SLOVAK ROAD ADMINISTRATION

Department of Technical Standardization and Management of Road Network

Ing. Daniela Čanigová, Ing. Rudolf Janotka, Ing. Zsolt Benkó



TECHNICAL DEVELOPMENT

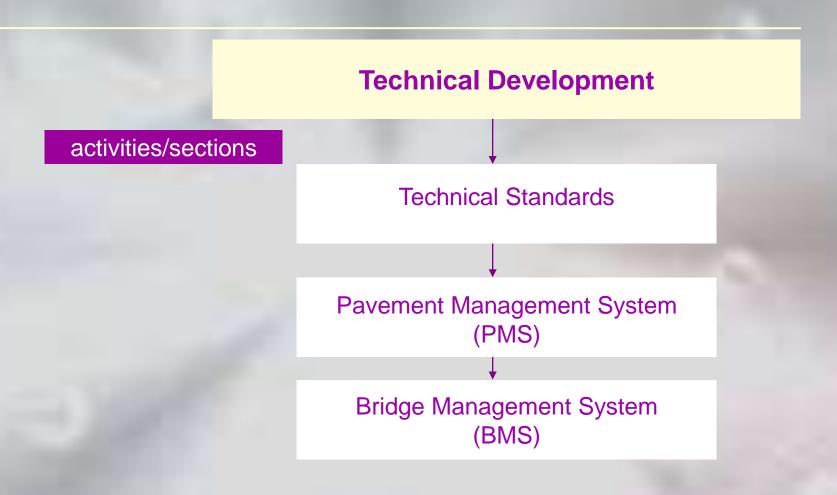
Quality

Development

Co-operation



TECHNICAL DEVELOPMENT



TECHNICAL STANDARDS



Slovak technical standards_ STN



Technical regulations_ TR of Ministry of Transport

TECHNOLOGICAL STANDARDS OF THE MINISTRY OF TRANSPORT

Projecting, construction and operation of road network (motorways, expess roads, roads) is governed by the norms from STN and other norms issued on two levels before 2003. One part was approved by MDPT SR – department of road traffic and land routes and another part by SSC. Both norms are valit at the same time.

Since 2004 all **Technological standards of the Ministry of Transport** (former technical measures/directives) and other regulation have been approved by MDV SR at the Department of road traffic and land routes.

In general Technological standards are:

- technical conditions,
- technical and quality conditions,
- catalogue papers,
- template papers of land routes construction.

TECHNICAL REGULATIONS_ TR



TR_MT ~ (TPR_MD SR)

Cross-sections activity

Technical council

Suggestions

Problems of STD (science & technology & development) → TR

Making process of TR and Public comment

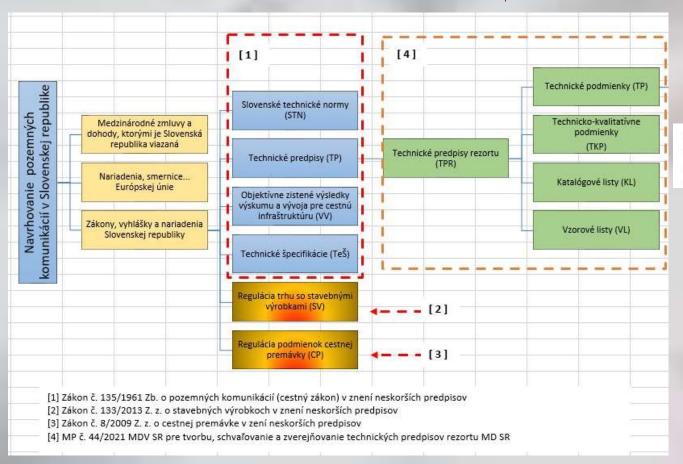
Approved by MT SR

Using TR

SYSTEM OF TECHNICAL REGULATIONS IN THE SLOVAK REPUBLIC

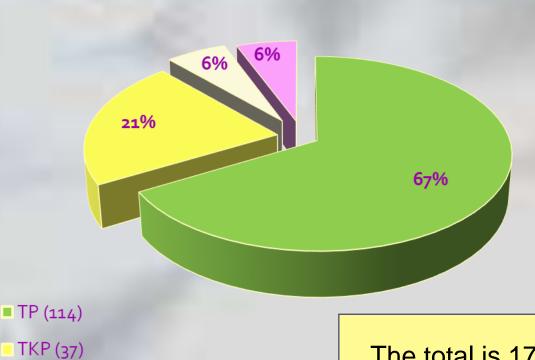
Acts and law of the European Union, Law of the Slovakia

Slovak technical standards_ STN Technical regulations_ TR of the Ministry of Transport



- technical conditions.
- technical and quality conditions,
- catalogue papers,
- template papers of land routes construction

TECHNICAL STANDARDS OF THE MINISTRY OF **TRANSPORT**



KL (10)

VL (10)

- technical and quality conditions,
- catalogue papers,

technical conditions,

- template papers of land routes construction.

The total is 171

PROCEDURE METHODOLOGY

MP No. 44/2021 [PDF, 502 kB] effective from 01.01.2022

TEMPLATES:

- Template Technical conditions [[DOCX, 108 kB]
- Template Technical quality conditions [[DOCX, 108 kB]
- Template Catalogue papers [m [DOCX, 108 kB]
- Template Template papers [m [DOCX, 106 kB]
- Template Annex [m [DOCX, 113 kB]
- Template Analysis Task [[DOCX, 106 kB]

COMMENTS FORM:

Form – explanatory memorandum [XLSX, 36 kB]

Note:

Processing technological regulations of the department must respect MP No. 44/2021

WEBSITE – www.ssc.sk

SUMMARY OF TECHNOLOGICAL STANDARDS

| Search Name TP | | |
|--|------------------|--|
| TP category □ roadway □ bridges □ tunnels □ traffic signs □ planning and design of roads □ technologies | □ road equipment | ☐ Environment and surroundings of the road |
| | Q SEARCH | |

| TP category | Marking TP | Name TP | Download TP | TP efficiency from | Previous text TP | ~ |
|-------------|------------|--|-----------------|-----------------------|------------------------------|---|
| bridges | TP 001 | Asphal bridge ending | [PDF, 529 kB] 🚨 | apríl 2002 | TP 03/2002 | A |
| roadway | TP 002 | Catalogue of road construction for axle weight 115 kN | [PDF, 377 kB] 🚨 | 20.12.2017 | TP 002: 2002 (TP 04/2002) | ı |
| bridges | TP 003 | Forecast of defect impact on bridge capacity and remaining lifespan estimate | [PDF, 312 kB] 🚨 | apríl 2002 | | |
| roadway | TP 004 | Pre-crushed aggregate used in non- agglutinated layers of road construction | [PDF, 220 kB] 🔼 | 01.12.2018 | TP 004: 2002 (TP 06/2002) | |
| roadway | TP 005 | Rapid visual screenings by VIDEOCAR device. Operation and evaluation | [PDF, 685 kB] 🚨 | október 2002 | | |

APPLICATION SYSTEMS

Pavement Management System



Bridge Management System





APLIKÁCIE PRE NEREGISTROVANÉHO POUŽÍVATEĽA



Mapy CDB

Spristupoenie aktualnych údejov certrádnej technickej erédencie pozemných komunikácií, t.j. diařnic, ciest I., II. a III. triody a verejne pristupných motoristických miestnych ciest.



Dopravné inžinierstvo

Spristupnenie údajov dopravného inžinierstva na cestnej sieti SR. Sú to údaje z celoštátnych sčítaní dopravy ako sčítacie úseky, ročné priemery denných intenzit.



Dopravné trasy

Underse trás pre nadmernú a nadrozmernú doprovu. Zohľadňuja su veličiny ako tenotnost, nozmer, zatažiteľnost náprav voči vlastnostiam a limitom cestnej siete.



Ročné prehľady údajov CTEPK

Údaje centrálnej technickej evidencie pozemných komunikácií vo forme cav súborov so staven k 01.01. prislušného kalendárného roka.



Metadáta k údajom CTEPK

Metadáta k údajom centrálnej technickej evidencie pozemných komunikácií obsahujú základné informácie o obsahu CTEPK.

PMS

APLIKÁCIE PRE REGISTROVANÉHO POUŽÍVATECA



Evidencia stavu cestnej slete

Aplikácia na evidenciu hlavných, bežných a mimoriadnych prehliadok na diaľniciach a cestách.



Hospodárenie s vozovkami

Aplikácia pre agendu hospodárenia a vozovkami.



Diagnostika vozoviek

Aplikácia pre správu údajov parametrov vozoviek PK zameraných diagnostickými zariadeniami.



Cestné laboratóriá

Aplikácia pre archiváciu a správu informácií o kvalite vozovky.



Hospodárenie s mostami

Aplikácia pre agendu hospodárenia s mostami.

0



Priepusty

Aplikácia na podporu evidencie priepustov a prehliadok priepustov na pozemných komunikáciách.



Stauby

Aplikácia na podporu agendy evidencie dokončených stavieb v rámci CTEPK



Výstupy z CDB

Statistické výstupy údajov centrálnej technickej evidencie pozemných komunikácii.



Miestne cesty

Aplikácia pre podporu technickej evidencie miestnych ciest s prepojením do CTEPK.



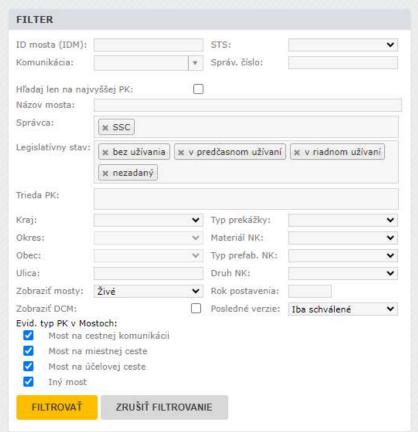
Náklady a výkony

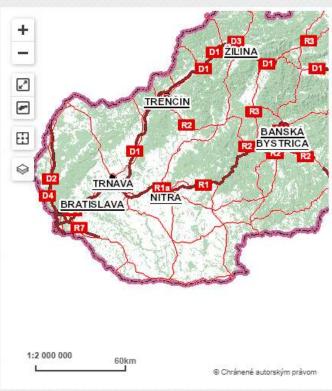
Aplikácia pre evidenciu nákladov a výkonov údržby a opráv na cestnej sieti a sledovanie čerpania pridelených razpočtov. **BMS**

| # N | losty |
|-----|-------|
|-----|-------|

Mosty → Prehliadky → Výjazdy Výstupy → ÚOR Administrácia → Informácie, príručky →

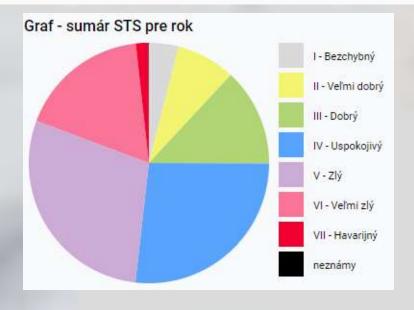
Zoznam mostov





| <u>IDM</u> | Názov mosta | PK | <u>Sp. č.</u> | Kum.st. [km] | <u>Dĺžka</u> premostenia[m] | Materiál NK | Druh NK | Rok | <u>515</u> | Verzia | |
|------------|---|----|---------------|-----------------|--------------------------------|----------------------------------|---------|------|------------|-----------|-----|
| M5897 | 02_002 Most cez potok Brestovec v obci Kopčany | 2 | 002 | 4,522 | 2 6,550 | prefabrikovaný železobetón | dosková | 1966 | 5 | Schválená | 四目の |
| M1979 | 02_003 Most cez Cuninský potok | 2 | 003 | 9,454 | 2 8,000 | prefabrikovaný predpätý betón | dosková | 1962 | 6 | Schválená | 回前戶 |
| M6525 | 02_004 Most nad železnicou Praha | 2 | 004 | 18,675 | 2 40,000 | prefabrikovaný predpätý betón | dosková | 1967 | 4 | Schválená | 回順戶 |

| Stavebno technický stav | Počet | |
|-------------------------|---------|------|
| I - Bezchybný | 4,0 % | 71 |
| II - Veľmi dobrý | 7,9 % | 141 |
| III - Dobrý | 19,1 % | 234 |
| IV - Uspokojivý | 26,7 % | 476 |
| V - Zlý | 28,9 % | 515 |
| VI - Veľmi zlý | 17,5 % | 212 |
| VII - Havarijný | 1,2 % | 30 |
| neznámy | 0,1 % | /3 |
| Σ | 100,0 % | 1780 |



Flawless

II Very good

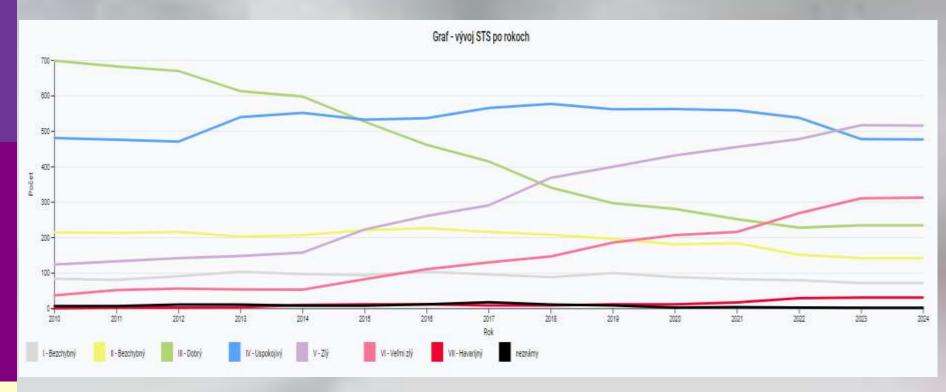
III Good

IV Satisfactory

V Bad

VI Very bad

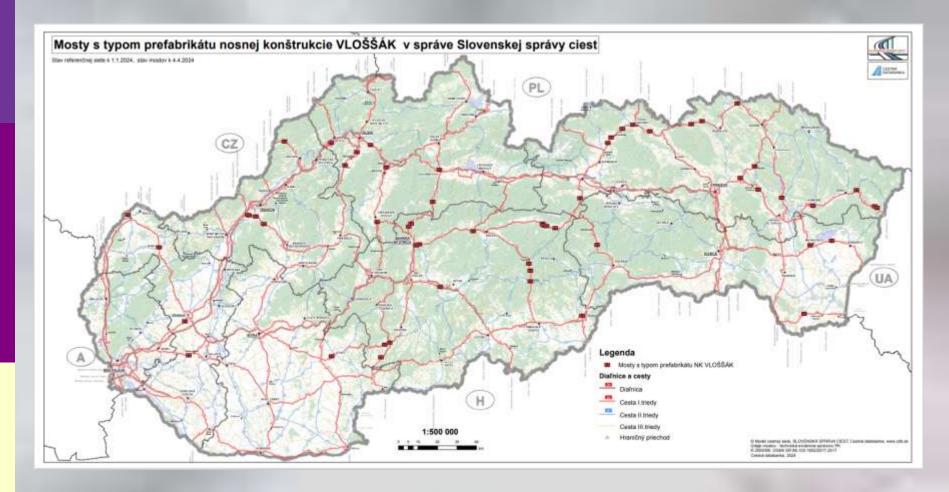
VII Emergency



- Flawless
- ll Very good
- III Good
- IV Satisfactory
- V Bad
- VI Very bad
- VII Emergency

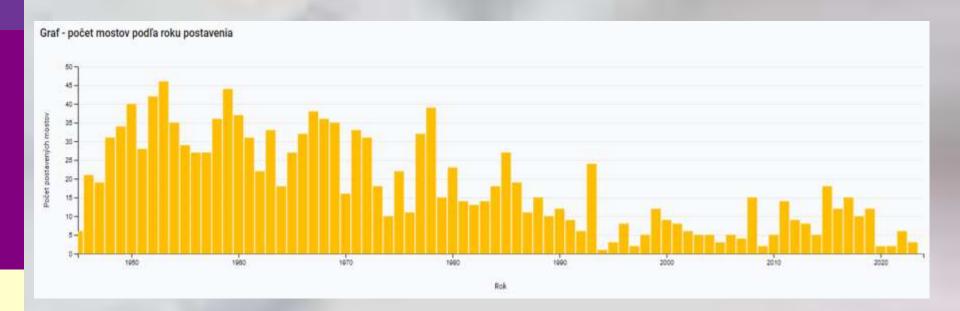
Source: Information system of Road Network Model

selection of bridges with Vloššák supporting structure



Source: Information system of Road Network Model

age of the bridges in years



Source: Information system of Road Network Model

The software application "Pavement" developed within the Pavement Management System is used to monitor and evaluate the road network state based on pavement diagnostics measurements and main inspections of roads. The classification of pavement serviceability and the evaluation of pavement bearing capacity (including the calculation of required thickness of overlay) are together with traffic engineering and economic data processed to propose an indicative rehabilitation design and to create multi-year rehabilitation plans for the road administrator considering various maintenance or repair alternatives through cost-benefit analysis. The application also allows visualizing almost all parameters of the roadway and road traffic through diagrams in line projection.



Figure 3 – Clear and complex information regarding the state of a road network section - an example from the "Pavement" application

SOURCE DATA OF PAVEMENT MANAGEMENT SYSTEM

CDB diagnostiky (CDB Diagnostics) Hlavné prehliadky (Main inspections) Referenčná sieť (Reference network) Nepremenné technické parametre (Unchanging technical parameters)

Dopravné inžinierstvo (Traffic engineering) Stavebné
opravy
súvislých
úsekov
(Construction
repairs of
continuous
sctions)

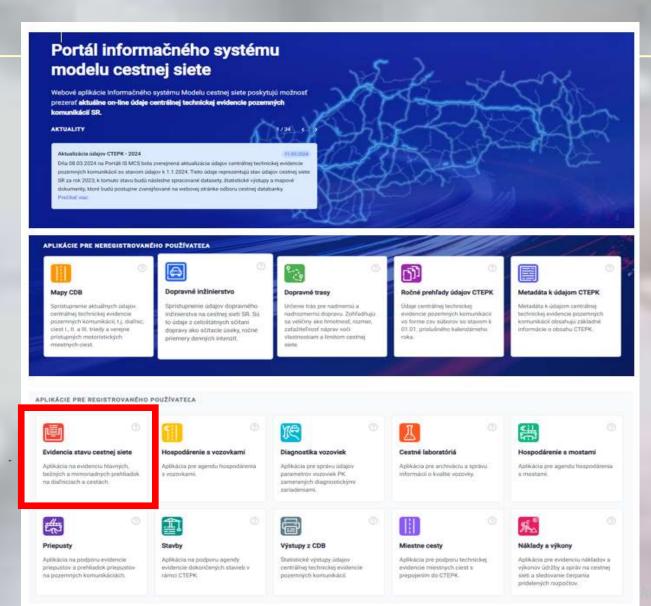
...

Datový sklad SHV (Data warehouse PMS)

Homogenizácia a klasifikácia dát (Homogenization and classification of data)

Prienikové udalosti (Penetration data) Štatistické údaje PTP (Statistical data) Historický vývoj cestných komunikácií (Historical development of roads)

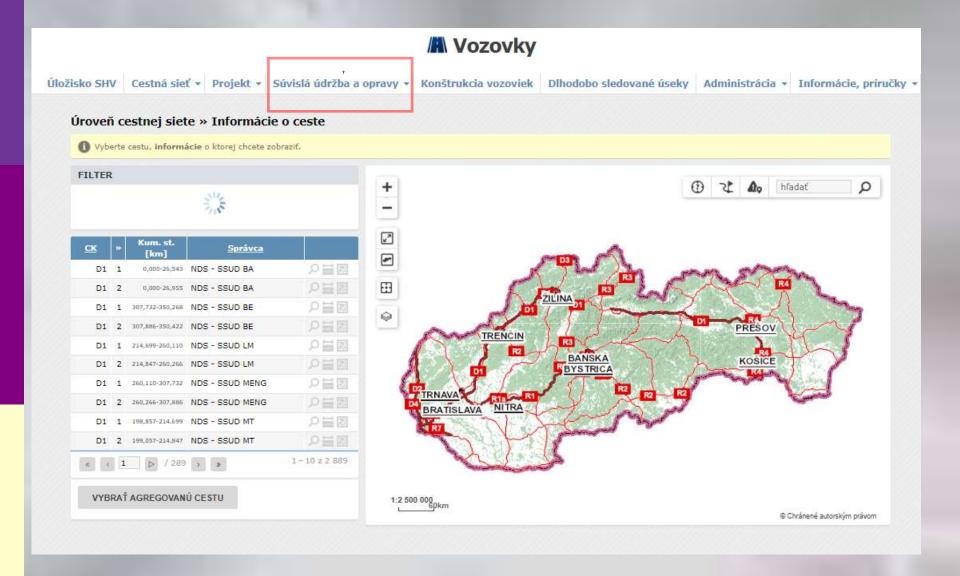
INFORMATION SYSTEM OF ROAD NETWORK MODEL



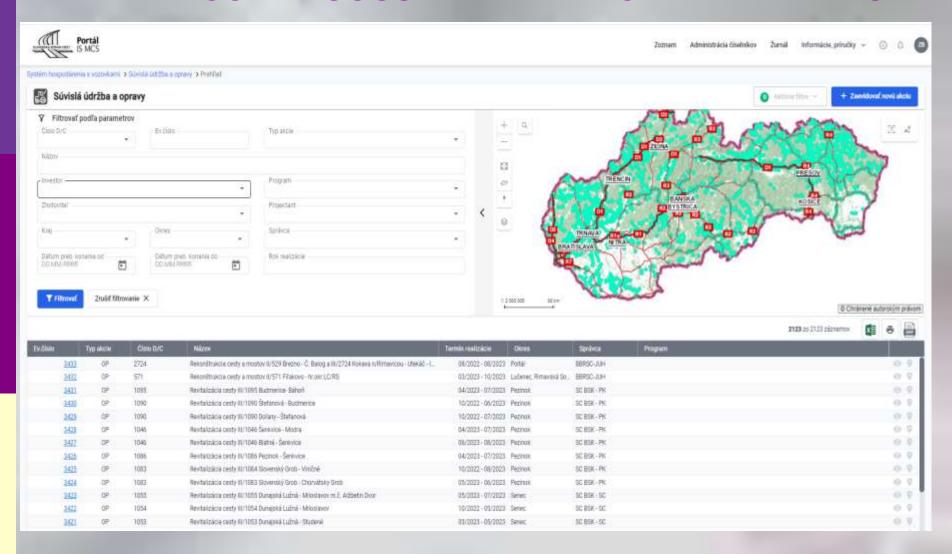
Management System Pavement

Registration of the status of the road network

CONTINUOUS MAINTENANCE AND REPAIRS



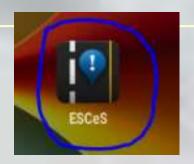
CONTINUOUS MAINTENANCE AND REPAIRS

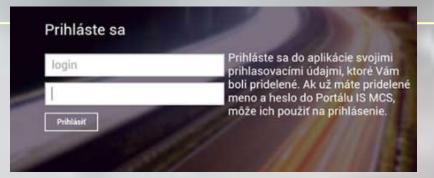


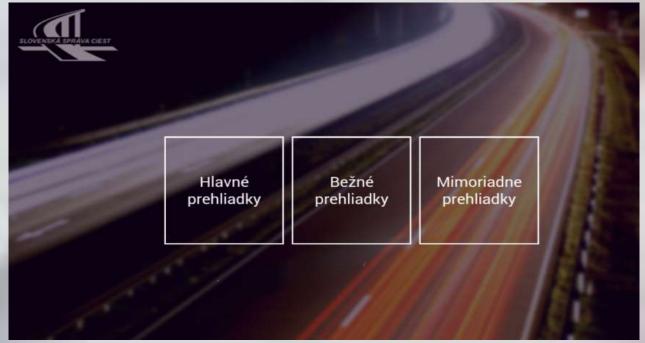
Very important is entering data for diagnostics.

ESCES - MOBIL APP

Registration of the status of the road network







main inspections, routine inspections, extraordinary inspections

ESCES – MOBIL APP – CATALOGUE OF ROAD FAILURES

| Výt | Trh | Rozp | Koľ | Def | Stors | Iné |
|-------------------------|------------------------------------|-------------------------|---------------------------|----------------------------------|---------------------------|--|
| Výtlky | Trhliny | Rozpad | Vyj. kofaje | Deformácie | Strata drsnosti | Iné poruchy na voz. |
| Vo v obrusnej vrstve | Tpr priečne | SietR sietovy rozpad | Koľ vyj. kofaje | Zvln zvlnenie | VyhIP vyhladený povrch | NovýP nový povích |
| Vk v kryte | Tpo pozdĺžne | VyprP vypratý povech | | Pokls poklesy | PotP potenie povrchu | FrézP frézovaný povech |
| | Ts siefové | LokR lokálny rozpad | | LokNr lokalne nerovnosti | | OlOkV otámaný okraj vozovky |
| | Tblok blokové | SúvR súvisly rozpad | | Preko prekopásky | | BVSch bet voz-schodkovani |
| | Tmoz mozaikov e | | | Rolet pozdížne nerovnosti/rolety | | NesVV nesprávne vyspr. výtko |
| | Tops otváranie pracovného spoja | | | Hrbol hrbole | | PlnžS poruchy pri inžinierskyc sietach |
| | | | | | | StKam strata kameniva pri náten mikrokobercoch |
| | | | | | | Iné všetky ostatné |

Technical specifications

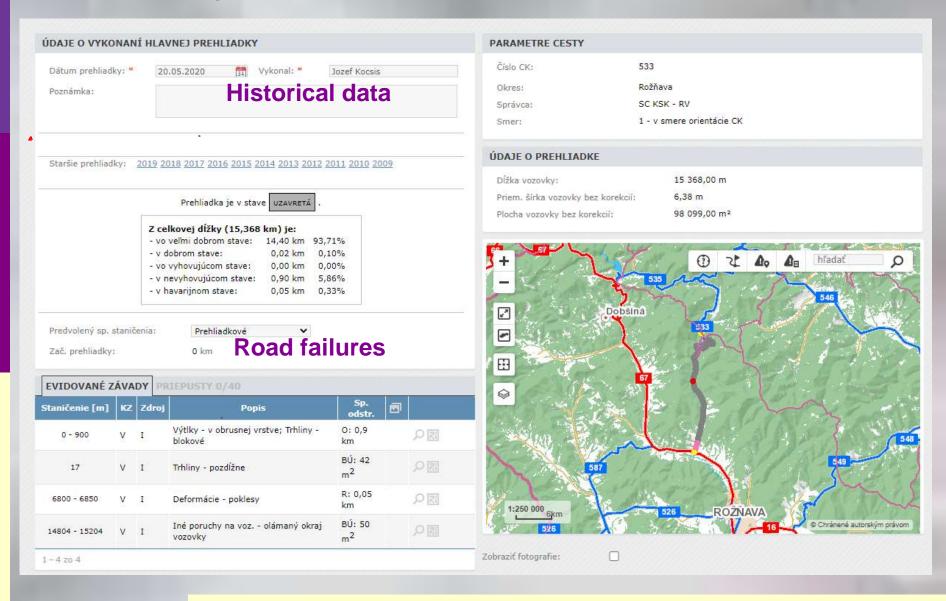
ESCES - PORTAL APPLICATION

Registration of the status of the road network

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| | sio CK: raj/Okres: | | | | v |
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| | <u>Číslo CK</u> | » st. [km] | <u>Okres</u> Rožňava | Správca SC KSK - RV | の別場 |
| | 9 | » st. [km] | | | |
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ESCES – PORTAL APPLICATION

Registration of the status of the road network



WORLD ROAD CONGRESS 2023 IN PRAGUE

On Friday, October 6, 2023, the XXVII. World Road Congress in Prague. We can already state today that it was a record-breaking and successful event in many ways. The most professional contributions, registered participants (4253), participating countries (117), national pavilions (35), most exhibitors (over 300) and the largest accompanying exhibition area in history (over 3000 m²) were registered. Slovakia was very actively involved in its preparation. The Slovak Road Administration participated in the development of the National Administration for the Slovak Republic in the three congress languages. National administration - Section of strategic direction ST4 Resilient infrastructure, was also actively presented at the congress and a poster was also prepared. The Slovak Republic won 1st place for the National Administration at the World Congress 2023. SSC representative also prepared an article for the World Road Congress for the Road Journal magazine, in which he describes in detail the issues and development of road infrastructure in Slovakia.

STRATEGIC DIRECTION SESSION 4 - RESILIENT INFRASTRUCTURE - NEW CHALLENGES AND INITIATIVES FOR IMPROVING SAFETY AND SUSTAINABILITY



SMART SOLUTIONS IN SLOVAKIA (NATIONAL REPORT)

TPA Spoločnosť pre zabezpečenie kvality a inovácie s.r.o. (Society for Quality Assurance and Innovation Ltd.), Slovakia

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Betamont, Zvolen, Slovakia, rothbauer.robert@betamont.sk







Ministry of Transport and Construction of the Slovak Republic, Bratislava, Slovakia, peter.los@mindop.sk











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The report in question includes a global view of achieved results and potential opportunities for the continuous improvement of road management in the extended system of digitization process, with an emphasis on data acquisition, systematic monitoring of assets as well as construction materials and their multiple reuse (qualitatively hierarchically conditioned) for the next mission in the service of road users.

The vision and strategies for the future direction of transport in Slovakia from the point of view of digital transformation are mainly summarized in the documents Strategy for Intelligent and Sustainable Mobility of Slovakia and Action Plan for the Digital Transformation of Slovakia within the topic of Intelligent Mobility, which is a part of strategic goal "We will create the foundations for modern digital and data economy and for the digital transformation of the wider economy" following the Program Declaration of the Government of the Slovak Republic for the period 2020-2024.

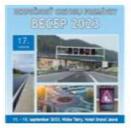




DETECTION OF TRAFFIC SIGNS

Project to verify readiness of traffic signs

ROAD TRAFFIC SAFETY CONFERENCE 2024 19.9.-20.9.2024, HIGH TATRAS



BECEP 2023





DESPECTABLE CENTREL

PREMANNY 2010



BECEP 2011 BECEP 2012









BECEP 2015

BECEP 2009



BECEP 2013

BECEP 2008



BECEP 2007



BECEP 2006

BECEP 2018



BECEP 2017

THANK YOU FOR YOUR ATTENTION

Ing. Daniela Čanigová Slovak road administration

head of department technological normalization and road network management

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