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# Monitoring of the cost of construction, reconstruction, maintenance and major repair per 1 km of road in the Russian Federation

Group of Experts on Benchmarking Transport Infrastructure Construction Costs Geneva, 30<sup>th</sup>-31<sup>st</sup> of January, 2020 Tenth session

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The monitoring is carried out for the purpose of the land integrated development, enhancement the volume of construction and reconstruction of the public roads in the Russian Federation.

\*The instructions of the President of the Russian Federation Vladimir Putin dated November 12, 2014 following the meeting of the Presidium of the State Council of the Russian Federation on October 8, 2014.

The task is preparation and presentation of information, analytical and scientific materials on the development of the transport system.



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Development of the monitoring.

Methodical guidelines



The automation of information collection



The development of a factorby-factor analysis framework. Model construction.



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#### Information gathering is focused on:

- Construction
- Reconstruction and expanding
- Maintenance and repair

#### It is based on the role of the type of the public roads:

- Federal highways
- Regional roads
- Local roads



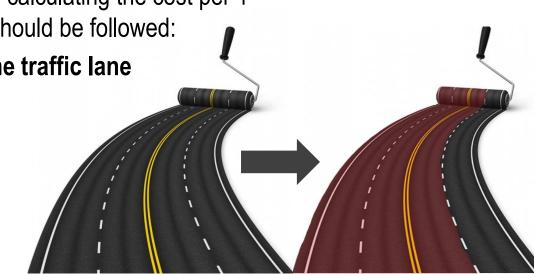


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# The methodological guidelines are:

In order to ensure comparability in calculating the cost per 1 km of the road the following principles should be followed:

- 1. Bringing all of the roads only to one traffic lane
- 2. Cost doesn't include:
  - Preparation works
  - An artificial environment





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## Construction

- ✓ The standard width is 3,5 m
- ✓ VAT 20% is not included



# Repair

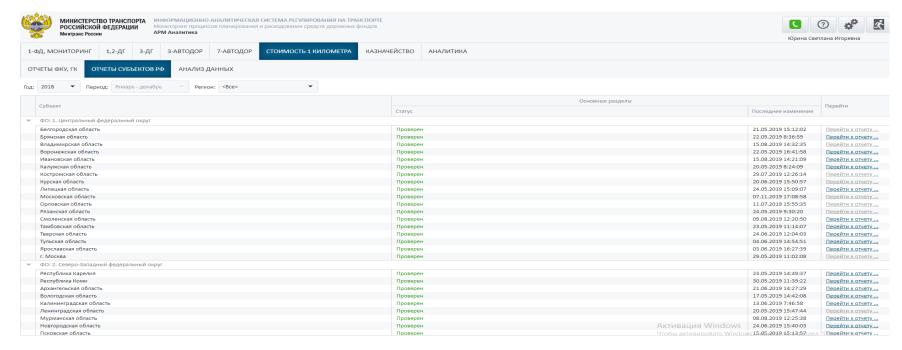
✓ The standard weight measurement is 7 sq. m.





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#### **Automation of data collection**

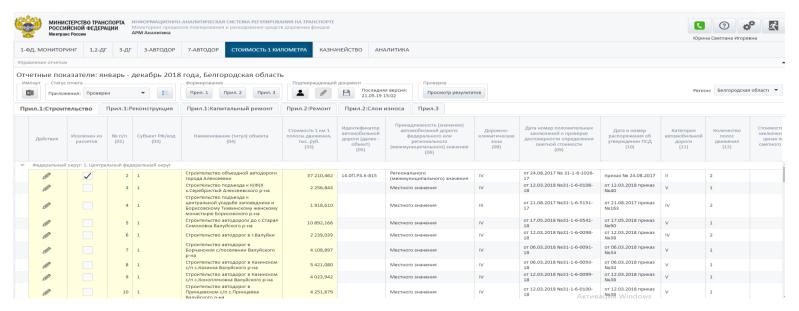




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The analytical system contains data of federal entities of the Russian Federation and provides data of the completed construction including Technical Description for Roads and further information for detailed cost calculating.







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In 2019, the FAI "ROSDORNII" was tasked with the need for more detailed analysis of objects data.

For these purposes, a method for conducting a factor-by-factor analysis of the deviation of the cost of highways was developed.

#### The main provisions of The Guideline:

- ✓ Selection of different classes of objects
- ✓ Information request
- ✓ Data analysis



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## The regression model is:

- Primary information is converted into multi-dimensional arrays
- The equation multivariate regression is generated
- The influence of changes of independent variables on changes of dependent variables is defined

$$y = a + b_1 x_1 + b_2 x_2 + \dots + b_p x_p$$



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# Monitoring results may be used:

- To determine the construction volume
- For financial distributions
- To measure the change in the costs
- For the better understanding of development the road network trends
- To identify the impacts of the factors on the value
- For cost forecasting etc.



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