post and a road sign with an electric bicycle, and the other accident involved a health failure and a child. Two elderly cyclists got in to an accident on the highway.

During inspection of accidents, the committee often detects repeating and common risk factors, however, failure to pay attention and carelessness are often to blame. One should not lose focus in traffic, either when travelling by foot, cycling or driving, it is important to keep the senses sharp and notice what is happening around you.

The overview deals with the attitudes and behaviour of road users in 2018 and changes in comparison with previous periods. Results have been obtained by surveys and observational studies.

Nearly 100% of respondents consider drunk driving as the biggest threat, same as last year. Texting and use of social media while driving is considered almost as big of a threat as running a red traffic light (97% of respondents), whereas the proportion of people who find texting very dangerous has increased 5%. The overall attitude that using the phone while driving is dangerous has increased as well (79% of respondents, 44% of whom consider use of the telephone without a hands-free device a serious threat). However, exceeding the permitted speed limit is considered far less dangerous on the same scale. The proportion of persons who consider exceeding the speed limit by more than 10 km/h as dangerous has reduced from 89% to 76% in the last two years, and only 29% of respondents find such behaviour very dangerous.

1. ATTITUDES AND BEHAVIOUR OF DRIVERS OF MOTOR VEHICLES AND PASSENGERS

Compliance with traffic lights by drivers of motor vehicles

Compliance with traffic lights by drivers of motor vehicles was observed on regulated national road intersections in the streets of Tallinn, Tartu, Pärnu, Narva, Jõhvi and nearby areas of Tallinn. Drivers who had the option to choose to either pass through the intersection during a red light or to stop, chose to ignore traffic light requirements in 14% of cases on average on the basis of observations, remaining at the same level as in 2017. Drivers who had to choose whether to pass through the intersection during a yellow light or stop, chose to ignore traffic light requirements on an average of 55% of cases (58% in 2017). There were differences to the extent of 20% in different areas, ignoring traffic light requirements is more common in Tallinn and less common in road traffic. The situation in Tallinn has degraded by 9% in comparison with 2017.

Activities that disrupt attention during driving

Sending texts and writing posts on the phone and reading thereof is considered the most dangerous attention-disrupting activity during driving.

69% of drivers use their phone while driving. 15% of all drivers use their phone often, whereas 53% of drivers do it sometimes. 43% of phone users always or usually use a hands-free device (40% in 2017), whereas 22% (23%) hold the phone in their hand while driving. The proportion of hand-held phones has decreased by 9% in the last three years.

Adherence to the permitted speed limit

30% drivers (25% in 2017) adhere to the permitted speed limit on main roads and 40% (35%) on smaller roads. On main roads, 30% of drivers exceed the permitted speed limit by over 5 km/h, whereas 4% of them exceed the limit by over 10 km/h. On smaller roads, 20% of drivers exceed the permitted speed limit by over 5 km/h. In cities and built-up areas, 56% (51%) of drivers adhere to the permitted speed limit. The results regarding the speed behaviour of drivers have improved by nearly 5% in comparison with 2017.

Overtaking and adapting one's speed to that of other road users were the most common reasons for exceeding the speed limit.

Use of the safety belt and child safety equipment

An observational study carried out in 2018 showed that 97% of drivers, 95% of adult passengers sitting in the front seat of a passenger car and 85% of adult passengers sitting in the back seat of a passenger car used a safety belt, whereas 98% of children were fitted with child safety equipment. The survey conducted among the population in regard to the use of the safety belt showed similar results. 43% of respondents usually fasten their safety belt when riding on a bus, provided that a safety belt is present.

Fastening of the safety belt in passenger cars has remained high for years, using the safety belt on the back seat has been somewhat lower and more subject to fluctuation over the years. The proportion of persons who fasten the safety belt on a bus has been constantly growing over the years. Awareness regarding the safety belt obligation on the bus has also improved.

Giving way to a pedestrian on an unregulated pedestrian crossing

The proportion of drivers who give way to pedestrians is 60%, remaining at the same level as in 2017 (59%). Giving way to pedestrians was observed on unregulated pedestrian crossings in Talllinn, Tartu, Narva and Pärnu.

49% of pedestrians believe that giving way on unregulated pedestrian crossings has improved in the last

Studies
on attitudes and behaviour of road users

couple of years. Nearly half of pedestrians said that they are given way by the first approaching car. The estimates of pedestrians were also similar in 2017. 75% of drivers (69% in 2017) who participated in the survey said that they are always willing to stop before a pedestrian crossing if there is even at least one pedestrian waiting to cross the road.

2. ATTITUDES AND BEHAVIOUR OF PEDESTRIANS AND CYCLISTS

Use of reflex reflectors and other equipment that make pedestrians more visible

68% of adults usually wear a reflex reflector or other equipment to make themselves more visible (flashlight, safety waistcoat, etc.) during night-time, whereas 18% said they wear something like that fairly often. 6% of adults never wear a reflex reflector 85% of parents claim their children always wear a reflex reflector. No changes have occurred in the habit of wearing the reflex reflector in recent years. At the same time, the proportion of people who consider wearing a reflex reflector extremely necessary has increased, reaching 87% among adult road users (83% in 2017).

In the case of visibility increasing equipment, quality and compliance with requirements are essential, however, the last survey showed that attention to the CE-marking of reflex reflectors has decreased by 7% (fixed at 20% in 2016).

Compliance with traffic lights by pedestrians

Compliance with traffic light requirements was observed at regulated pedestrian crossings and intersections in Tallinn, Tartu, Pärnu, Narva and Jõhvi. An average of 10% of pedestrians (16% in 2017) ignored traffic light requirements during a red light. Women, children and the elderly were less likely to cross the road during a red traffic light (proportion of non-compliers between 6% and 10%), while men were most likely to ignore the traffic light (proportion of non-compliers 13% on average).

Use of safety equipment while cycling

80% of children (75% in 2017) and 29% of adults (25%) usually or often wear a helmet while cycling. Regardless of the requirements set out in the Traffic Act, 10% of children who ride their bicycle never wear a helmet. According to parents, the main reasons for their children not wearing a helmet were that they do not like to wear it and that they ride their bike in mostly safe places in their parents' opinion.

46% of children (42% in 2017) and 26% of adults (31% in 2017) usually or often wear a safety waistcoat or other clothing that improve their visibility when riding a bike. The situation has improved in terms of children in comparison with 2017, whereas the same indicator has declined among adult cyclists. During night-time, 84% of cyclists have a white light in the front of their bike and 75% have a red light in the rear.

Customer service

In 2018, the amount of operations carried out at Road Administration service bureaus decreased by 7%, whereas the share of operations carried out via the e-service increased by 23% in comparison with last year. The customer service was called on 118,973 occasions and information was provided via e-mail on 94,091 occasions.

Clients remained satisfied with the service provided by our service bureaus as well as with the e-service environment. The service index of service bureaus was 86% and the recommendation index of the e-service 89%.

Service bureaus

As of autumn 2018, the working hours of service bureaus have been harmonised. Thanks to queue statistics and a survey that we conducted, we knew that the visiting habits of our clients had changed and that the first half of working days is now preferred over bureaus being open on a Saturday. Most operations were conducted on Tuesdays, whereas visitors only took up a couple of hours on Saturdays. In order to level waiting times across all days of the week, we changed the service hours of Tartu, Pärnu and Saue bureaus. People reacted to the change rather positively, as bureaus filled with clients, however, we did still hear a few complaints.

In the second half of the year, the lime green shirts of our customer service attendants were replaced with blue ones and all service employees now wear the new uniform. The development of the uniform took two years: the initial designing took place in 2017 and the uniform was completed in 2018. Unlike before, all customer service attendants received a full uniform: women received everything from a skirt to a scarf and men received everything from pants to a tie clip.

In the end of November, the Rakvere service bureau moved in with representation unit and customer service attendants could not be happier with the change. This also marked the conclusion of the project, under which all units of the Road Administration that were located separately in small towns were moved under one roof.

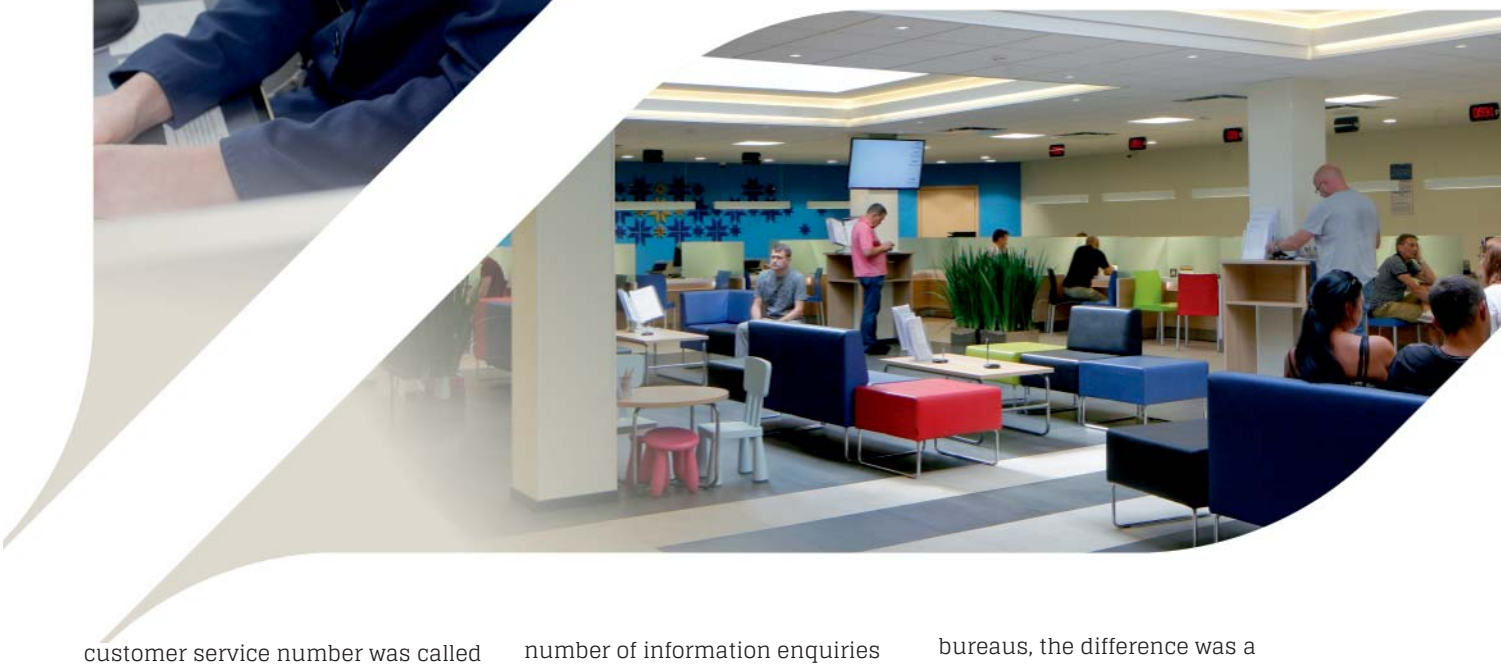
The biggest change in 2018 was certainly the amendment of forms regarding operations with vehicles. Operation regarding a vehicle is finalised by a customer service attendant at the bureau in the form of an interview: the client provides necessary documents, data and states their wish to the attendant. The customer service attendant enters the data and prints out the application form. This change was also awarded the title of the Deed of the Year in that area.

Even though the number of persons renewing their driving licence continued to decrease, it did not affect the work load of service bureaus. Approximately 70% of driving licences are renewed via e-service, whereas at the service bureau, the procedure takes up less time than other operations.

Information Centre

The employees of the Information Centre were required to broaden their knowledge on several occasions over the year. Several new topics arose in the beginning of 2018, such as public transport fines and appointment of vehicles for work travels, based on amendments to the Income Tax Act. Furthermore, calls regarding the road toll were also directed to the Information Centre as of December. A year has passed from the start of the collection of road toll and the awareness of clients has improved, therefore the Road Administration stopped outsourcing the telephone service.

The declining trend of incoming calls continued in 2018, the



customer service number was called 2% less than in 2017.

The number of e-mails reduced as a result of hard work. Even though the number of e-mails sent increased around 8% in the last three years, the figure declined by 5% in 2018.

The number of forwarded procedural supporting documents, such as lease contract conclusion acts, sales contracts, consents of authorised users, decreased by 9%, and the decline was especially noticeable in the last quarter (26%). This is the result of training and cooperation with leasing companies. If a leasing company has initiated transfer of ownership in the e-service, the Road Administration does not require supporting documents even if the operation is finalised at a service bureau.

The new generation of clients prefers to receive information via e-mail, the number of information enquiries increased by 9.5%.

The contribution of employees of service bureaus in answering calls and e-mails increased significantly: 22% of calls 78% e-mails received answers by service bureaus.

E-service

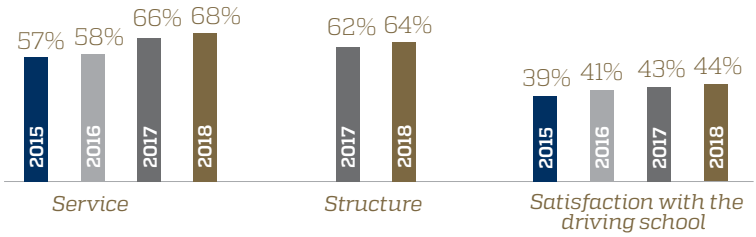
The Road Administration's e-service was used by nearly 1.3 million users on 6.3 occasions. Use of the e-service increased by 64%, exceeding the estimate by 6%.

The increasing use of electronic customer service was spurred on by the growing number of ownership change operations conducted in the e-channel. December of last year marked the first time when more ownership changes were performed in the e-service than at bureaus, the difference was a shocking 6%.

This growing trend stems from two changes: firstly, as of spring, the e-service can be used to claim ownership of or initiate transfer of ownership in regard to vehicles with a transferred status, and secondly, great cooperation with leasing companies. We agreed that leasing companies choose to initiate procedures and finalise letters of authorisation via e-service. In addition, the Road Administration does not require supporting documents in cases where the procedure is finalised at a service bureau.

The Road Administration is still the top notifier in Estonia, as we sent a total of 1.5 million notices or reminders to our clients throughout the year.

Satisfaction of people taking the driving test



2018 was very busy in the area of examination and involved implementation of various future-oriented processes. In 2017, we initiated amendments to the examination process, exercises and assessment, which should enter into force in 2019.

Exams

We made a presentation at the CIECA congress in Belfast, in which we focused on the fact that in today's world, it is no longer possible to become a driver in 24 hours. Currently, it is actually necessary to spend just as many hours in driving school. This is clearly insufficient as the exam results exhibit substantial shortcomings in driving skills, kilometres travelled, driving with an instructor as well as in implementing theoretical knowledge into practice. This is also confirmed by numbers.

In 2018, the Examination Centre carried out 36,085 practical driving exams across all categories. The percentage of success remained at around 50%, being similar to that of previous years. 58% of driver candidates passed their practical driving test on their first try.

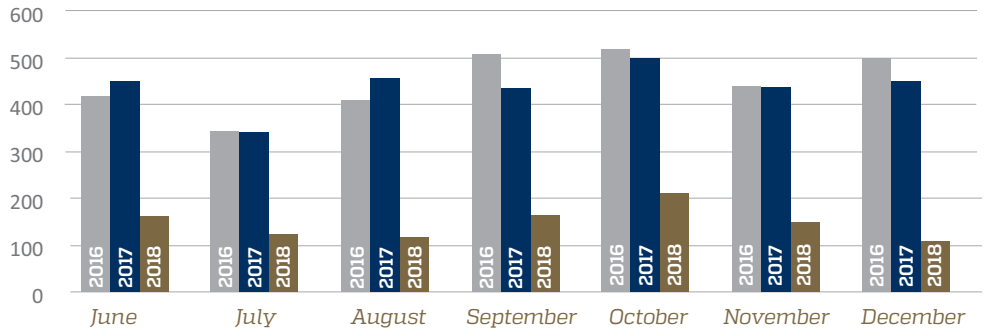
The category B practical driving test, which is the most common category, was carried out on 26,830 occasions and 43% of driver candidates passed the test. The share of persons who passed their practical driving test on the first try was 50%.

It has become noticeable in the last two years that the area of driver training has reached a certain stability and there are increasingly more motivated and capable driver candidates taking the practical driving test. Numerous meetings with driving schools and open communication have made a huge contribution. We are also glad to see that our clients are increasingly happy with the process of practical driving tests and the examiners.

The success level of theory test is continuously worrisome at 66% in 2018. The ability to read and understand questions as well as the description of the situation has proved problematic for driver candidates.

The year 2018 will also go down in history with a negative record in that 719 driver candidates failed to show up to their practical driving test and 359 driver candidates to their theory test.

Number applications for the issue of a certificate of competence in the period from June to December



The new Road Transport Act entered into force on 1 June 2018, the biggest amendment to which was that the organisation of the training of drivers and drivers transporting dangerous goods as well as handling of activity licence applications was transferred from the Ministry of Economic Affairs and Communications to the Road Administration.

A periodical continuous training obligation for lectors of professional and continuous training was also established. However, application of an activity licence was simplified, as the requirement that driver training applicants must have a valid licence for training motor vehicle drivers was dropped.

Organisers of trainings underwent a 180-day transitional period to make their activities compliant with legislation. After the transitional period, Road Administration has issued an activity licence to 19 driver training organisers instead of the previous 40 and five activity licences to driver training organisers who train drivers transporting dangerous goods instead of the previous six.

The new Road Transport Act also replaced the term “professional certificate of a driver” with “certificate of competence” and an entry on completing professional or continuous training shall now also be made to the driving licence. This means that an international code 95 shall be entered onto the driving licence along with the relevant validity period and there is no need to apply for a separate certificate of competence.

The code 95 shall be automatically entered to the back of the person's driving licence upon replacement, provided that the trainer has submitted data regarding the completed professional or continuous training to the Road Administration.

Persons who are not compliant with the application requirements for an Estonian driving licence, must still apply for certificate of competence at the Road Administration upon completing professional or continuous training.

As of entry into force of the law, the number of certificate of competence applications has decreased by nearly 60% in comparison with the two previous years.

Replacement of a driving licence with a new one that includes the code 95 along with a validity period is cheaper and more convenient for people.

In addition, during domestic road transport, drivers do not have to carry along a document verifying completion of professional or continuous training if they have their personal identification document with them. Completion of professional or continuous training of drivers is checked on the basis of traffic register data.

Activity licence
for driver training

Market surveillance of motor vehicles

Technical Department of the Road Administration executes market surveillance of motor vehicles, the aim of which is to ensure that the agricultural and forestry vehicles, and 2-wheel, 3-wheel and 4-wheel vehicles that enter the market comply with requirements and are safe for road users and traffic.

The Road Administration along with the Tax and Customs Board executes market surveillance at the national border by verifying compliance of motor vehicles imported. In 2018, the Road Administration received 19 notices regarding motor vehicles stopped by customs (total of 279 vehicles), in eight cases (50 vehicles) it was decided not to release the vehicles into free circulation. The primary issue regarding non-compliance was the lack of type approval.

As of 2018, the Road Administration is cooperating with importers in regard to recall notices of motor vehicles concerning Estonia (mostly vehicles of category L), and forwards reply notices to the RAPEX system (Rapid Alert System for dangerous non-food products). The Road Administration handled a total of 30 notices and the number of recalled motor vehicles related to Estonia was 147.

As of September 2018, the Road Administration began paying extra attention to surveillance over non-compliant mini mopeds. Pursuant to the Regulation of the European Parliament and of the Council, vehicles of category L must be equipped with an EU type approval and data plate. It is prohibited to import non-compliant vehicles to Estonia or to market or use such vehicles in Estonia.

Pre-registration roadworthiness tests of vehicles

In 2018, 44,734 pre-registration roadworthiness tests were carried out, 3% more than in 2017. In 3,450 cases, the vehicle was assessed as non-compliant, i.e. deficiencies had to be removed for obtaining a registration permit.
136 contractual partners of the Road Administration carried out 40,451 pre-registration roadworthiness tests, which is a 3% growth in comparison with 2017.

As of 2018, bi-fuel gas vehicles can be registered and data regarding fuel consumption and emissions can be marked, by using a new WLTP methodology (worldwide harmonized light vehicles test procedure), in a correct manner in the traffic register, as the traffic register was reorganised and new data fields were adopted.

Technical inspection stations

In 2017, the Road Administration concluded a new technical inspection contract, which established the obligation to instal cameras at technical inspection sites. Cameras must be installed in the room where vehicles are inspected and in a manner that the vehicle and the operations carried out around it would be visible from all angles throughout the inspection. Cameras were installed with the intention of making surveillance more efficient and prevent corruption related to roadworthiness tests as well as ensure that the vehicle is correct and present at the roadworthiness test.

Technical inspection stations are obliged to store recordings for 90 days after the inspection, enabling sufficient time for the surveillance team to check the circumstances relating to the roadworthiness testing of vehicles, if necessary.
The Road Administration is planning

to increase the efficiency of surveillance even more by automatising it, as starting from 1 January 2020, camera systems at technical inspection stations must be equipped with a system that detects the registration plate of a vehicle.

In 2018, the Technical Department submitted 69 claims for obtaining a recording to technical inspection sites. In 30 cases, the attention of the technical inspection site was drawn to issues discovered after reviewing recording. There were also 13 cases in which technical inspection stations did not or were unable to provide requested recordings. During review of video recordings, the roadworthiness test of vehicles had been carried out correctly in 14 cases, whereas in 12 cases, it was impossible to determine/verify breaches based on the evidence provided.

24 on-site inspections and 168 surveillance activities (requests for video recordings, clarifications, etc.) were carried out in the context of administrative surveillance. A total of 59 attention-drawing notices were issued as part of surveillance activities.

The quality of roadworthiness tests at technical inspection stations has improved after the installation of recording devices. The awareness of people has also improved, resulting in numerous tips to the Road Administration. Unfortunately, several tips have also led to the discovery that the roadworthiness test had been conducted in a sub-standard and/or non-compliant manner.

Trainings for technical inspectors were held in spring and autumn in cooperation with the Police and Border Guard Board and the Estonian Technical Inspectors Association. During these trainings, 72 technical inspectors took their practical accreditation exams, however, 10 persons did not pass. 86% of test takers passed on their first try.

Reconstruction and type code of vehicles

The reconstruction of 672 vehicles was recorded in 2018. The number of reconstructions has remained at the same level as it was during the previous year.

The number of type codes increased by 1,151 type codes (total of 17,821 type codes) in 2018 compared to the two previous years, incl. 1,524 single approvals (growth 18.4%). The number of applications for single approval of vehicles of category N3 has increased by 46% (from 127 to 236), however, it comes largely on the account of regular type approvals. The reason is that most assembled trucks do not have European type approval. The annual growth of type codes also derives from the fact that the start date of national type approvals does not change, i.e. each year adds an another year's worth of type codes.

Surveillance results in the area of motor vehicles and tractors 2018

Number of procedures	12
Number of attention-drawing notices prepared	1
Number of administrative procedure notices prepared	1
Number of enquiries/tips received from consumers/ entrepreneurs	10
Number of protocols prepared during national surveillance	7

Pre-registration roadworthiness tests

Year	*By Road Administration*	*By partners*
2013	51,012	27,974
2014	45,834	30,504
2015	43,965	31,309
2016	42,472	35,644
2017	43,373	39,098
2018	44,734	40,451

There were a total of 1,120,570 vehicles, 33,547 of which were water crafts, registered in the traffic register as at the end of 2018. Passenger cars comprise the largest part (69%) with 746,464 registered vehicles.

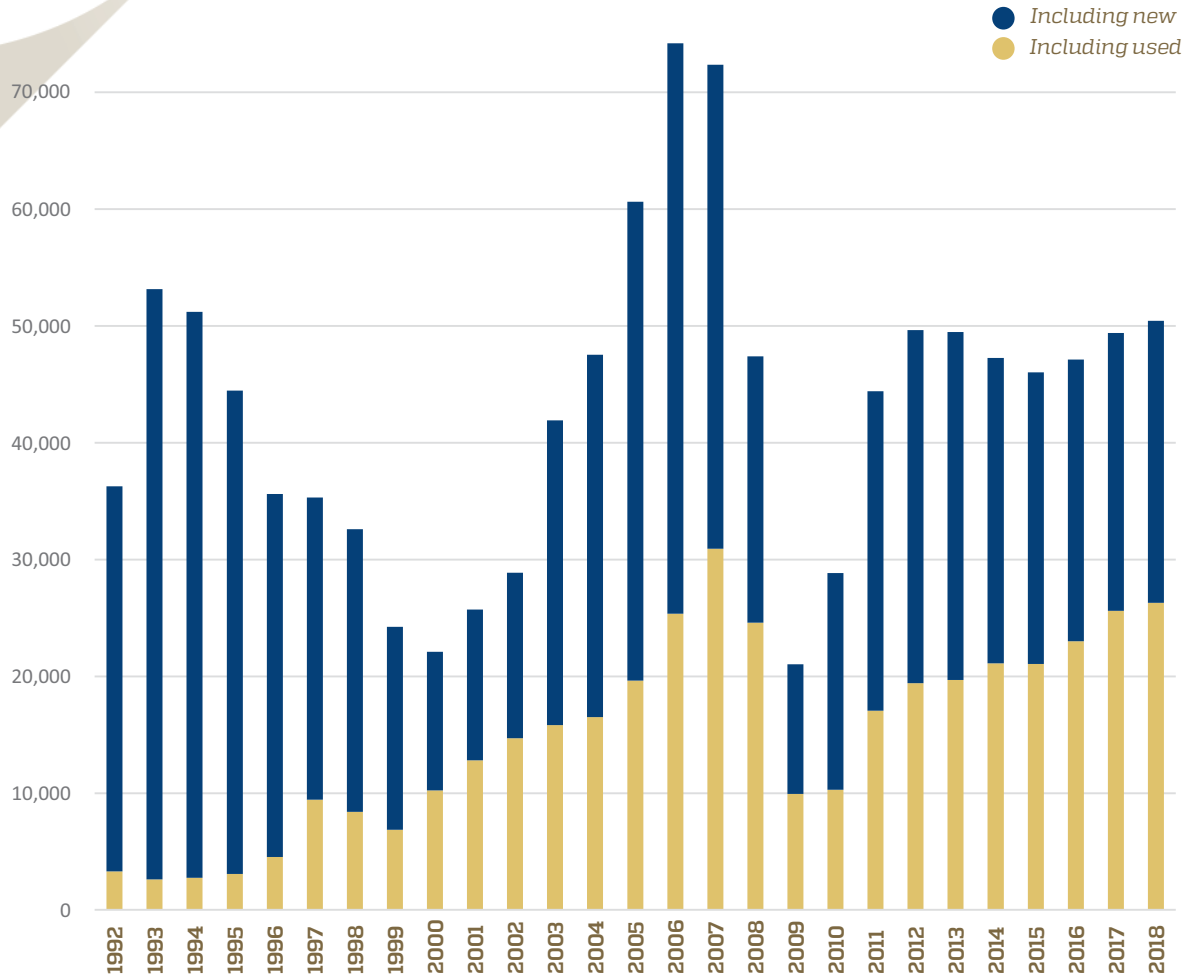
The most popular passenger car brands are Volkswagen, Audi, Toyota, Ford and BMW. Their proportion among registered passenger cars constitutes nearly 43%.

50,432 passenger cars, 26,299 of which were new, were entered into the register in 2018. The figure showed a slight increase in comparison with last year. A total of 73,836 vehicles and 1,372 water crafts were registered in 2018, over a half of which were new.

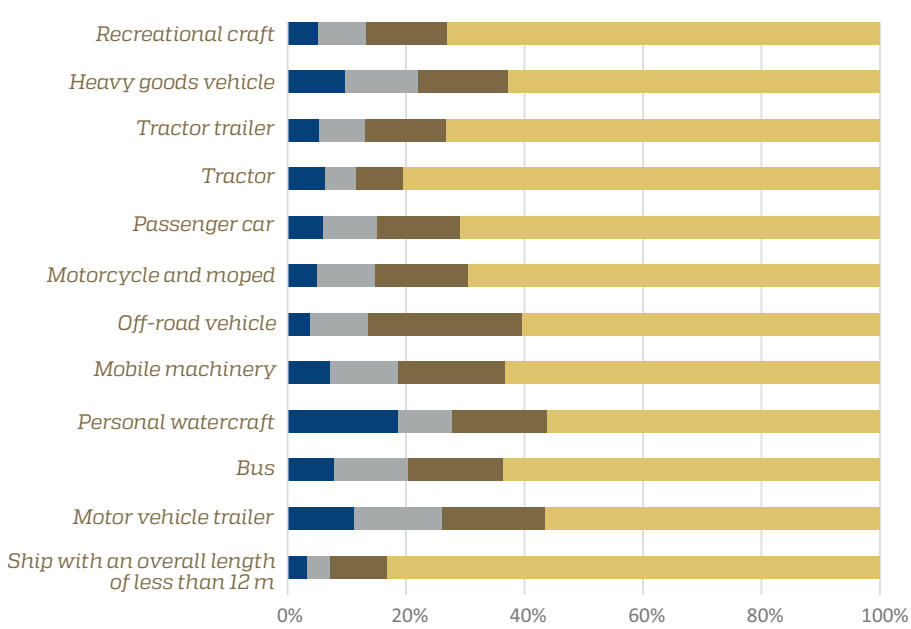
Vehicles registered for the first time 2014–2018

Vehicles

Vehicles registered for the first time across years



Registered vehicles



As of 31 December 2018
Includes vehicles with a suspended register entry.

Traffic safety awards

In 2018, the Road Administration gave out traffic safety awards for the tenth time.

The traffic safety awards of the Road Administration have been granted since 2009. The aim of the award is to value and provide recognition for persons and organisations who have stood out due to their personal example, professional or social activities in the area of traffic education organisation or development of traffic safety. The winners were selected by the Road Administration's committee. Traffic safety awards were granted to the following people and institutions:

TRAFFIC SAFETY AWARD FOR LOCAL GOVERNMENT:

- **Saaremaa municipality**

TRAFFIC SAFETY AWARD FOR RESPONSIBLE COMPANY:

- **Gjensidige insurance**

TRAFFIC SAFETY SURPRISE OF THE YEAR:

- **Delfi's social campaign and call to action for drivers "Do not read and drive!"**
- **The master class of making oneself visible and exhibition "Illumination" organised by the Estonian Academy of Arts**

TRAFFIC SAFETY EXEMPLAR:

- **Tartu Kivilinna School**

AWARD FOR TRAFFIC SAFETY PARTNER:

National:
- **Aigar Vaigu and "Rakett 69"** (Rocket 69)

Northern region:
- **Riina Jõgi** (Mustamäe District Administration)

Southern region:
- **Alar Sadam, Taivo Rosi, Erko Sibul** (Police and Border Guard Board)
- **Sirje Madisson** (Society of Friends of the Estonian National Museum)

Eastern region:
- **Alo Lõoke** (SA Eesti Terviserajad)

Western region:
- **Jaak Värnik** (Viljandi Pensioners Union)

AWARD OF TRAFFIC SAFETY EVENT:

Northern region:
- Theme week **"Learning traffic in traffic"** by the Tallinn Nurmenuku kindergarten

Southern region:
- **Research paper and trainings for co-students on the topic of making oneself visible by Kasper Suur**, 8th grade student at Ülenurme Gymnasium.

Eastern region:
- **Traffic week of libraries in Lääne-Viru county**
- **Traffic safety related family days at the Rakvere Triinu kindergarten**

Western region:
- **Marking the traffic square at Pärnu kindergarten Pöialpoiss** by RoadWolf OÜ

TRAFFIC SAFETY AWARD FOR TEACHERS:

Northern region:
- **Marika Laanes** (Padise School)

Southern region:
- **Elle Tikkop** (Värska Gymnasium)
- **Katrina Tammistu and Mart Koll** (Oskar Lutsu Palamuse Gymnasium)
- **Merle Väliste, Katrin Vaher, Kettli Arand** (Tartu Vocational Education Centre)

Eastern region:
- **Tiina Guutmann** (Roosna-Alliku Basic School)
- **Vahur Kalind** (Kadrina Upper Secondary School)

Western region:
- **Helge Üprus** (Haapsalu City Primary School)
- **Terje Pahk** (Kilingi-Nõmme Gymnasium)
- **Ulvi Kipper** (Muhu Basic School)

SPECIAL AWARDS:

- **Kreaatorid OÜ**, (design) friend of the Prevention Department of Road Administration
- **Responsible family Meldre**

The Road Administration carried out four nationwide social campaigns in 2018.

In spring, attention was drawn to the danger of extraneous activities while driving, after that attention was focused on adhering to the speed limit and in the beginning of summer, the focus was turned on the prevention of drunk driving. Before the start of school, it was time to turn to parents to remind them how their role in children's traffic education is indeed the greatest. In addition to four main campaigns, the Road Administration also collaborated with the students of the Estonian Academy of Arts to show that there are many creative ways to make oneself visible.

The aim of the second extraneous activities campaign **"If you are driving then drive – nothing is more vital than life!"** (from 12 March to 9 April) was to remind once again to all road users that it is dangerous to engage in extraneous activities while driving and a person cannot perform two attention-demanding activities simultaneously and without fault. The Mobile-Free Day was held as part of the campaign for the third time, inviting people to keep from using their phone while driving. On that day, the experts of the Prevention Department of Road Administration carried out trainings in various companies and in collaboration with the police, persons who were engaging in extraneous activities while driving and were caught during traffic inspections in various counties were offered to participate in an intervention training instead of being issued a fine.

The 2018 speed campaign was part of the "But I" role model campaign series conducted in the context of Estonia's centenary, through which Estonian public authorities and private enterprises facilitated and acted as role models in making informed decisions that create a safer living environment. The aim of the **"But I watch my speed"** (from 16 April to 13 May) campaign is to make road users aware of the dangers of significantly exceeding the speed limit in built-up areas, especially in cities. Partners of the campaign, which was already held for the second time, were the Estonian Autosport Union and auto24ring, who raffled a training and driving experience with Urmo Aava at the auto24ring track to one lucky speed watcher.

The **"Even a little is too much"** drinking-themed campaign (from 4 June to 1 July) was held for the third time, the aim of which was to highlight, among road users, that even a small amount of alcohol impacts the driver's driving capabilities. Widespread myths that the breakdown process of alcohol can be forced by sleeping, exercising, going to the sauna or taking a cold shower, or by drinking energy drinks or coffee are in fact false. Driving and alcohol do not belong together – alcohol remains in the body much longer than anticipated and it is not possible to speed up the process in any way.

Road Administration carried out the first **"You set the example so they know to watch out!"** campaign (from 22 August to 19 September), the aim of which was to remind parents that they play an essential role in developing their children's behaviour in traffic, and that they set an example for the children. All children must know that it is essential to stop before crossing the road, look both ways and ensure that it is safe to cross the road, as a pedestrian as well as when they are riding their bike. The Week of Travelling on Foot with Children was held from 31 August to 7 September, inviting parents to travel on foot with their children as much as possible and show them how to cross the road safely. For the third time, 5th and 6th grade students set up reminders "Stop, look, make sure!" at road crossing points that they had mapped themselves.

Furthermore, the Road Administration began cooperation with the Estonian Academy of Arts (EAA) and the awareness campaign **"Stand out! Use a classic or creative reflector. It's up to you!"** (from 25 October to 26 November) was carried out on the school's initiative. The campaign involved a photography campaign for students, EAA students organised a reflector sculpture exhibition "Illumination" and carried out workshops in schools across Estonia, in order to introduce students to various ways to make oneself visible in traffic. The campaign concluded in the evening of 26 November with a reflector walk "Make friends with the reflector!", which was held for the fifth time. All campaigns were carried out in cooperation with the Police and Border Guard Board, who contributed by exercising supervision as well as by spreading the messages.

Traffic safety campaigns

The largest culture station in South-Eastern Estonia, the Estonian Road Museum, was visited by nearly 32,000 people in 2018. We are still an important voice on the Estonian museum landscape as a recorder and preserver of the history of Estonian roads, as well as a partner and entertainer for the Estonian people as well as foreigners.

Estonian Road Museum

Exhibitions and research

The new 1,500 m2 exhibition building was completed in the summer. The primary project of the exhibition – "Control of machinery" – was also completed in cooperation with OÜ Produktsioonigrupp and experts in the area. The guiding principle of the exhibition, which will be opened to the public in summer 2019, is to illustrate the mutual power relations of humans and machinery through exhibitions on car culture, traffic education and road machinery. The new building will also ensure additional conference and cultural event grounds for the museum.

In October, the museum was also a partner for the "Self-made Estonia" joint exhibition in the Estonian National Museum. On the initiative of curator Paavo Kroon, we consulted on and compiled the content of the 1990s car culture exhibition. The exhibition came to life thanks to the common saving project of the museums.

Two exhibitions were completed for the summer season of 2018 under the leadership of researcher Andres Seene. "Like a headless chicken in traffic turmoil" shared the history of traffic safety campaigns since 1930s. The exhibition was open until autumn, travelling to Narva castle thereafter, supporting the 100th anniversary party of the Road Administration in Saku Suurhall and then transported to the Road Administration building.

In 2017, divers retrieved from the River Emajõgi the steel girder detail belonging to the Rannu–Jõesuu bridge, which was completed in 1937 and blown up during World War II. An

exhibition on Jõesuu bridges was created along with its restauration and instalment to the outdoor area of the museum. This was supplemented by a permanent exhibition on the history of steel bridges in Estonia. The exhibitions were complemented with deeper meaning by articles published in magazines Imeline Ajalugu, TeeLeht and Transport ja Teed.

Collections

In 2018, collections of the museum increased by 728 units. Most admissions consisted of records and photographs. There were a total of 43,389 items, photographs or records in the collections of the museum at the end of the year; 35,977 of those are museum objects in the main collection.

Most new museum objects have been received via transfer of assets and as donations. Most exciting of these are, for instance, old road passports from the archive of the Road Administration, archive materials from the Tartu Car Repair Testing Factory or the first driver handbook in Estonian (most likely from 1920).

Archive materials collected by the legendary road engineer and long time Estonian Chief Engineer of Roads Aadu Lass for the establishment of the museum, as well as his hand-written speech and article texts were admitted and systematised.

Aside from collection work, museums are also actively engaged in preservation. Museum restorer Üllar Meho conserved the Jawa motorcycle, a dream ride for all young men in the beginning of 1970s, and a carriage built before the Second World War. The collection of road construction machinery underwent corrosion control and paint repairs. In terms of works outside the museum, the complex restoration of the 1964 M-403, belonging to veteran road man Hans Gross, was continued and the restoration of a road marking machine based on GAZ-53 commenced as well. Both works are to be completed in the first half of 2019.

Visitor area

32,000 people who visited the Estonian Road Museum in 2018 show that the museum is still an attractive and beloved destination, and people do not even mind taking the longer trip to Varbuse in Põlva county.

One of the most eloquent and most visited events was certainly the Estonia-wide Night of Museums "Party in the night", which attracted a record number of 1,400 visitors. The night also opened the summer season of the museums.

As one of the opinion leaders of the south-eastern area, the museum had the chance to co-organise the South-Eastern Estonia's prejudice festival for the third time already. The opportunities and problems of Estonian life were discussed and debated across twelve thematic areas.

Varbuse also serves as a location of summer plays for many culture lovers. Theatre Must Kast featured a family play „Mowgli" and Theatre Miksteater performed „Pagulased" ("Refugees").

Education activities

189 educational programmes were implemented at the museum in 2018, 78 of those were traffic programmes. Educational programmes were supplemented by five museum hours. The curriculum of basic schools and upper secondary schools was taken into account during the creation of new museum hours and the focus was on introducing various aspects of Estonian life through the history of roads. New museum hours added to the programme included the "Let's peek into the museum's collections" which introduced the collections at the museum, "Time creature on the post road" which develops time skills and concept of time, "Everyone has the right of way" which covers the history of Estonian roads, as well as a two-part museum hour "Road Museum on wheels" that is carried out in schools and a history-themed experience programme "Good roads! Have a great journey!" for adults. The museum offered a total of eight educational programmes for target groups starting with kindergarteners and concluding with adult learners. Moreover, various special programmes related to the folk calendar and other holidays were also carried out, programmes were also conducted outside the museum on 23 occasions.

In October 2018, the museum also participated in the main programme of the children and youth festival "Open playgrounds". The festival resulted in the compilation of a play guide "100 significant things for road users", which offered families an opportunity to get to know the museum's permanent exhibition "Good roads! Have a great journey!".

Exhibition "Like a headless chicken in traffic turmoil: 80 years of traffic, traffic hazards and traffic education" was opened in the exhibition cellar of the museum. The exhibition addressed the first traffic safety campaigns in Estonia, during which ballet artists dressed as headless chickens as well as oversized vodka bottles as examples of ill behaviour were seen driving cars and carriages in various streets in larger cities.

Engineer Aadu Lass Award in the Area of Roads

The Road Administration and the Estonian Asphalt Pavement Association announced the first winners of the Engineer Aadu Lass Award in the Area of Roads in two categories on 24 November 2018: Aadu Lifetime Achievement Prize and Aadu Engineers Prize.

The Aadu Engineers Prize was granted to Marek Koidu, who works as the Construction Manager of ÜLE OÜ, for his remarkable achievements in ensuring the development and sustainability of the area of roads.

Marek Koit has been a developer and innovator of the Estonian surfacing market for 20 years. On his initiative, ÜLE OÜ has also performed surfacing works in Finland and Sweden, and thanks to his ambitious activities, he is also a trendsetter for other road construction companies in alternative markets.

ÜLE OÜ also founded OÜ Pigipada, which manufactures bitumen emulsions as well as bituminous binders for the production of foam bitumen used in stabilisation works. Currently, Pigipada produces over 50% of the required production in Estonia, while also realising its produce in the Republic of Finland. Marek Koit has acted as the founder as well as developer of the emulsion factory.

He has made it his mission to guide the progress of the Estonian surfacing market by sharing his experience with his colleagues, incl. clients and other contractors, by guiding and teaching them. He has been a great organisator during Surfacing Days.

Aadu Lifetime Achievement Prize was given to Aleksander Kaldas for his extensive, remarkable and committed engineering work in the area of roads.

Following his graduation from the Tallinn Polytechnical Institute in 1965 in the speciality of motor vehicle roads and bridges, Aleksander Kaldas applied his knowledge in engineering and experience in international relations in the development of the Estonian road management over the course of 43 years, working at the National Road Maintenance Organisation alongside Aadu Lass. In the newly independent Estonia, Kaldas led the development of the Road Act, and design and technical norms, as well as draft supporting documents for the long-term planning of road maintenance. As a polyglot, Aleksander Kaldas made a significant contribution to the establishment of international relations between road workers in the Baltic countries, Poland and Nordic countries, as well as with global road organisations IRF and PIARC. Aleksander Kaldas represented Estonia in initiating the Via Baltica transnational road corridor project.

During the difficult 1990s, Aleksander Kaldas was the key figure during negotiations for receiving additional funding for road works from the World Bank and the Nordic Investment Bank via foreign assistance programmes.

Aleksander Kaldas was a founding member of the Estonian Asphalt Pavement Association and has guided the cooperation of road companies as its Chairman of the Board for many years. He participated in the establishment of the road engineer qualification at the Estonian Qualifications Authority and shared his engineering knowledge by holding lectures at the TTK University of Applied Sciences.

Marek Koit

Aleksander Kaldas

The recipients of the award were chosen by a 9-member award jury convened by the Estonian Asphalt Pavement Association and the Road Administration, consisting of Martti Kiisa from TTK UAS, Andrus Aavik from TalTech, Ilmar Link from the Estonian Utilities Association, Olari Valter, Kuno Männik and Hannes Vaidla from the Road Administration, Taivo Möll, Tarmo Trei and Sven Pertens from the Estonian Asphalt Pavement Association.

The aim of the award is to promote the profession of road engineer, recognise professional activities and remarkable achievements as well as the engineers who have committed and made a significant contribution to the area of roads.

Aadu Lass, after whom the newly created award was named, worked with Estonian roads for 50 years. He spend 33 years as the Chief Engineer of Estonian roads, acting as the technical manager of the road network during its most turbulent times.

2018 DEED OF THE YEAR

Construction of Luige–Saku four-lane road section on the Tallinn ring road along with the Saustinõmme road overpass in cooperation with Rail Baltic

Rail Baltic Estonia OÜ and the Road Administration entered into an agreement in accordance with a road overpass, under which the Rail Baltic route will pass, shall be constructed along with the development of the Tallinn ring road Luige–Saku section. Pursuant to the agreement, the construction of the intersection is funded by Rail Baltic. It is the first real construction object on the main route of Rail Baltic, and construction will commence in 2019.

Implementation of the variable message signs project "SMART E67"

SMART E67 is a joint project between Estonia and Latvia, under which various roadside intelligent technology solutions for traffic management, monitoring and notification of road users shall be installed on Estonian and Latvian sections of the Via Baltica route (E67) between 2017 and 2019. The aim of the project is to make travelling on an international road with high traffic volumes safer and smoother, as well as decrease travel times. The cooperation of the Information Technology Department and the Traffic Management Department has resulted in the instalment of necessary equipment and the software shall also be set up in the near future.

Abandonment of paper application forms in service bureaus (operations regarding vehicles)

Clients of the Road Administration, especially vehicle owners and other applicants, are no longer required to fill out paper forms at service bureaus. The client approaches a customer service attendant who will clarify the nature of the operation that the client wishes to execute, and the system shall prepare the relevant application, which the client shall then sign. This saves a significant amount of time for the client.

Popularisation of the profession of road engineer

The community of road engineers is a very tight community with a long history, however, a serious issue has developed in the last couple of years for the Road Administration as well as companies engaged in road maintenance, as there is a shortage and insufficient succession of road engineers. In the spring, the Road Administration launched a programme "Engineers back to school" in order to popularise the profession of engineering. During the programme, road engineers introduce their professional journey and development and career opportunities in the area of road construction at Estonian upper secondary schools. A total of 35 volunteer engineers from the Road Administration as well as the public sector have joined the project. We have also began collaboration with 30 schools this year.

2018 PERSON OF THE YEAR

Andres Urm – Head of the Planning Department

During his ten years at the Road Administration, Andres has constantly contributed to the development of the organisation, developing new principles and solutions, as well as introducing them to the public. He cares about the image of Road Administration and is always willing to explain and talk positively of our plans and solutions. Clear principles, common grounds and equal treatment are extremely important for Andres.

Road Administration's deeds and persons of 2018

Hannes Vaidla – Head of Road Maintenance Department for Western Region
Hannes is one of our most experienced employees in the road area. He has committed his whole conscious life to the Road Administration, day or night. He is always willing to take the lead when something important needs to get done. Therefore, he is in charge of road maintenance monitoring, updating principles and introduction of road maintenance outside the organisation.

Annika Kitsing – Head of Personnel Department
Annika has launched and managed two projects of national importance. She founded the road engineer Aadu Lass engineering award in the road area and the lifetime achievement award, which will be awarded for the first time this year. She also launched the "Engineers back to school" project, which aims to introduce the profession of road engineer to students at the upper secondary level.

Kerli Tallo – Head of Prevention Department
Kerli has maintained the portfolio on extraneous activities since the Road Administration began addressing issues in this area in 2015. Extraneous activities, which three years ago were largely considered a pseudo-problem, have begun to receive increasingly more attention thanks to Kerli's bright ideas and contribution (trainings, competitions, study materials, children's song, etc.) Positive changes have begun to take place in people's attitudes, and as of this year, also in their behaviour. In 2018, she was awarded the highest recognition in the area of railway safety – the OLE award.

EXAMINER OF THE YEAR

Mart Meltsov
It has been said that the exams he carries out are the example by which others could and should act.

BEST PRE-REGISTRATION INSPECTOR

Madis Tampere
Madis Tampere has worked in the Tartu service bureau since the beginning of 2016. In three years, Madis Tampere has reached a professional level in his work as a pre-registration inspector, praised by colleagues as well as clients. His pre-registration inspection acts stand out by their neatness and accuracy. The number of pre-registration inspection operations performed by Madis Tampere is the highest at the Tartu service bureau region. Madis Tampere approaches his work in a principled manner. He is valued by clients as an excellent consultant.

BEST CUSTOMER SERVICE ATTENDANT

Liina Vöörmann
Liina is a great communicator and can easily connect with clients as well as colleagues. Liina's biggest strengths are her systematic nature and the warmth with which she helps new employees settle in. Her students have received praise during accreditation, as their basic training is systematic and they are great at mapping clients' needs. Liina is friendly, she is caring towards her colleagues and always willing to and focused on helping her clients.

ESTONIAN ROAD ADMINISTRATION

Teelise 4, 10916 Tallinn
Phone +372 611 9300
info@mnt.ee
www.mnt.ee/eng
www.facebook.com/mnt.ee