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# BACKGROUND INFORMATION

## Partner country

Republic North Macedonia

## Contracting authority

Municipality of Veles

## Country background

The proposed Action address results related to developing and implementing innovative solutions for urban mobility including necessary investments in urban infrastructure, mobile assets, and IT systems accompanying capacity building activities related to the public administration public utilities, public institutions, legal entities, sector for traffic planning and CSO’s for sustainable urban mobility development. In particular, our activities are accompanied with specific institutional and/or capacity building measures for the municipality in order to integrate the acquired innovative solutions in a sustainable way into the day-to-day operations. The activities includes development of software, adaptation or configuration of IT services; Actions for reducing air pollution, e.g. urban mobility schemes, e-mobility, IT-based urban planning systems simulating impact of measures on environment; Procurement and installation of pedestrian and cycling infrastructure with marking out a one two-way bicycle path in the central city area; Procurement and installation of smart equipment; Charger for electric vehicles class B+; Redefining of the existing roundabout and addition of new one; Procurement of electric tourist vehicle and rickshaws. The Action includes capacity building and awareness–raising campaigns related to the public transport operator and public utility, production of promotional materials, and partnership agreements signing

## Current situation in the sector

The Municipality of Veles is in final phase of implementation of the project SMART Lake Mladost-First Innovative Tourist Attraction. The Project consist in building new tourist infrastructure next to the Lake Mladost near the city of Veles and installing smart solutions for tourists and visitors (smart mobility, bike rental, smart lightening, smart waste management, smart urban equipment, and electric vehicle charger. The location of the project is near Corridor 10 where annually transit around 2, 5 million tourists. The project, in total value of 1,010,000 EUR, was supported by the European Union in the framework of Local and Regional Competitiveness Project, implemented according to the protocols of the World Bank. The implementation of the project is in final phase (closing in June 2021) and is a valuable experience for the Municipality of Veles in managing EU funded project and especially in managing innovative projects. There will be direct link between the solutions produced under the ongoing project “SMART Lake Mladost-First Innovative Tourist Attraction” and the upcoming project “Smart Solutions Veles – To Be Continued” in linking and upgrading the software solutions, such as dashboard use.

## Related programmes and other donor activities

The overarching, long-term strategic document that guided the defining of the scope of the Action is the Sustainable Urban Mobility Plan for Veles 2019-2030. The SUMP is based on the EU municipalities’ best practices and its main aim is to decrease the hazard for the environment caused by the transportation system and to contribute to establishing of a sustainable, attractive, accessible and healthy living (urban) environment. Related to the Action, the SUMP foresees changes in the central city area, organizing the streets in a way that the City Centre becomes a pedestrian zone. Several key elements are found in the strategy: introducing new regime for city centre passengers and vehicles; smart management of the public transport system; promotion of healthy and active lifestyle through pedestrian zone and cycling; infrastructural changes to help provide easy access for people with disabilities; energy efficient solutions and protection of environment. The second related strategic document guiding us in defining the Action is the “Veles – Smart City, Developmental Strategy 2019-2030”. In it, the concept of Veles as a smart city is founded based on EU municipal experience. The main three goals foreseen in the Strategy are: 1) improving the overall efficiency of City of Veles; 2) achieving sustainable and resilient growth; 3) enhancing the quality of living for the residents. The document also lists several of EU municipalities’ examples of which City of Vienna will be significantly used in our pilot approach. The third key document is the “Plan for the ambient air in the municipality of Veles 2018 – 2022“, in which several infrastructural and promotional measures are foreseen that will contribute to decreasing the pollution in the city.

# OBJECTIVES & EXPECTED OUTPUTS

## Overall objective

The overall objective of the EU –funded project Smart solutions-Veles-To be continued” is: Better smart urban development of the city centre by solving the traffic chaos that causes problems both in the development of the city and the everyday life of the citizens.

The specific objectives are:

1) To decrease the air pollution in the central city area for at least 5% through introduce new Urban mobility habits in the period of 2 years

2) To increase SMART pedestrian and bicycle zones in the central city area for at least 5000 m2 in the period of 2 years.

3) To increase the public transport share to at least 15% in the period of two years.

The project will achieve the following outputs that will contribute toward the specific objective:

O1. Optimization of the public transport in the central city area;

O2. Improved mobility and accessibility of the city;

O3. Improved quality of living and positive effect on the environment and health;

O4. Effective compliance with legal obligations;

O5. Improved socio-economic environment

## Specific objective(s)

The specific objective (Outcome) of this contract is as follows:

* Upgrade of the existing smart solution in the city of Veles in order to monitor public transport vehicles in real time (Smart City - Phase 3).

## Expected outputs to be achieved by the contractor

The expected outputs of this contract are as follows:

* Upgraded smart solution in the city of Veles- monitoring public transport vehicles

# ASSUMPTIONS & RISKS

## Assumptions underlying the project

Good cooperation between all parties involved in the contract completion.

## Risks

No significant risks have been identified for the completion of the contract

# SCOPE OF THE WORK

## General

### Description of the assignment

Municipality of Veles as a beneficiary of the project “Smart Solutions Veles – To be continued…”. The municipality of Veles has implemented or is in the process of implementing a solution for a smart city consisting of several smart elements (smart desks, smart bus stations, smart parking, e-bikes with smart locks, smart silos and smart waste). For the control and management of these smart elements, the municipality has acquired appropriate licenses for web-based software and mobile application (Integrated Software Solution as a Service (SAAS) for smart elements).

The purpose of this procurement is to upgrade the already existing smart solution for the purpose of tracking public transport vehicles in real time (Smart City - Phase 3). The solution should consist of three parts:

* Procurement of mobile application/web portal and GPS equipment;
* Upgrade of Integrated Software Solution as a Service (SAAS) for smart elements;
* Integration of software platforms (WEB portal and mobile application with Integrated Software Solution as a Service (SAAS) for smart elements).

The three elements of the procurement should include monthly costs for the complete operation of the solution for a period of 36 months.

### Geographical area to be covered

Municipality of Veles

### Target groups

The main target groups addressed by the Action are residents in Veles, staff within sector for traffic planning, local public institutions, local transport operators from the business sector in the Municipality of Veles, totalling more than 15,000 people. The target group will be involved in the implementation of the activities and directly contribute to the achievement of the project results. The same group are also the final beneficiaries (more than 50,000).

## Specific work

The consultant should upgrade the existing smart solution in order to monitor public transport vehicles in real time (Smart City - Phase 3). The solution should consist of three parts:

**Activity 4.2.1: Development of mobile application/web portal and GPS equipment as a service - Smart City phase 3**

The purpose of this system is the procurement of a WEB portal, a mobile application and GPS equipment for tracking the exact location of the buses, which will enable the display of their arrival in real time on the displays next to the bus stops. In this way, passengers will have timely and accurate information not only about the schedule of buses, but also about the immediate arrival of each bus at each bus station that has an information display, which will allow precision in showing the arrival time. The system should also provide information about all lines that address the given bus stop.

#### ***Development of WEB portal as a service for displaying information from bus transport***

Features of WEB portal:

The content of the web portal should include (but not be limited to):

* The web portal should support English and Macedonian languages, enabling easy transition between languages;
* It should be equipped with UTF-8 encoding for Romanian and Cyrillic scripts, ensuring smooth display of text in both languages, including dates, time, currency and number formatting according to local conventions;
* Static and dynamic content – ​​including static and dynamic web pages, animations, videos and various types of dynamic content and information;
* Information about available services, applicable prices per bus line;
* News and Events;
* Frequently Asked Questions (FAQs);
* Photo and Video galleries;
* Site map and navigation aids;
* Information Office/Help Center and other contact information;
* Quick links to external applications/sites where applicable
* The web portal should present informative data about the bus lines (one line in the city with 6 buses and 5 suburban lines);
* The portal should be organized as a CMS (content management system) to provide data on the current position, also advertising space should be planned;
* All data for vehicle displays on information boards will be provided through integration of the WEB portal with an Integrated Software Solution as a Service (SAAS) for smart elements.

#### ***Development of Mobile application for end users (SaaS)***

Mobile App Features for End Users:

* The application should be native for Android and iOS and should be available for free in the App Store and Google Play Store;
* The application should contain information about buses and bus stations at all times;
* The application should contain real-time satellite location of the active buses on the respective lines;
* The application should display the arrival time of each bus at each bus stop
* The application should display a table with the schedule of the Buses;
* The application should provide an overview of the tariff and pricing model.

#### ***Supply of GPS equipment (20 pieces)***

Supply of GPS devices to install in buses to track and display exact locations in real time.

Features of GPS equipment:

* GNSS: GPS, GLONASS, Galileo, BeiDou, SBAS, QZSS, DGPS, AGPS;
* Receiver: 33 channels;
* Tracking: -165 dBM;
* Accuracy: < 2.5 m CEP;
* Technology: GSM/GPRS/GNSS/Bluetooth® LE;
* 2G bands: Quad-band 850/900/1800/1900 MHz;
* Data transmission: GPRS Multi-Slot Class 12 (up to 240 kbps);
* Data support: SMS (TEXT, PDU), TCP, UDP, TLS, MQTT;
* Input voltage range: 10-30 V DC (overvoltage protection);
* Internal battery: 170 mAh Li-Ion, 3.7V (0.63 Wh);
* Bluetooth®: 4.0 + LE;
* Operating temperature: -40°C to +85°C;
* IP protection: IP41;
* USB: 1 x Micro-USB 2.0 for configuration, 1 x USB type A for charging;
* SIM: Nano-SIM;
* Memory: minimum 128MB internal flash;
* LED: RGB LED;
* Possibility to connect the power supply to a cigarette lighter in a vehicle.

**Activity 4.2.2: Upgrading of the Integrated Software Solution as a Service (SAAS) for smart elements (a platform that the municipality has previously acquired)**

The consultant should upgrade the Integrated Software Solution as a Service (SAAS) for smart elements, with another element that will enable tracking of public transport vehicles. This new element should provide data integration according to the technical specifications and accordingly according to the needs of the solution. Below are the basic features of this element:

* The integrated software solution as a service for smart elements should be upgraded with a vehicle tracking module;
* The integrated software solution as a service for smart elements should provide data integration, with WEB portal and mobile application from point 1 according to the technical specification and accordingly according to the needs;
* Data visualization that will enable monitoring of different devices and platforms (eg city control panel, monitoring center, web-based dashboards, through mobile applications, etc.) in real time;
* To have the dashboard that should provide data for different user groups;
* The solution should offer a controlled user view of the information, according to the assigned credentials;
* The software should collect the data from the GPS equipment installed in the buses and accordingly process the same information for displaying the information displays at the bus stations;
* It should display parameters from integrated smart solutions, but should also be upgradeable to provide information collected from different sources/platforms that could be used in the future;
* Sublimation and structured presentation of all relevant information from all integrated smart solutions separately – modularly;
* Sublimation and structured presentation of all relevant information from all integrated smart solutions according to the needs of the user for analyzes or presentations;
* The system should be able to register, process and store received information efficiently;
* Be able to process information details, store data securely, compare it with existing fields and update individual data as needed;
* It needs to include functionality to limit the visibility of information to a certain period of time, ensuring that data is only available when needed;
* Ability to upgrade and connect to other platforms;
* The solution should be hosted in a secure data center;
* Commissioning of the entire solution;
* Conducting training of personnel who will work on the system.

**Activity 4.2.3 Integration of software platforms (WEB portal and mobile application with Integrated Software Solution as a Service (SAAS) for smart elements)**

To manage the Smart elements, the Municipality of Veles relies on an Integrated Software Solution as a Service (SAAS) for smart elements that will be upgraded with a public transport monitoring module (description given in activity 4.2.2). This solution, as well as the WEB portal and the mobile application defined in activity 4.2.1, generate their own data that is used or will be used in the working processes of the municipality in real time. Integration of this software solution with the WEB portal and the mobile application defined in activity 4.2.1, enables the creation of automated work processes and the facilitation of data sharing without any manual intervention of IT employees in the municipality. The integration should take place through an API protocol with an appropriate structure that will enable simple communication between the Software solutions defined in activity 4.2.1 and activity 4.2.2.

## Project management

### Responsible body

The Contracting Authority is Municipality of Veles, Republic of North Macedonia and in that capacity, it is responsible to launch the service tender procedure, sign the service contract, authorize payments to the contractor and handle the financial management and control during project implementation. The day-to-day operational project implementation will be performed by Municipality of Veles, Project office – which is responsible for implementation of project

### Management structure

The project “Smart Solutions Veles – To be continued…” is implemented by Municipality of Veles in partnership with SEG Holding, Skopje. SEG Holding, Skopje will be the Contracting Authority responsible for regular coordination as well as coordination with the Municipality of Veles and will have the overall responsibility of implementation

### Facilities to be provided by the contracting authority and/or other parties

The Contracting Authority will provide all available information and will fully co-operate with the Consultant in order to achieve the best results. Technical information and access to the existing records, any useful information and/or documentation which may be relevant to the performance of the Contract will be provided upon request.

# LOGISTICS AND TIMING

## Location

Municipality of Veles

## Start date & period of implementation of tasks

The intended start date is 10.12.2024 and the period of implementation of the contract will be 1 month from this date. Please see Articles 19.1 and 19.2 of the special conditions for the actual start date and period of implementation.

# REQUIREMENTS

## Staff

Note that civil servants and other staff of the public administration of the partner country, or of international/regional organisations based in the country, shall only be approved to work as experts if well justified. The justification should be submitted with the tender and shall include information on the added value the expert will bring as well as proof that the expert is seconded or on personal leave.

### Key experts

Key experts are not required.

### Other experts, support staff & backstopping

CVs for experts other than the key experts should not be submitted in the tender but the tenderer will have to demonstrate in their offer that they have access to experts with the required profiles. The contractor shall select and hire other experts as required according to the needs. The selection procedures used by the contractor to select these other experts shall be transparent, and shall be based on pre-defined criteria, including professional qualifications, language skills and work experience.

The costs for backstopping and support staff, as needed, are considered to be included in the tenderer's financial offer.

## Office accommodation

Office accommodation for each expert working on the contract is to be provided by the contractor.

## Facilities to be provided by the contractor

The contractor shall ensure that experts are adequately supported and equipped. In particular it must ensure that there is sufficient administrative, secretarial and interpreting provision to enable experts to concentrate on their primary responsibilities. It must also transfer funds as necessary to support their work under the contract and to ensure that its employees are paid regularly and in a timely fashion

## Equipment

**No** equipment is to be purchased on behalf of the contracting authority / partner country as part of this service contract or transferred to the contracting authority / partner country at the end of this contract. Any equipment related to this contract which is to be acquired by the partner country must be purchased by means of a separate supply tender procedure.

# REPORTS

## Reporting requirements

The contractor will submit the following reports in English in one original and two copies:

* **Draft final report** of maximum 2 pages (main text, excluding annexes). This report shall be submitted no later than one month before the end of the period of implementation of tasks.
* **Final report** with the same specifications as the draft final report, incorporating any comments received from the parties on the draft report. The deadline for sending the final report is 3 days after receipt of comments on the draft final report. The report shall contain a sufficiently detailed description of the work methodology, activities, results etc. The final report must be provided along with the corresponding invoice.

## Submission and approval of reports

The report referred to above must be submitted to the Capacity building expert-SEG Holding, Skopje identified in the contract. The Project manager from Municipality of Veles is responsible for approving the reports.

## Submission and approval of reports

The report referred to above must be submitted to the project manager identified in the contract. The project manager is responsible for approving the reports.

# MONITORING AND EVALUATION

## Definition of indicators

* Developed WEB portal, mobile application and delivered GPS equipment (20)
* Upgraded Integrated Software Solution as a Service (SAAS) for smart elements (a platform that the municipality has previously acquired)
* Integrated software platforms (WEB portal and mobile application with Integrated Software Solution as a Service (SAAS) for smart elements