



P R E S E N T A T I O N

Croatian Roads

Management | Construction | Maintenance



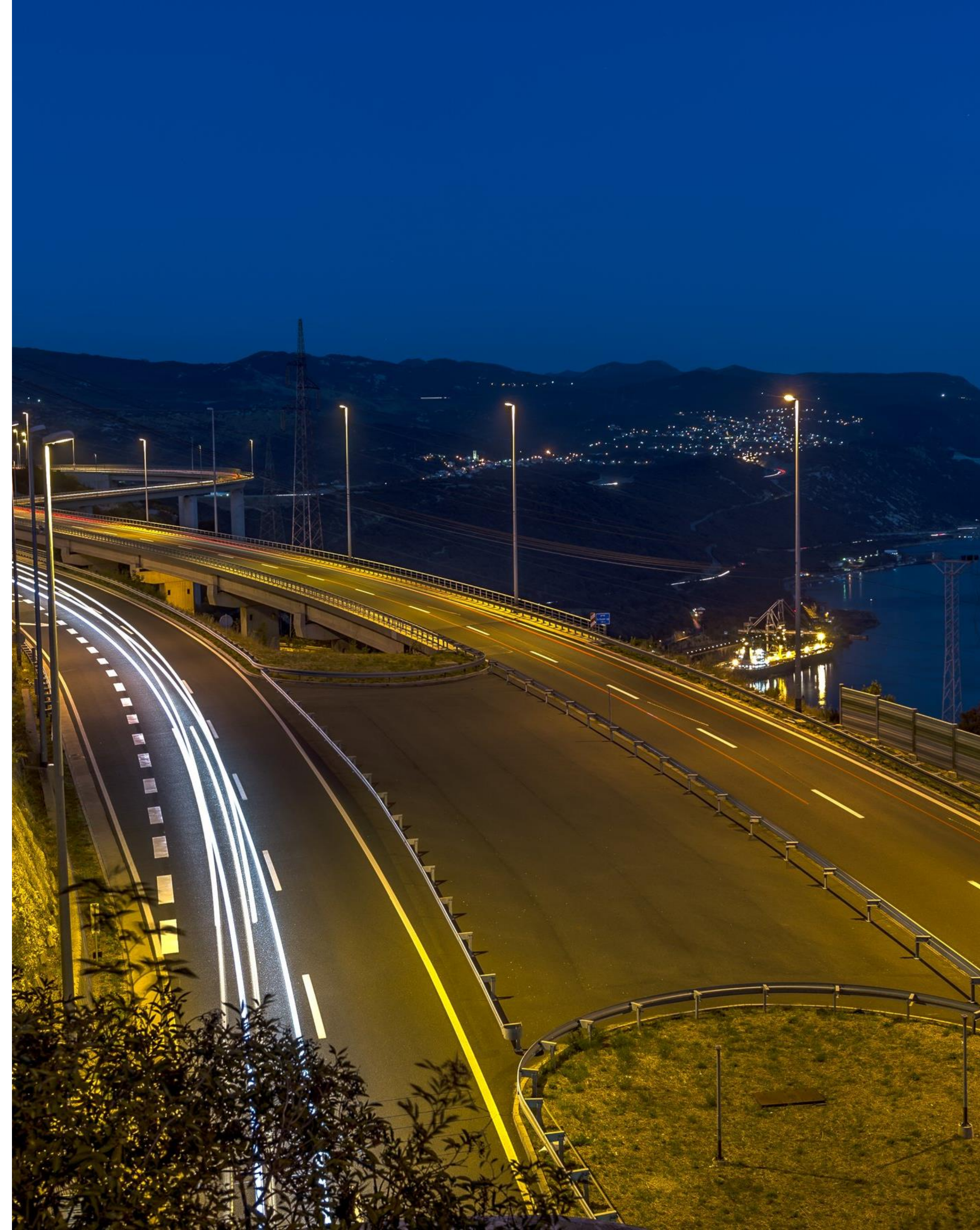
Public roads in Croatia

Motorways | **State roads** | Regional roads | Local roads

State roads

WHAT DEFINES THEM?

These are the arterial roads that provide vital connections within the country and link the national network with European transport routes.





6790 km

Size of state road network in 2017

6

Business offices

Zagreb | Varaždin | Osijek | Zadar | Rijeka | Split

14

Tehnickal units

Zagreb | Karlovac | Sisak | Varaždin | Bjelovar
Osijek | Slavonski Brod | Gospić | Zadar | Rijeka
Pula | Šibenik | Split | Dubrovnik

20

Regions

Zagrebačka | Karlovačka | Sisačko – moslavačka | Varaždinska
Međimurska | Koprivničko – križevačka | Bjelovarsko – bilogorska
Virovitičko – podravska | Osiječko – baranjska | Vukovarsko – srijemska
Brodsko – posavska | Požeško – slavonska | Zadarska | Ličko – senjska
Primorsko – goranska | Istarska | Šibensko – kninska,
Splitsko – dalmatinska | Dubrovačko - neretvanska

Organization

MAINTENANCE SECTOR IN CROATIAN ROADS

Organization map

BUSINESS OFFICES AND TECHNICAL UNITS



*Routine maintenance of public roads is
a set of measures and activities to maintain the roads
Serviceable and safe and to keep the traffic flowing.*

Department for routine maintenance, Croatian Roads

Assigning maintenance work

CROATIAN ROADS ASSIGN ROUTINE MAINTENANCE WORK THROUGH PUBLIC PROCUREMENT



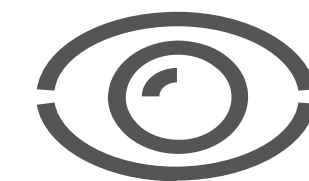
Contractor

Contracts are made with legal or natural persons that are registered, specialised and technically equipped and adequately staffed for the performance of maintenance works.



Contract

Framework contract is signed to cover a period of four (4) years.



Supervision

Croatian Roads organize supervision and quality control over maintenance works.



Ordinance on public road maintenance

Routine maintenance | Structural maintenance

1. Supervision and inspection of roads and structures

Road patrolling, inspection of road assets etc.



PHOTO



1972. ROAD PATROL

2. Pavement maintenance



PHOTO



3. Maintenance of shoulders and berms



4. Maintenance of cuts, side cuts and embankments



PHOTO

PHOTO



5. Maintenance of drainage structures

PHOTO



6. Maintenance of roadway furniture

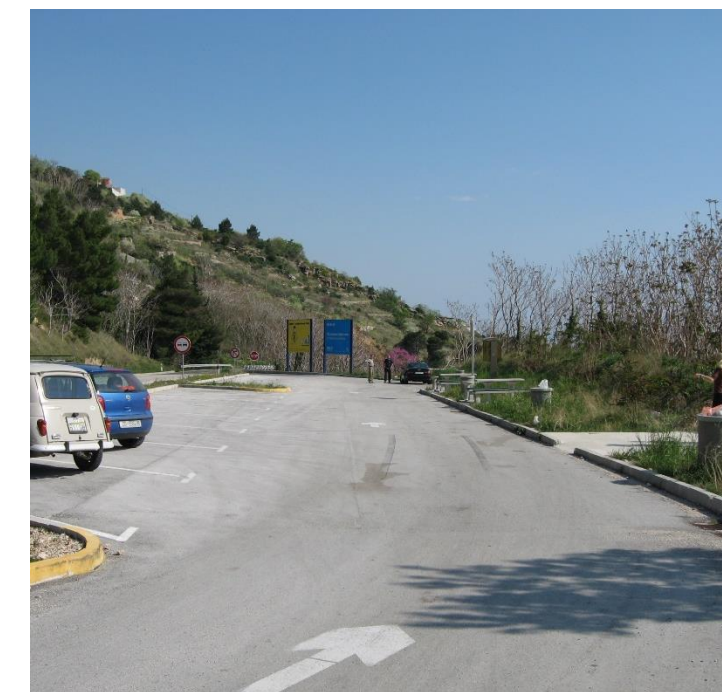
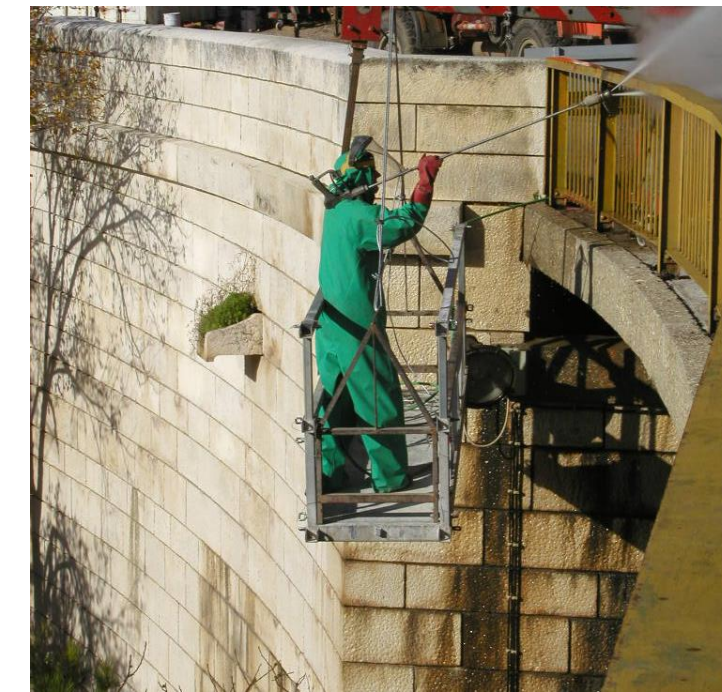
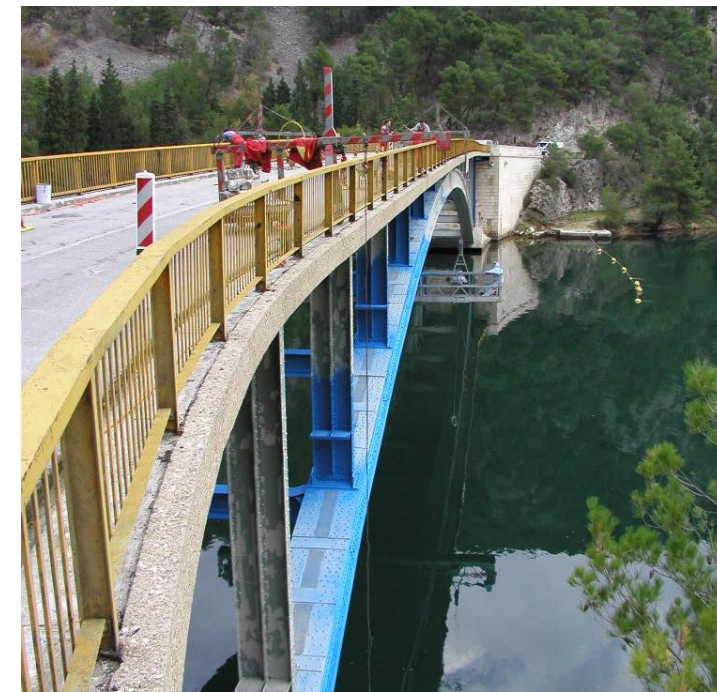
7. Grass cutting and vegetation control



8. Maintenance of structures

Maintenance of bridges, viaducts, flyovers, underpasses, footsteps, subways, tunnels, galleries, bus stops, rest areas etc.

PHOTO



9. Systems, utilities, devices and equipment on roads and structures

Traffic lights and signal systems, equipment and variable traffic signs.

Roadway lighting system and equipment.



PHOTO

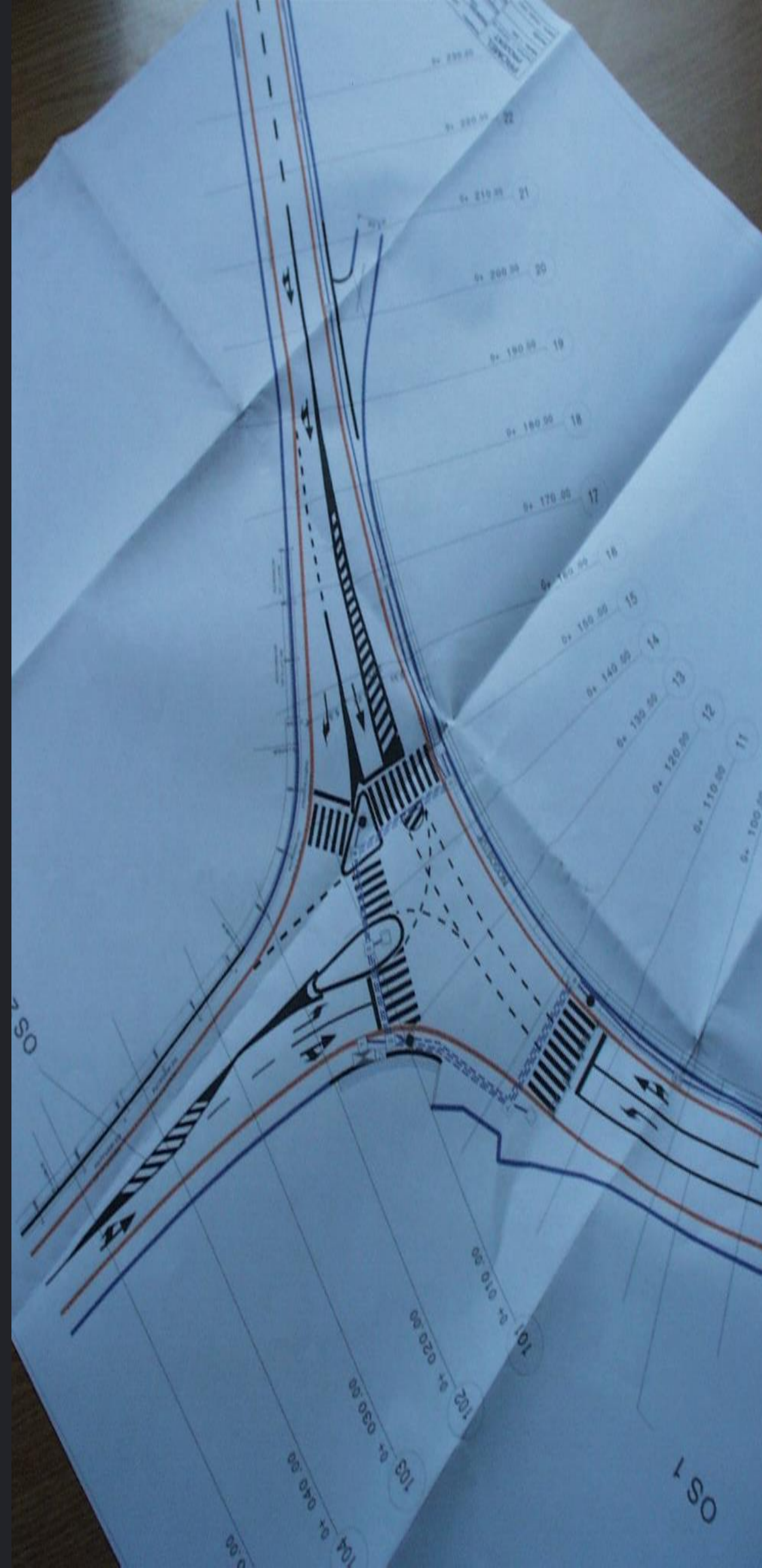


10. Maintenance of roads and structures in winter conditions




11. Other works, expenses and services

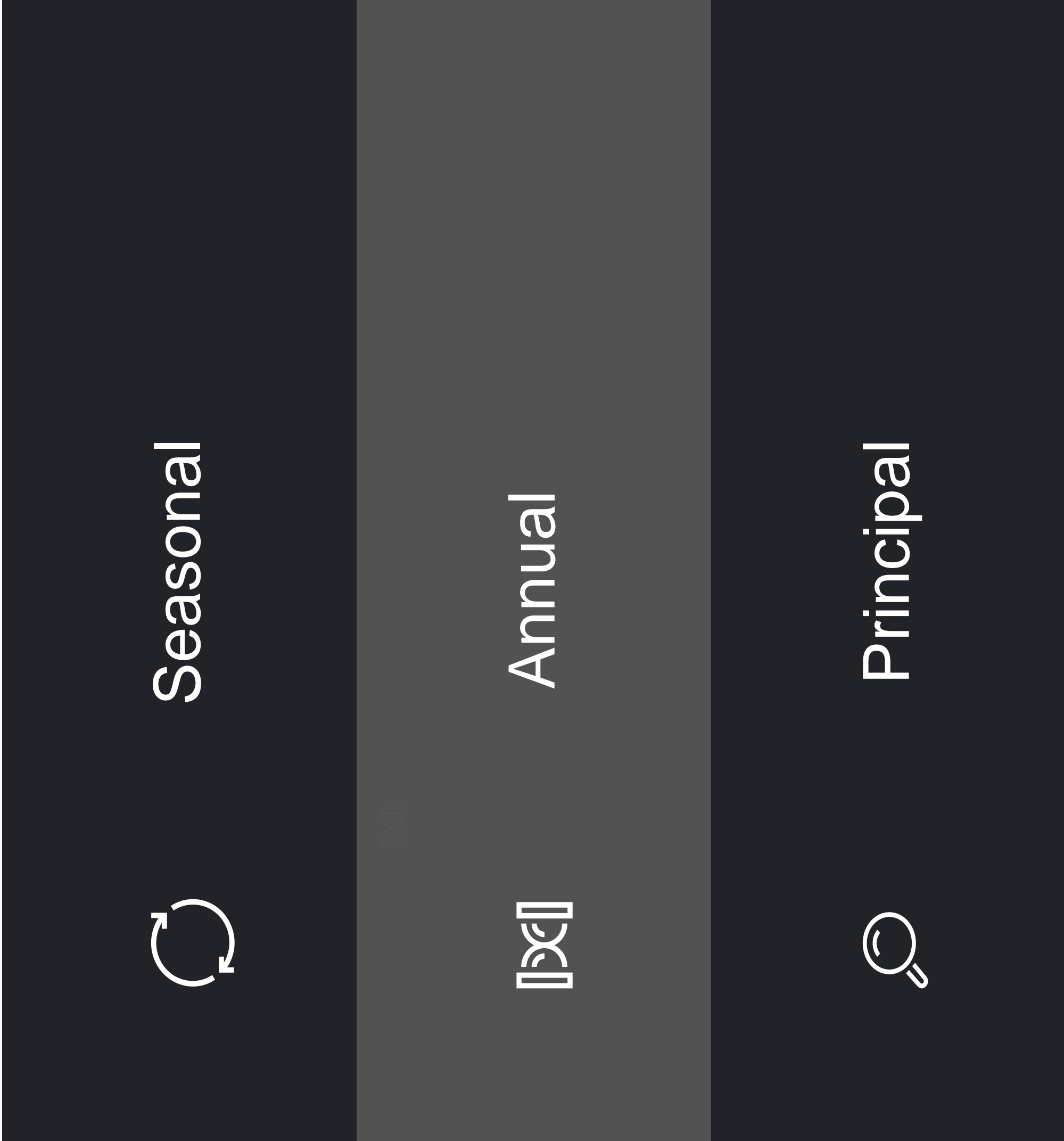
Includes preparation of technical and other documents for maintenance works, transport by ferry boat, waste disposal, informing of the public on traffic flows etc.



Regular inspections

ABOUT

Road operator, or road works contractor, ensure that the regular inspections of roads and road structures are carried out as required in the Ordinance. Regular inspections include the following: 





Winter service

FROM NOVEMBER 15TH TO APRIL 15TH

Winter service is a term that covers a series of actions, measures, steps and activities in winter period.

The key goal is to keep the roads open and safe for road users.



Locations

Arrangement of locations of permanent availability.



Organization

The organizational structure, duties and responsibilities of contractors engaged in winter service.



Operative programme

OF WINTER SERVICE



Equipment

Arrangement of plant, equipment, spreading material and labour required for scheduled works.



Priority levels

The road network map with priority levels and initial and final sites of winter service actions.

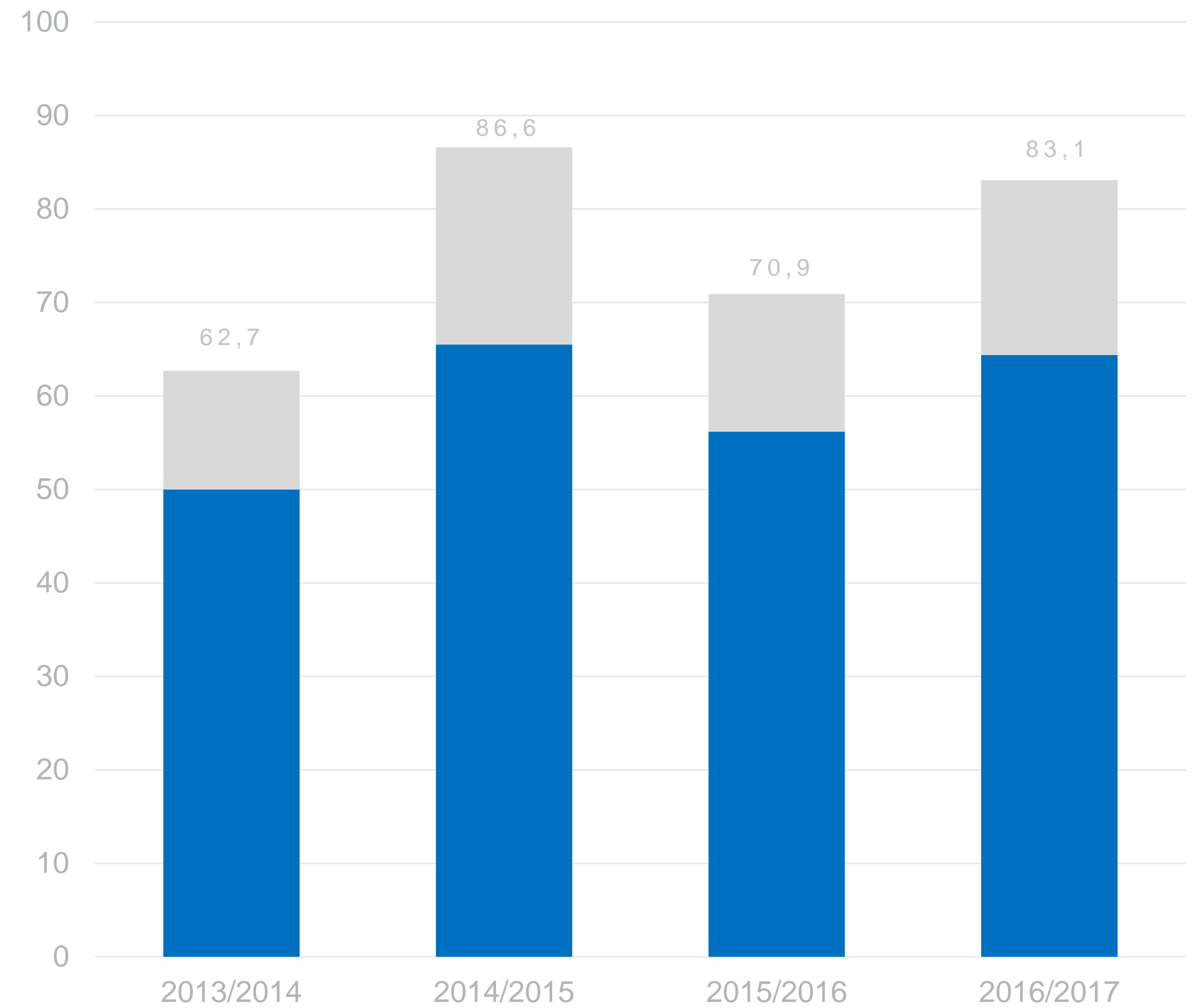


Winter service expenditure

BY SEASONS

Includes all the maintenance work from group 10.,
and the expenditure for De-icing salt.

IN MILLION KN



Salt

An important part of winter maintenance is procurement and supply of salt for De - icing. Croatian Roads procure the salt for the state road network but also for regional and local roads



An aerial photograph showing a two-lane asphalt highway cutting through a vast, vibrant yellow field, likely rapeseed. A small stream flows parallel to the road on the right side. A single car is visible on the highway. The scene is captured from a high angle, showing the texture of the crops and the layout of the road.

Next: Routine maintenance Timeline

Routine maintenance

ACTIVITIES THROUGH THE YEAR

START OF TIMELINE

Procurement of works

Croatian roads carried out an open public procurement procedure for routine maintenance works and protection of state roads in the territory of Croatia to be carried under a Framework Agreement in the period from April 1, 2014 to March 31, 2018

Contracts

The Framework Agreement sets out requirements for particular contracts to be made between Croatian Roads and the Consortium of tenderers (12 contractors).

Routine maintenance in winter conditions

Activities in period from January to March



End of winter service

April 15th



Seasonal road inspection

May



Scheduling of works

The contract for routine maintenance and protection of public roads allocates funds for „summer“ and „winter“ maintenance in respective regions.

schedule the
estimated
cost increase
or decrease

determine the
available
funds for routine
maintenance works

allocate funds
available for routine
maintenance

guideline and base
for detailed monthly
programmes

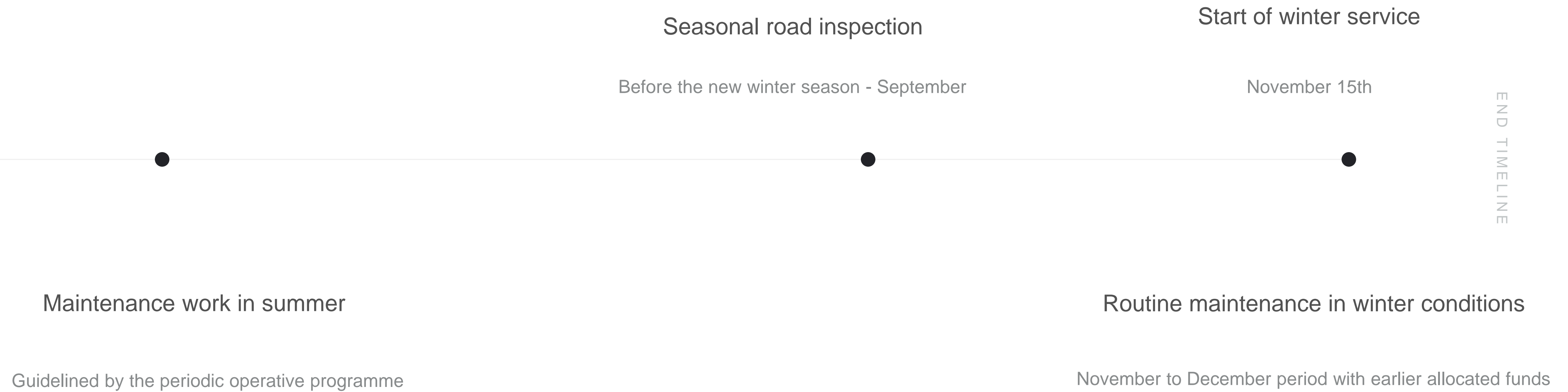
the periodic operative programme

SCHEDULING OF WORK

In order to estimate the level of expenditure for routine maintenance in the summer, after the first quarter of the year (winter maintenance from January to April) it is necessary to deduct from the contract price the sum of variable and fixed actual costs and estimated costs for the November to December period.

The resulting sum must be distributed efficiently to each road, or road section in the region.

Routine maintenance timeline



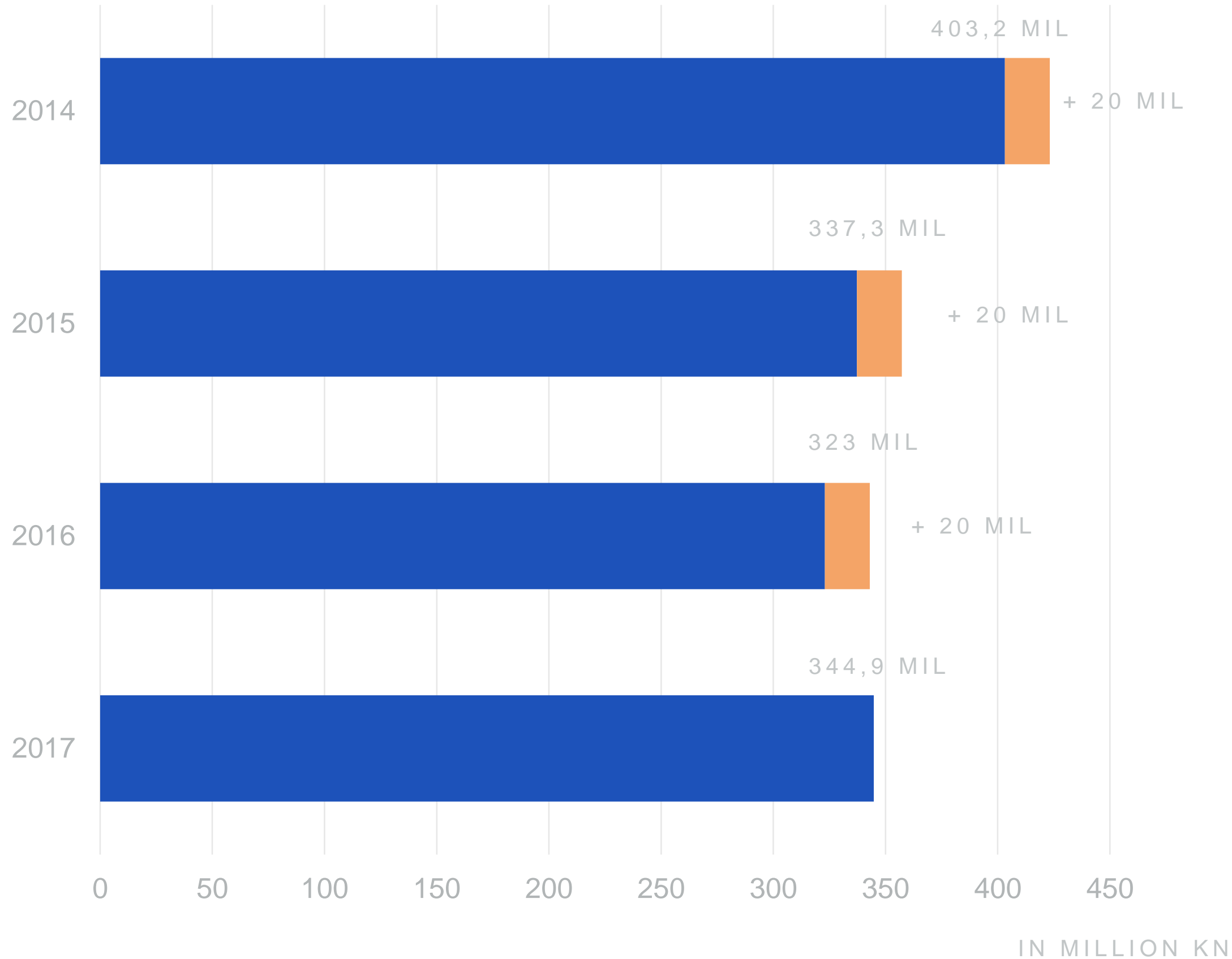


Routine maintenance contracts



Additional contracts

Additional contracts are required because of an increased scope of routine works, or clearing and repair of pavement damages, maintenance of shoulders, curbs, cuts, side cuts and embankments, maintenance and repair of drainage structures, landslide/ rockfall stabilization and other similar works.





ISHC database

ROADS DATABASE, CONTRACTS, ROUTINE MAINTENANCE

The Istrian Project

PERFORMANCE BASED MAINTENANCE

Based on the Framework Agreement, the contract for routine maintenance of state roads in Istria region was made as a combined (hybrid) model, comprising two principal components: unit price works that are measured and paid according to actual quantities of works and performance-based works, as a special pilot project.

Performance based works

53,1%

Unit price works

46,9%



What do we get?

PERFORMANCE BASED MAINTENANCE

In the performance based component of the contract, the contractor determines what, where and when the works will be performed on the roads included in the contract. The payment is monthly fixed sum of 903.000 kuna. The cumulative sum for the year 2016 was 15.82 million Croatian kuna (exclusive of VAT).

Increased
contractor
responsibility

Monthly
fixed payment

Penalty
system

Two levels
of service



PBM tablet app



Desktop app in ROC

The achievement of the levels of performance-based state road routine maintenance services is recorded and monitored via the "PBM – Performance-Based Maintenance" subsystem of the Hrvatske ceste Information System.



THE BRIDGE IN DUBROVNIK

Future projects

M. A. R. S.

WORLD BANK PROJECT

Tehnnical classification



OF PUBLIC ROADS

Legislation (a Decision) has been enacted to implement technical classification of public roads, whereby all public roads shall be classified in the following six (6) categories:



Motorways,
Highways,
1st category roads,
2nd category roads,
3rd category roads,
4th category roads.

Equal level of maintenance
standard, regardless of
the network operator.



Maintenance standard
in the form of service levels
for the six road categories.

Standard

Routine maintenance standard defines the quantities and frequency of works and standards for materials, work hours for vehicles, machines, equipment and labor that are required for routine maintenance. When routine maintenance standard levels are met fully, this enables to preserve structural, transport and economic value of an asset.

Distribution/allocation of maintenance expenditure budget:

- 1** Winter maintenance of state roads works receive 100% of the standard level
- 2** Works that are directly related to road safety receive 100% of the standard level

(road signs and pavement markings, furniture/equipment, ensuring visibility, lighting, prevention of potholes, road patrols, maintenance of sections in tunnels),
- 3** Other works are performed within funds available

(clearing of litter, grubbing of shrubs, grass cutting of the full carriage width, clearing of ditches, painting of fences, clearing of rest areas and bus stops etc.)

Future procurement of routine maintenance works

FOR THE NETWORK OF PUBLIC ROADS

The unified procurement of routine works has been planned for the entire network of state, regional and local roads. It will be implemented in the upcoming period (Contracts for maintenance in the period 2018 – 2022).





Larger repairs
of asphalt
pavements

Acquisition and
installation of
railings and fences

Stabilization of
slopes

Re-stripping of
pavement markings

Separation of costly works

ROUTINE MAINTENANCE

The procurement of costly works in the market, outside of the scope of the contract for routine maintenance and protection of roads, would enhance competition. Provided that the requirements of expert and technical competence of the tenderer are specified clearly and accurately, and that adequate supervision of works is provided, it may be expected that these works will be contracted with unit prices lower than those existing currently, and that costs of routine maintenance would be reduced.

RAMS

ROADS ASSET MANAGEMENT SYSTEM

Roads asset management system for motorways, state and county roads will be developed through a contract for services to be made by March 2018. RAMS will use all existing elements of the asset management systems at the road sector companies and Croatian Roads. RAMS will ensure availability of updated network condition data and will serve as a basis for continuous updating of estimates or periodic schedules for maintenance of motorways and state roads.



Thank you!

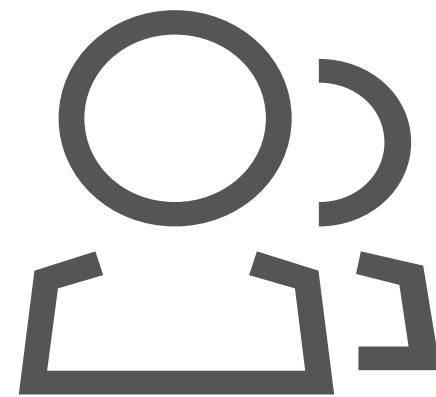


ROUTINE MAINTENANCE TEAM

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