UNIVERSITY OF MONTENEGRO
FACULTY OF MECHANICAL ENGINEERING
ROAD TRAFFIC

Funded by the European Union

ITS IN MONTENEGRO

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Partnership for Promotion and Popularization of Electrical Mobility through Transformation and Modernization of WB HEIs Study Programs/PELMOB

Call: ERASMUS-EDU-2022-CBHE-STRAND-2

Project Number: 101082860

INTRODUCTION

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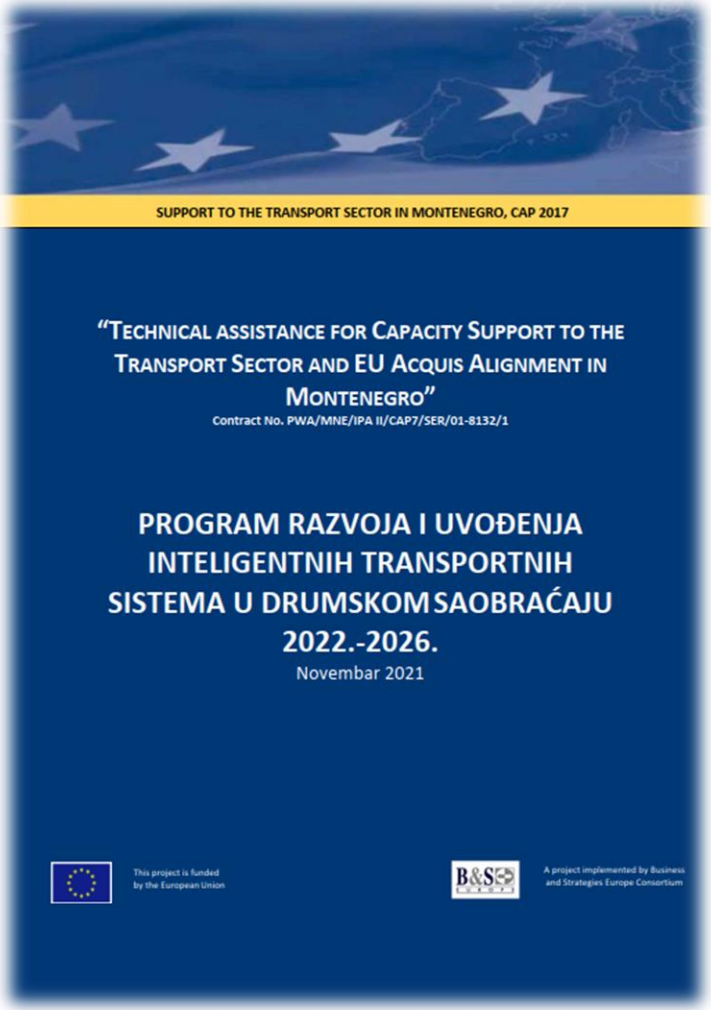
- ANALYSIS OF THE CURRENT SITUATION AND PLAN OF FUTURE ACTIVITIES FOR THE DEVELOPMENT OF ITS IN ROAD TRANSPORT IN MONTENEGRO;
- DIRECTIVE 2010/40/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE FRAMEWORK FOR THE DEPLOYMENT OF ITS IN THE FIELD OF ROAD TRANSPORT AND FOR INTERFACES WITH OTHER MODES OF TRANSPORT (7 JULY 2010);
- LAW ON ROADS ("Official Gazette of Montenegro", No. 82/2020)



INTRODUCTION

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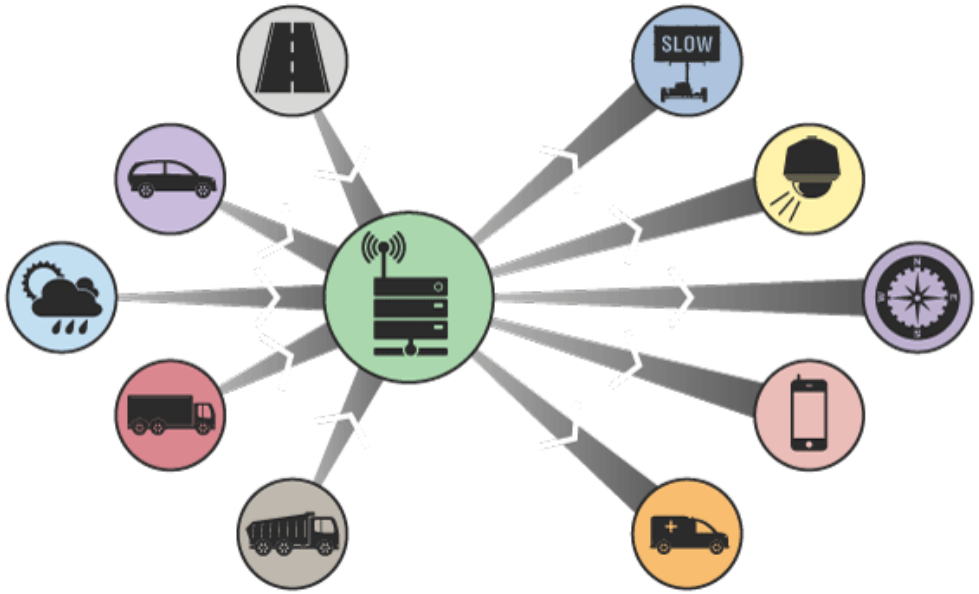

THE MAIN OBJECTIVES OF ITS ARE TO PROVIDE FIVE KEY BENEFITS:

1. INCREASED SAFETY FOR DRIVERS, PASSENGERS, AND PEDESTRIANSI
2. MPROVED OPERATIONAL CAPABILITIES, ESPECIALLY THROUGH REDUCED TRAFFIC CONGESTION
3. ENHANCED MOBILITY AND COMFORT
4. ENVIRONMENTAL PROTECTION
5. IMPROVED PRODUCTIVITY, ECONOMIC GROWTH, AND HIGHER EMPLOYMENT

INTELLIGENT TRANSPORT SYSTEMS CAN BE DESCRIBED AS THE APPLICATION OF NEW AND DEVELOPING INFORMATION TECHNOLOGIES – COMPUTERS, SENSORS, COMMUNICATION SYSTEMS, ELECTRONIC DEVICES, ETC. – WITH THE AIM OF INCREASING THE SAFETY, EFFICIENCY, ACCESSIBILITY, AND SUSTAINABILITY OF THE TRANSPORTATION NETWORK. ITS APPLICATIONS ALSO HELP REDUCE ENVIRONMENTAL POLLUTION IN ALL AREAS OF TRAFFIC FLOW.

WHAT IS ITS ACCORDING TO THE PROGRAM IN MONTENEGRO?

DEVELOPMENT OF ITS IN THE EU

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- PREVIOUSLY DEVELOPED ROAD TELEMATICS EQUIPMENT INDUSTRY;
- INSTITUTIONAL DEVELOPMENT – SINCE THE 1990s;
- DOCUMENTS WITH LEGAL FORCE AND THOSE WITHOUT IT ARE PUBLISHED;
- SINCE THE BEGINNING OF THE 21ST CENTURY, THE EUROPEAN COMMISSION HAS INCREASINGLY PUBLISHED DOCUMENTS RELATED TO SPECIFIC ITS APPLICATIONS AND ASSOCIATED SERVICES, LEADING TO THE CREATION OF AN ACTION PLAN FOR THE DEPLOYMENT OF ITS IN EUROPE IN 2008;
- THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION ADOPTED ON JULY 7, 2010, A DIRECTIVE ON THE FRAMEWORK FOR THE DEVELOPMENT OF INTELLIGENT TRANSPORT SYSTEMS IN THE FIELD OF ROAD TRANSPORT AND IN THE FIELD OF INTERFACES WITH OTHER MODES OF TRANSPORT (MULTIMODAL TERMINALS).

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DEVELOPMENT OF ITS IN THE EU

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ACTION PLAN FOR THE DEPLOYMENT OF INTELLIGENT TRANSPORT SYSTEMS IN EUROPE

The European Road Transport Research Advisory Council (ERTRAC)

ERTICO
ITS EUROPE

The European Road Transport Telematics Implementation Coordination (ERTICO - ITS Europe)

THE ACTION PLAN IDENTIFIES 3 KEY PROBLEMS OF ROAD TRANSPORT IN THE EU:

- CONGESTION AND THE COSTS OF CONGESTION,
- CO2 EMISSIONS IN ROAD TRANSPORT,
- ROAD TRAFFIC ACCIDENTS WITH FATAL CONSEQUENCES.

THIS ACTION PLAN OUTLINES SIX AREAS OF ACTIVITY:

I. OPTIMAL USE OF ROAD, TRAFFIC, AND TRAVEL DATA
II. CONTINUITY OF ITS SERVICES FOR TRAFFIC AND FREIGHT MANAGEMENT ON EUROPEAN TRANSPORT CORRIDORS AND IN CITIES
III. ROAD SAFETY
IV. CONNECTIVITY BETWEEN VEHICLES AND TRAFFIC INFRASTRUCTUR
V. EDATA SECURITY AND RELIABILITY
VI. EUROPEAN COOPERATION AND COORDINATION IN THE FIELD OF ITS

DEVELOPMENT OF ITS IN THE EU

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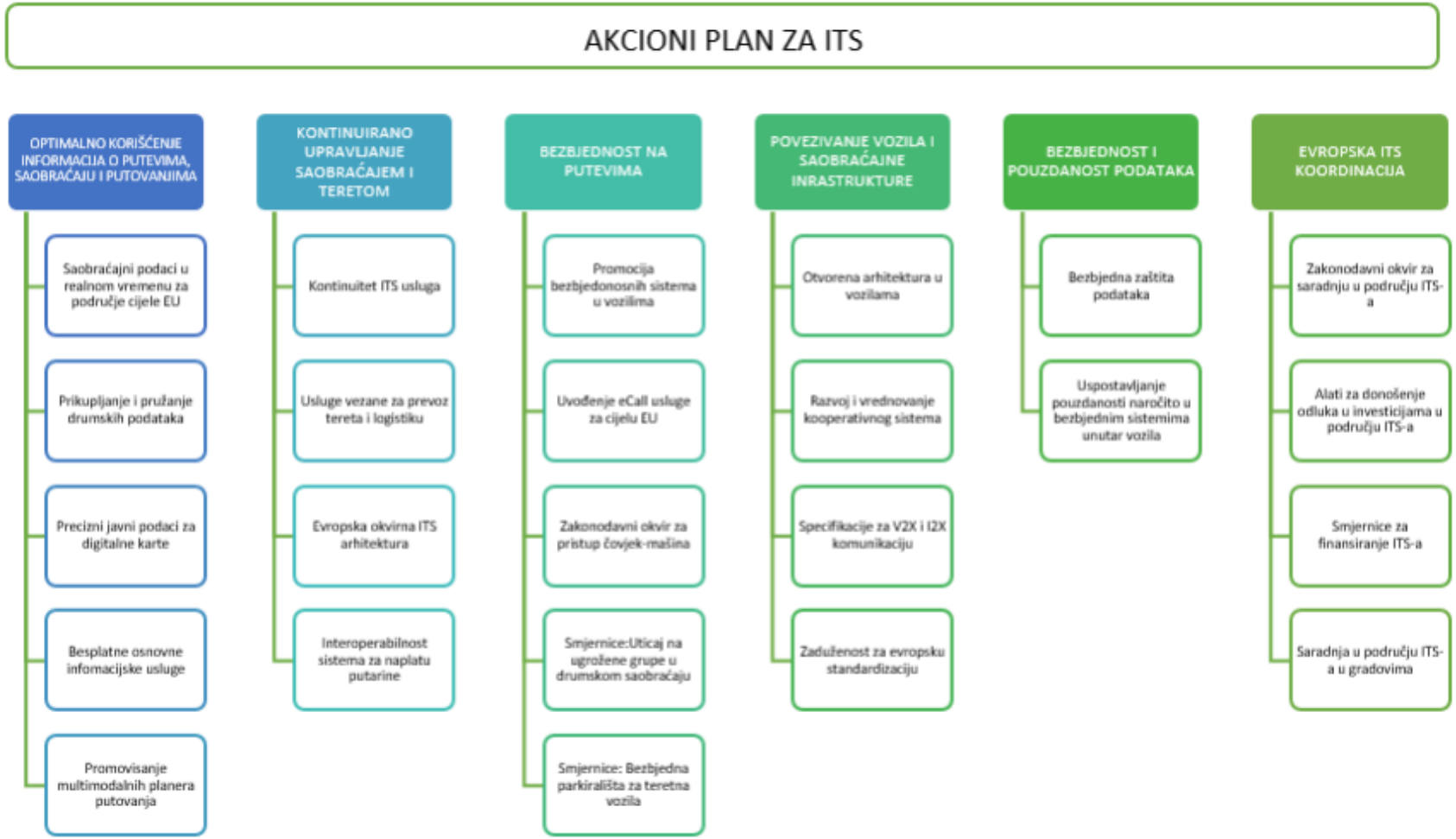

ACTION PLAN FOR THE DEPLOYMENT OF ITS IN EUROPE

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DIRECTIVE 2010/40/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE FRAMEWORK FOR THE DEPLOYMENT OF ITS IN ROAD TRANSPORT AND FOR INTERFACES WITH OTHER MODES OF TRANSPORT

- THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EU – JULY 2010;

THE DIRECTIVE IDENTIFIES FOUR PRIORITY AREAS OF ITS:

- OPTIMAL USE OF INFORMATION ON ROADS, TRAFFIC, AND TRAVEL;
- CONTINUITY OF ITS SERVICES FOR TRAFFIC AND FREIGHT TRANSPORT MANAGEMENT;
- ITS APPLICATIONS FOR ROAD SAFETY AND SECURITY AND
- CONNECTIVITY OF VEHICLES WITH TRAFFIC INFRASTRUCTURE.

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WITHIN THESE FOUR PRIORITY AREAS, PRIORITY ACTIVITIES CAN BE DEFINED RELATED TO THE DEVELOPMENT AND USE OF SPECIFICATIONS AND STANDARDS:

I. PROVISION OF MULTIMODAL TRANSPORT INFORMATION SERVICES ACROSS THE ENTIRE EU;
II. PROVISION OF REAL-TIME TRAFFIC INFORMATION SERVICES ACROSS THE ENTIRE EU;
III. **AVAILABILITY OF BASIC DATA AND PROCEDURES RELATED TO ROAD SAFETY, FREE OF CHARGE, WHEREVER POSSIBLE;**
IV. HARMONIZED PROVISION OF E-CALL SERVICE ACROSS THE ENTIRE EU;
V. PROVISION OF INFORMATION SERVICES ABOUT SAFE AND SECURE PARKING PLACES FOR FREIGHT VEHICLES AND COMMERCIAL VEHICLES;
VI. PROVISION OF RESERVATION SERVICES FOR SAFE AND SECURE PARKING PLACES FOR FREIGHT VEHICLES AND COMMERCIAL VEHICLES.

OVERVIEW OF THE CURRENT STATUS OF ITS IN MONTENEGRO

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- TRANSPORT DEVELOPMENT STRATEGY OF MONTENEGRO 2019-2035

- FIVE STRATEGIC GOALS:
  - ✓ ECONOMIC WELL-BEING;
  - ✓ ACCESSIBILITY, OPERATIONAL PERFORMANCE, AND SERVICE QUALITY;
  - ✓ SAFETY AND SECURITY;
  - ✓ EU INTEGRATION: INTEGRATION INTO THE MAIN TRANSPORT NETWORK (TEN-T) AND ALIGNMENT OF TRANSPORT POLICIES WITH EU REQUIREMENTS;
  - ✓ ENVIRONMENTAL SUSTAINABILITY.

OVERVIEW OF THE CURRENT STATUS OF ITS IN MONTENEGRO

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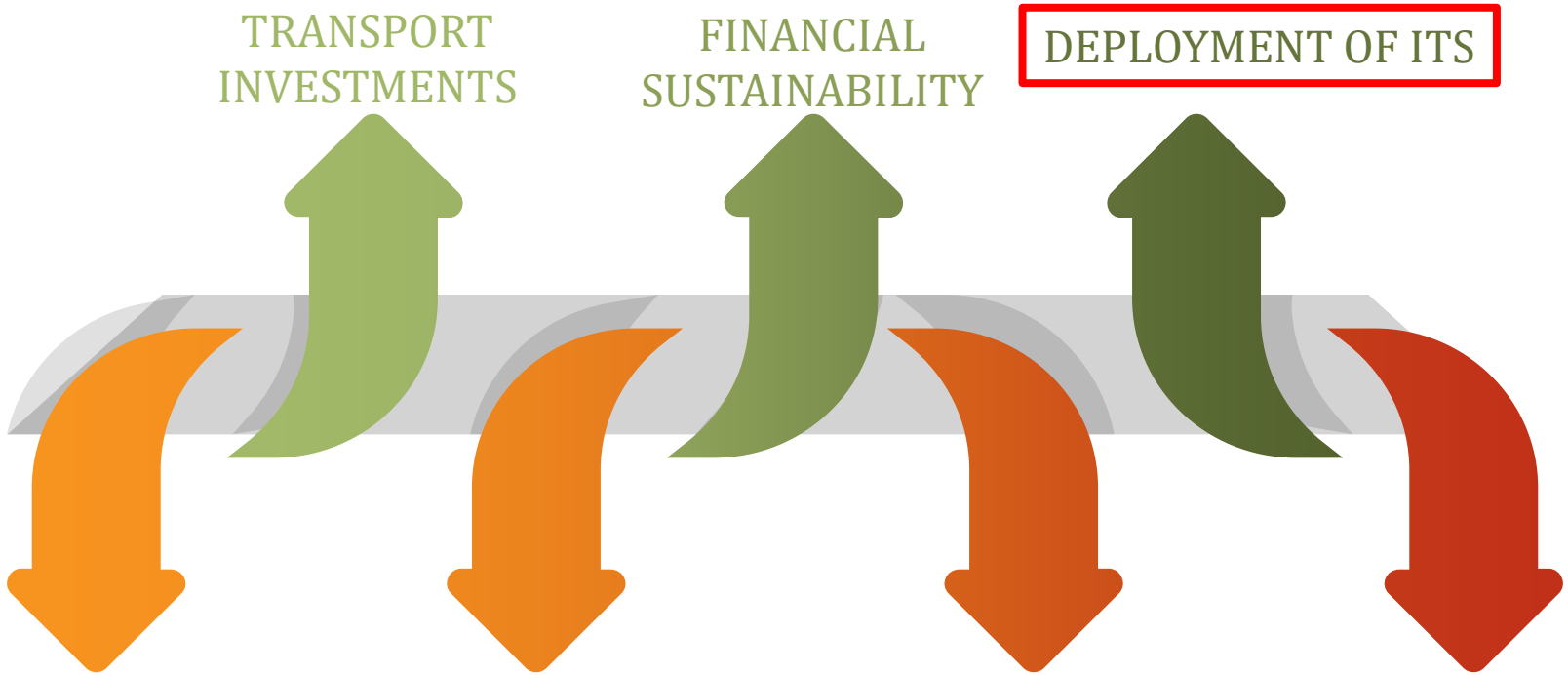
- SEVEN PRIORITY AREAS REPRESENTING GENERAL ASPECTS OF TRANSPORT SECTOR DEVELOPMENT:



REVIEW OF EXISTING STRATEGIC DOCUMENTS AND LAWS

OVERVIEW OF THE CURRENT STATUS OF ITS IN MONTENEGRO

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ARTICLE 15 OF THE ROAD LAW REGULATES TRAFFIC MANAGEMENT ON PUBLIC ROADS THROUGH:

I. ITS (TELECOMMUNICATION, OPTICAL, ELECTRONIC, AND STATIONARY DEVICES FOR MONITORING, RECORDING, CONTROL, SAFETY, AND TRAFFIC REGULATION; PAVEMENT CONDITION MONITORING AND REMOTE NOTIFICATION AND WARNING; TRAFFIC COUNTERS; ROAD WEATHER STATIONS);
II. SYSTEMS AND DEVICES FOR TOLL COLLECTION;
III. SAFETY EQUIPMENT IN TUNNELS;
IV. EQUIPMENT AND DEVICES FOR PUBLIC ROAD PROTECTION AND
V. TRAFFIC SIGNALIZATION.

LAW ON ROADS ("OFFICIAL GAZETTE OF MONTENEGRO", NO. 82/2020)

OVERVIEW OF THE CURRENT STATUS OF ITS IN MONTENEGRO

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ARTICLE 16 OF THE LAW ON ROADS PRESCRIBES THAT ITS SHALL BE APPLIED IN THE AREAS OF:

I. OPTIMAL USE OF TRAFFIC AND TRAVEL DATA;CONTINUITY OF ITS SERVICES IN TRAFFIC MANAGEMENT;
II. ITS APPLICATIONS FOR ROAD SAFETY AND PROTECTION OF ROAD USERS:
III. SYSTEMS THAT CONNECT VEHICLES AND ROADS.

LAW ON ROADS ("OFFICIAL GAZETTE OF MONTENEGRO", NO. 82/2020)

EXISTING ITS IN MONTENEGRO

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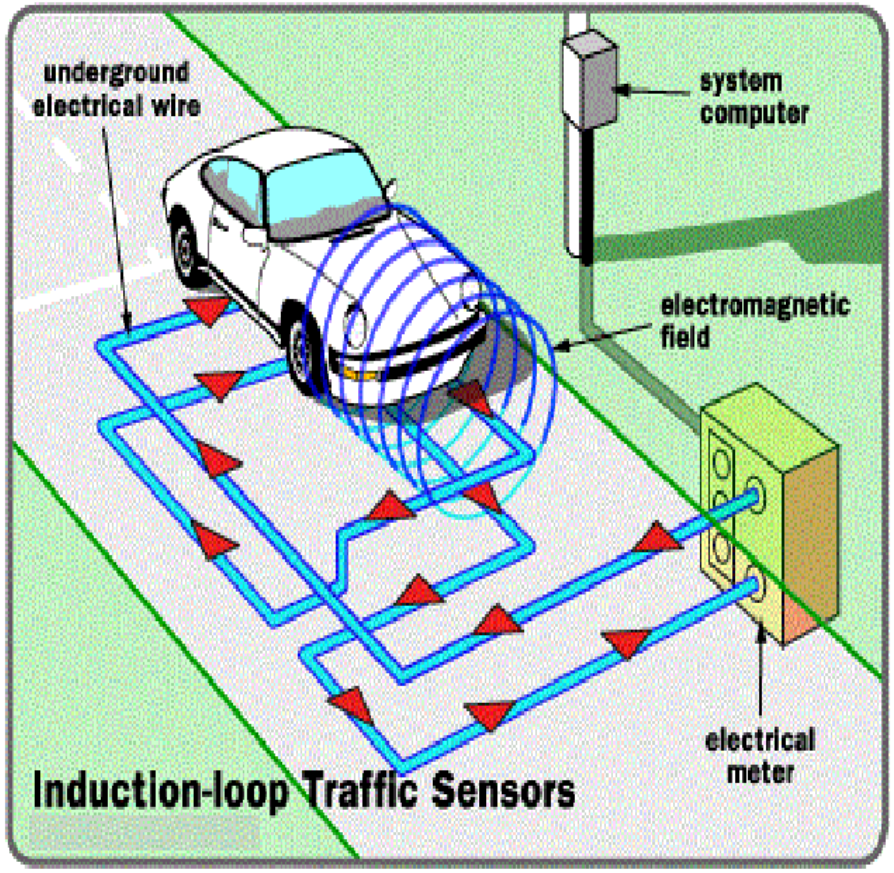

SYSTEM FOR COLLECTING TRAFFIC DATA ON STATE ROADS

EXISTING ITS IN MONTENEGRO

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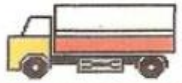
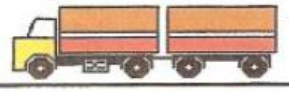
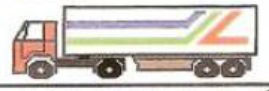
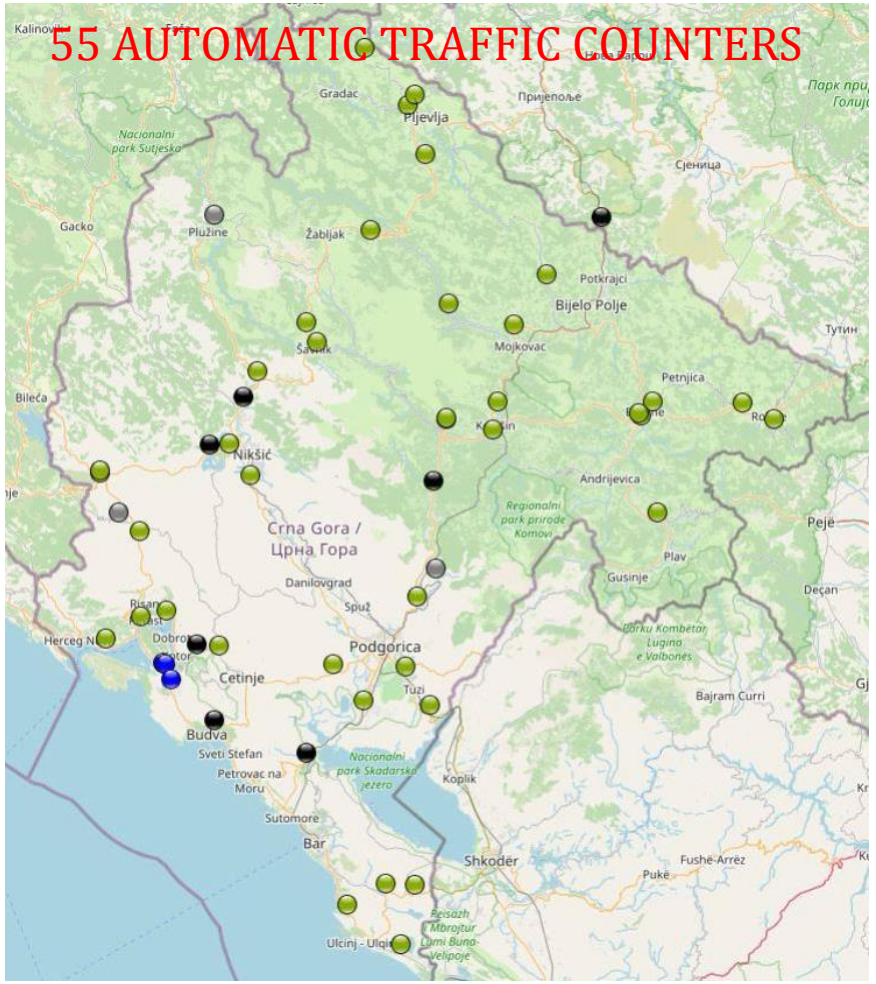
Razred	Kategorija vozila	
A0	• Motori	
A1	• Putnički automobili • Putnički automobili sa prikolicom	
A2	• Kombinovana vozila • Kombinovana vozila sa prikolicom	
B1	• Laka teretna vozila	
B2	• Srednje teška teretna vozila	
B3	• Teška teretna vozila	
B4	• Teška teretna vozila sa prikolicom	
B5	• Teška teretna vozila sa poluprikolicom (Tegljači)	
C	• Autobusi	
X	• Nekategorisana vozila	

55 AUTOMATIC TRAFFIC COUNTERS



SYSTEM FOR COLLECTING TRAFFIC DATA ON STATE ROADS

EXISTING ITS IN MONTENEGRO

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GREEN – TRAFFIC IS FLOWING NORMALLY;

BLUE – TRAFFIC IS FLOWING WITH INCREASED INTENSITY;

YELLOW – HEAVY TRAFFIC;

ORANGE – TRAFFIC IS CURRENTLY MOVED;

RED – TRAFFIC IS DIFFICULT WITH STALLS;

GRAY – NO TRAFFIC;

BLACK – NO DATA.

EXISTING ITS IN MONTENEGRO

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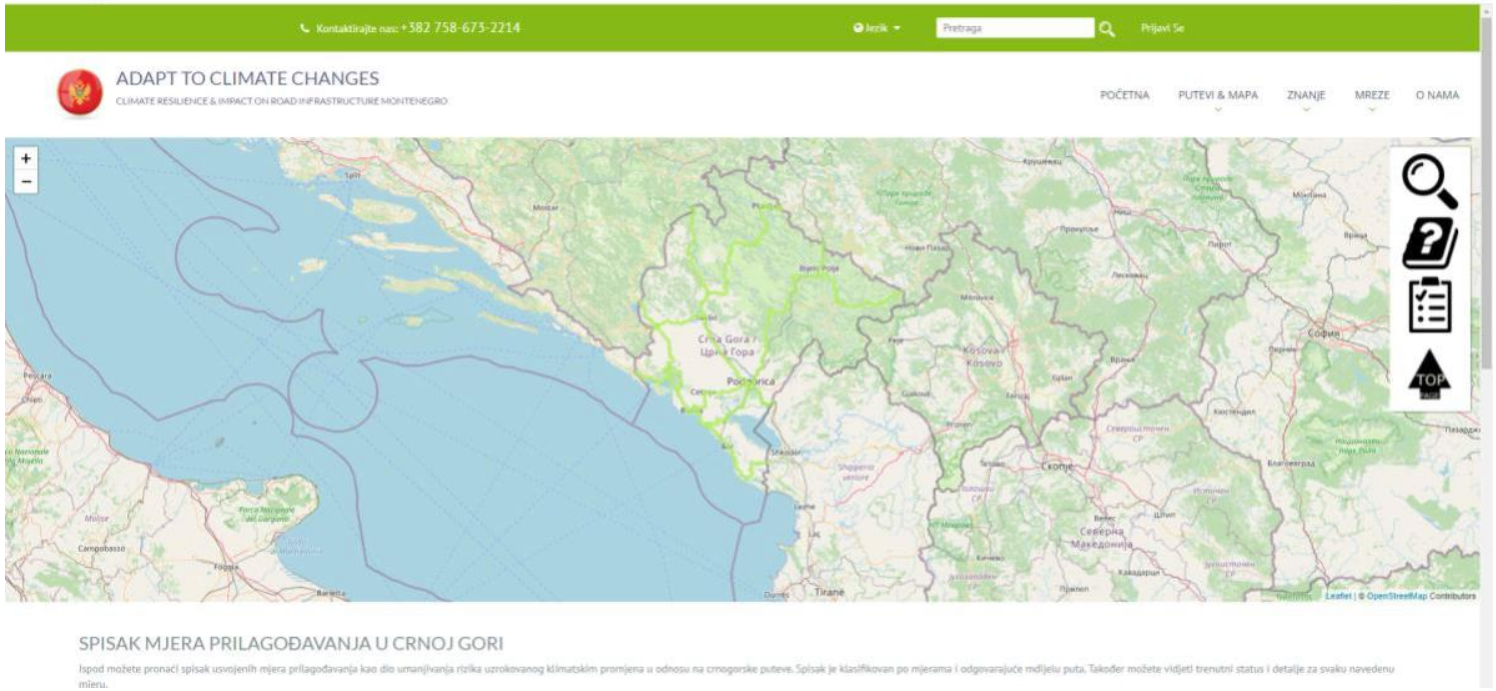

- DEPARTMENT OF HYDROMETEROLOGY AND SEISMOLOGY;
- 52 ROAD SECTIONS;
- WEATHER DATA: AIR TEMPERATURE, AUGUST TEMPERATURE, WIND SPEED AND DIRECTION, AIR HUMIDITY, AMOUNT AND TYPE OF PRECIPITATION.

EXISTING ITS IN MONTENEGRO

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THROUGH THE CONTRACT ON REGULAR MAINTENANCE OF HIGHWAYS AND REGIONAL ROADS, THE TRAFFIC ADMINISTRATION HAS PLACED METEROLOGICAL STATIONS ON 12 ROADS TO COLLECT DATA ON: AIR TEMPERATURE, AIR HUMIDITY, AIR PRESSURE, WIND SPEED AND DIRECTION, SNOW HEIGHT, SALINITY, ASPHALT TEMPERATURE AND HUMIDITY. ASPHALT.

r.br.	Putni pravac i lokacija meteorološke stanice
1	M-3 Plužine-Nikšić, Goransko
2	M-6 Jasenovo Polje-Šavnik, Vojnik
3	M-8 Vilusi -Osječenica, Osječenica
4	M-1 Petrovac-Sutomore, Kufin
5	M-2 Petrovac-Virpazar, Paštrovačka gora
6	M-2 Mojkovac-Ribarevine, Krstac
7	M-2 Mioska-Kolašin, Lugovi
8	M-5 Berane-Rožaje, tunel Lokve
9	R-5 Rožaje-Kula, granični prelaz
10	R-2 Berane-Gusinje, Brezojevica
11	M-6 Šavnik-Žabljak, skretanje za Ski centar
12	M-6 Pljevlja-Mihajlovica, granični prelaz Ranče
13	R-3 Pljevlja-Metaljka, granični prelaz Metaljka

Tabela 2. Putni pravci i lokacija meteorološke stanice

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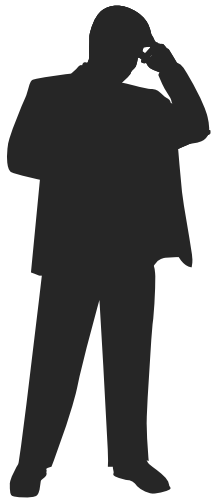
QUESTIONS



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THANK YOU FOR YOUR ATTENTION!