DELIVERABLE 7.3d: FOLLOWER CITY REPLICATION PLAN

CITY OF SUCEAVA

WP 7 – REPLICATION

Follower Cities of GrowSmarter

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Transforming cities for a smart, sustainable Europe

Table of Contents

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1 Objective

The Grow Smarter Follower Cities (FCs) are committed to preparing for the replication within their territories of the Smart Solutions demonstrated by the Lighthouse Cities (LCs). In order to ensure appropriate and effective transfer of knowledge, experiences and Smart Solutions, the FCs have developed a baseline assessment for replication and an implementation plan of selected measures in the medium and long term, reflected in this document.

The objectives of this Replication Assessment and Implementation Plan include:

- Identify and assess the full potential of replication and up-scaling of Smart Solutions on a city level and for specific districts
- Provide a matrix for FCs to develop their smart city projects through in-depth understanding of concept, approaches, applications, opportunities, challenges, needs, success factors of smart city applications in LCs
- Support related and necessary local smart-city stakeholder engagement
- Support the political and technical capacity development process through mapping the framework conditions for deploying Smart Solutions and identifying opportunities and needs for a knowledge transfer
- Identify and select key actions needed to implement and replicate the GS smart solutions on a city/district level.
- Define a replication plan for the selected GS smart solutions in accordance to city priorities and to address city sustainability challenges.

2 Engagement of parties for Assessment and Replication

The Assessment Report and Replication Plan has been prepared by all GS FC. The cities of Cork, Graz and Porto are supported through all activities by ICLEI while Suceava and Valetta are supported by REC and ICLEI.

The different stakeholders that are supporting the assessment and future implementation of smart solutions in the city of Suceava include:

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3 Timeline and replication roadmap

The Smart City Replication Assessment and Plan can be understood as a living document that which is continuously (and at least annually) updated and refined as

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needed to reflect the latest developments of the potential and framework conditions for the replication of Smart Solutions. Two public reports are foreseen; the first for month 6, the second for month 30. Subsequently, the Replication Assessment will lead to the development of a Replication Plan in month 48.

The Replication Assessment and Implementation Plan is part of the overall replication roadmap of the Follower Cities (FCs) of GrowSmarter and can be characterized by the following milestones:

Milestone 0	• FC made initial selection of LCs' Smart Solutions for
Milestone 1	• Establish a multi-stakeholder Smart City Liaison Group
Milestone 2	• 1st Replication Assessment for deployment of Smart
Milestone 3	• Establishment of capacity development programme and stakeholder process in FC
Milestone 4	• 2nd Replication Assessment for deployment of Smart
Milestone 5	• Development of Replication Plan in FCs
Milestone 6	• Up-scaling and replicability Report

4 Structure of the Replication Assessment and Implementation Plan

The Smart City Replication Assessment and Implementation Plan consists of the following main sections:

Smart City Replication Profile	• Mapping the overall framework conditions and potentials for replication within the city territory
Smart Solutions Selection	• Description of replication potential of selected Smart Solutions of LCs within FC

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Smart District Replication Profile	• Per potential replication site/district: Mapping of district related framework conditions relevant for the replication of the selected solutions
Smart Measure Specifications	• Assessment and adaptation of measures towards the most effective deployment and integration at site/district level
Replication Plan for Smart Measures	• Definition of activities and actions required for the replication and future implementation of the specific smart solutions on a city and district level.

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5 Replication Assessment of the Follower City Suceava

5.1 Smart City Replication Profile

5.1.1 Mapping the overall framework conditions for replication within the city territory

5.1.1.1 Q1 what is the overall replication potential for Smart Solutions until 2020 and beyond?

The north-east Romanian city of Suceava (population about 107,000), one of Romania's oldest settlements, has been the capital of Suceava County since 1388. Suceava lies 450 km from Romania's capital Bucharest, on a main European highway. The government is making efforts to improve the region's transport network as part of a broader urban regeneration using EU Cohesion Policy grants. Figuring on UNESCO's World Heritage List, Suceava is home to orthodox monasteries and churches, and a 14th century castle. The local industry is based on glass and wood manufactories, textiles and construction materials.

Suceava faces the combined challenges of increased motorized traffic, and stringent European environmental and energy targets. The municipality, which owns the local public transport company, has already taken part in initiatives to encourage sustainable urban mobility, including the CIVITAS II (2005-2009) Smile Project, and MIDAS (2006-2009), part of the Intelligent Energy for Europe's STEER Programme.

In 2013 Suceava Local Council approved a Sustainable Energy Action Plan (SEAP) regarding energy efficiency and implementation of project regarding increase of alternative usage at local level, implementation of the electro mobility concept. The main objective of SEAP is to reduce the greenhouse gas emissions by at least 20% by 2020 and to promote the investments carried out within Suceava Municipality which can lead to an efficient use of energy by improving the existing energy performance or the development of constructions, installations, equipment and technologies enjoying high energy efficiency, including feasible renewable energy sources.

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SEAP is the methodology according to which Suceava Municipality will reach its objectives by 2020, using the results of BEI (Baseline Emission Inventory) in view of identifying the best fields of action and the best existing opportunities in order to meet the local objective of reducing CO_2 emissions. SEAP defines the concrete reducing measures, together with the time frames, assigned responsibilities and estimated budgets.

SEAP should be considered a communication and promotion tool for the decision-makers, baseline tool for implementation. SEAP should not be regarded as a rigid document, as circumstances change and, as the ongoing actions provide results and experience, it may be necessary to revise the plan on a regular basis.

SEAP concerns measures within the competence and reach of local authorities. Therefore, local authority is expected to play an exemplary role and consequently to take outstanding measures related to the local authority's own buildings and facilities, vehicle fleet, producing energy from renewable sources, urban mobility etc.

According to the Sustainable Energy Action Plan, Sustainable Urban Mobility Plan (SUMP) and Local Development Strategy (ISDS) in the next 20 years the municipality will have to focuses on the following fields (no prioritization):

- Buildings and facilities (municipal, residential and tertiary buildings, public lighting);
- Transport (municipal fleet, public, private and commercial transport);
- Centralized heating system – using renewable resources ;
- Local energy production (solar heating installation and solar photovoltaic modules, high-efficiency cogeneration, biomass fuel heating installations);
- Urban planning (strategic urban planning, sustainable mobility urban planning, development of local regulations to support sustainable constructions);
- Procurement (local energy-efficiency regulations, local regulations on the utilization of renewable energy sources);
- Electric vehicles (private and public) and electric busses for public transport
- Communication (technical assistance and consulting services, financial support and subsidies, information and awareness campaigns, training sessions);
- Waste management (selective collecting, recycling).

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Suceava municipality would like to benefit from the available existing funding opportunities – ERDF, national and regional funds (For example, central governmental funds for rehabilitation of public buildings or a possibility to access regional funds by forming an association of at least 2 municipalities for funding and implementation of common projects), private and public – in order to continue the implementation of the energy efficiency measures at local level (620 mil Eur available at the regional level for the period 2014 -2020, 85 % from the EU and 12% from the national budget):

SUMP and ISDS for the city of Suceava were designed and approved in 2017. These documents include measures, actions and indicators for future local development in the priod of 2016 – 2023.

5.1.1.2 Q2 How does the"Smart City" approach feed into/connect with your existing local planning processes?

In 2013 we finalized the Sustainable Energy Action Plan (SEAP) and in 2015 the Suceava Sustainable Urban Mobility Plan was finalized and presented to the local stakeholders, decision makers and members of the Local Support Group. SUMP and ISDS for the city of Suceava were designed and approved in 2017. These documents include measures, actions and indicators for future local development in the period of 2016 – 2023.

The main objectives of the actions included in the above mentioned documents will be:

- Correlating the local energy framework with the national and European ones;
- Better life quality;
- General contribution to town's attractiveness;
- Increased attractiveness for trade and industry;
- Supporting economic growth;
- Attracting investments;
- Compliance with the European and National Policies on Climate Changes

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These priorities are fully in line with the principles of the smart city approach. Therefore the Grow Smarter Project will be an unique opportunity for Suceava Municipality to have access of different practical solution and best practice experience transfer which will sustain local efforts for becoming a “Smart City”.

5.1.1.3 Q3 Is there a (strategic) plan and organizational structure in place to become a "Smart City"?

The is a strong willingness and political support at local level for implementation of the smart measures in order to become a SMART City but for the moment we cannot say that there is a specific structure at local level that is mainly involved and responsible for this issue

New internal structure was created in march 2017 in order to have representatives from different departments which will be responsible to define, select and prioritized the projects and actions regarding local sustainable development.

5.1.1.4 Q4 Are there synergies and/or conflicts of the”Smart City” plan and organizational structure with existing initiatives and their structures within the city?

Suceava Municipality is partner since September 2016 in the URBACT III project called: SMART IMPACT. This project aim is to create a local structure and group which will be able to define measures and actions regarding implementation of the SMART CITY concept in order to increase the efficiency and transparency of the local public authority activity.

5.1.1.5 Q5 Which and how are regional and local stakeholders involved in the Smart City strategy and planning process on a city level?

In the past 5 years the Urbact Support Local Group (USLG) was involved in the designing process for the local strategies and plans concerning energy efficiency at local level, sustainable development and mobility as well.

USLG is a consultation only body, meaning the group can only provide ideas and feedback from the perspective of a different stakeholder, but they can also influence

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their own institutions, companies and groups. Their ideas and documents are presented to the local council for improvement and future implementation.

The Suceava ULSG has been meeting since early 2010 to discuss the challenges and opportunities associated with enabling electro-mobility It has provided an opportunity for the diverse stakeholders involved with a particular issue, to come together, identify issues of concern and seek ways to overcome them. With representatives from local authorities, local private companies, NGO's, local media, local retailers, electricity generators/distributors and retailers as well as academic institutions and private consultancies, the ULSG has provided a focused approach to looking at the challenges while incorporating the experience of other European partner cities, in developing an approach that can taken forward in Suceava and Romania also.

Usually the meeting took place 4 to 6 times per year as a regular basis and of course anytime when the municipality intent to design a local strategy and a public consultation is not only requested but recommended.

Our intention is to continue the cooperation within this group during the Grow Smarter implementation phase and for this reason we do used opportunities created by the meeting held by the other local and regional working groups (including the one created especially for design of the Integrated Development Strategy) in order to discuss, evaluate and define SMART ideas for the measures which need to be Implemented into the city of Suceava.

5.1.1.6 Q6 What are past (<5 years) and current projects that are closely related to the "Smart City" concept?

Suceava Municipality implemented between 05.2012 – 11.2012 phase I and 12.2013 – 12.2015 phase II the project" **Sustainable Urban Markets"** that was co-financed by the European Union through the European Regional Development Fund, under the Interregional Cooperation Programme URBACT II. – www.urbact.eu/urbanmarkets

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The budget allocated to the Romanian partner was 5.437,50 Euros for Phase I and 61.124,39 euro for Phase II, of which 80 % is co-financing from the European Union, while 20 % are national contribution (of which 13 % budget State and 7% local budget).
The main objective of the project were : demonstrate the catalytic effect that urban markets have in the major thematic areas that generate sustainable growth: regeneration of the historic city centre, the development of economic activities with low CO2 emissions, the promotion of local entrepreneurship and stimulating employment.

Suceava Municipality was partner in the URBACT project called "**Electric Vehicles in Urban Europe" EVUE** which lasted from December 2009 – May 2010 (development phase) and July 2010 – December 2012 (implementation phase). www.urbact.eu/evue

The budget allocated to the Romanian Partner was of 12.500 euros for development phase and 38.945 euros for implementation phase, of which 80 % is co-financing from the European Union, while 20 % are national contribution (of which 13 % budget State and 7% local budget).

The EVUE project was focused on identifying and implementing the framework and infrastructure required that will enable electric vehicles to become the preferred mode of choice in urban areas. By directly targeting a major source of air and noise pollution in our cities, it was hoped to improve the lives of all citizens and ensure that urban areas mitigate their negative environmental impacts as efficiently as possible.

„Electric Vehicles in Urban Europe" EVUE II in which Suceava Municipality was partner was implemented between December 2013 – March 2015.

The budget allocated to the Romanian Partner was of 43.000 Euros of which 80 % is co-financing from the European Union, while 20 % are national contribution (of which 13 % budget State and 7% local budget).

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Electric Vehicles in Urban Europe (EVUE II) focused on the development of integrated, sustainable strategies and dynamic leadership techniques for cities to promote the use of electric vehicles. Urban initiatives to encourage the public and business to use EV's contributed to EU clean air and car fleets targets, making cities more attractive and competitive. Between 2009 and 2015, nine cities across Europe: Beja, Katowice, Frankfurt, Lisbon, London, Madrid, Oslo, Stockholm, Suceava and Zografou, supported by the URBACT programme, worked together to share knowledge and experience of how EVs can be implemented in the urban environment under the EVUE project.

"**Electromobility-electric vehicles for a green municipality"** project co-financed (80 %) by the Government of Switzerland through the Swiss-Romanian Cooperation Programme.

The project budget of 3.112.490 CHF (2.563.511 euro) will be used (in the second part of 2015) in order to implement the electro mobility concept. In this project the following activities will be conducted :

- purchase of electric vehicles for Suceava Municipality fleet: 11 vehicles, 2 vans, 1 sweeping machine, 1 tanker
- the installation of charging infrastructure for electric vehicles: 14 standard charging points, 14 fast charge points, 56 parking spaces for electric vehicles (in public car parks, underground car parks, residential areas)
- acquisition of 10 electric bicycles and their charging system (equipped with photovoltaic panels 5KW)
- also the amount of 225.000 RON is designated for developing a technical-economic documentation that will be used to obtain the grant for the project "Environmentally friendly public transport system interurban"(purchase a total of 40 electric buses for public transport)

"**Modern and efficient public lighting management in Suceava Municipality".**

The project budget is 6.417.314 CHF from which 5.238108 CHF are Swiss Govern grant.In the next 18 month we will replace all the 3816 existing old light units from Suceava city with units that use light sources with LED technology and in the same

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time **a telemanagement system of the lighting units will be implemented. This project will conduct to an important reduction of energy consumption and CO2 emissions.**

In the past 5 years in Suceava there were construction works for rehabilitation of 380 apartments (structure, heating system) in order to reduce the waste of energy and to improve energy efficiency using 0,864 million Euro.

Starting from 2013 in Suceava, through a PPP, a new city power plant is functional, using only biomass, provided both heating for the entire city and energy. This project is considered to be a starting point for increasing the production of green energy at local level. 2011 was the starting point of a major waste management project at county level. This project includes transfer stations for waste, a new landfill with biogas production plant, modern systems for environment protection and separate recycling facilities – 2, 3 million Euro – ERDF funds. For the moment Suceava city is working of a tender documentation for the waste management supplier at local level. The contract was signed in December 2018 . This will be a 7 year contract that will include facilities for separate waste collection in order to increase the level of waste recycling at local level and to reduce the consumption of raw materials.

Other already implemented projects:

- rehabilitation of 55 % of the city heating transport system (isolation, pipe lines, transfer points) – 102 km and 28 heat centres – in order to reduce the lost energy into the system – own funds
- rehabilitation of the public lightning system – 24 km of network, replace the old lamps with new and energy saving ones and implementation of a telemanagement system in order to reduce the energy consumption and increase the efficiency – 1,2 mil Euro project ERDF funds
- rehabilitation of 26 km of city streets in order to reduce the traffic congestion and increase the number of PT passengers (including 10,5 km of bikes lanes) – 8,7 mil Euro ERDF funds

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- construction of a 164 underground parking facility in the city center together with the rehabilitation of the main city center pedestrian area in order to create facilities for reduce traffic congestion, traffic emissions and encourage walking instead of driving - 11, 4 mil Euro - ERDF funds

Two ongoing URBACT III projects, **FREIGHT TAILS** and **SMART IMPACT**, which are acting also in the field of developing local action plans for freight, traffic and smart measures to be implemented in Suceava city.

Starting from January 2017 Suceava Municipality is partner in INTEREG project called MOLOC _ **"Low carbon urban morphology. New urban morphologies, new governances, new challenges for cities in energy transition".** Through this new project in the next 3 years a Local Integrated Plan will be developed for Suceava City with measures regarding energy efficiency in resediential and public buildings. This new Plan will be used for future application in order to secure funding for implementation of energy efficiency projects.

Local, regional and transnational meetings will be organized (first one in September 2017) as part of MOLOC project with the Local Support Group in order to disseminate informations related to energy saving behaviour, equipments and technologies.

5.1.1.7 Q7 Which sites/districts are projected to be developed in the next five/ten years?

Future projects to be implemented:

- rehabilitation of public lighting system - replacement of the all lamps with LED ones for the entire city - reduce the energy consumption - 3,2 mill Euro - SWISS funds - 2017

- electro mobility for the city - 15 EV's and 28 charging points also 10 electric bikes in order to promote electro mobility - 2.0 mill Euro Swiss funds - 2017

- 30- 45 electric busses to replace the existing diesel ones for the PT company - ERDF funds - 2018

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- rehabilitation of the educational infrastructure (in order to reduce the energy consumption) and also 200 apartments – till 2020 using ERDF funds
- establish a photovoltaic panels grid for own municipal needs – ERDF funds till 2018
- implementation of a metropolitan area PT system with intermodal points and transfer facilities in order to reduce the traffic emissions
- new city belt for the metropolitan area in order to divert the heavy traffic from entering into the city
-rehabilitation of the main city markets (including introduction of energy saving systems, recycling facilities and mobility plans for freight
- Rehabilitation of the Town Hall building – 2018 – including measures for increase the energy efficiency
- Improvement of the separate waste collection system – 2018 – 2013
- Rehabilitation of 36 km from the local heating network system – ERDF funbding – to be implemented starting from 2019
- Replacement of the existing bulbs from all schools and high schools into the city with new LED systems – 2018 – 2019

5.2 Smart Solutions Selection

The table below specifies which smart (bundle of) measures the city of Suceava aims to implement.

SC Measure	Measure title	Follower City Suceava
Low Energy Districts		
Solution 1 – Efficient and smart climate shell refurbishment		
1.1 – Energy efficient refurbishment of the building	Energy efficient refurbishment of residential buildings – Stockholm	X
	Climate shell refurbishment – Cologne	

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	Energy quality assurance – Stockholm	
	New adaptative control and regulation techniques for heating systems – Barcelona	
	Re-build an industrial site: Ca l'Alier – Barcelona	
	Efficient and smart climate shell and equipment refurbishment – Barcelona	
	Efficient and smart climate shell refurbishment of residential buildings – Barcelona	X
	Efficient and smart climate shell and equipment refurbishment of tertiary buildings – Barcelona	
	Energy efficient swimming pools – Barcelona	
Solution 2 – Smart building logistics and alternative fuelled vehicles		
2.1 Integrated multimodal transport for construction materials	Construction consolidation centre – Stockholm	X
Solution 3 – Smart, energy saving tenants		
3.1 Active House/Home energy management system/Smart home system	Home Energy Management – Cologne	X
	The Active House – Stockholm	
	An Open Home Net – Stockholm	
	Hubgrade – Energy Saving Centre – Stockholm	
	Adaptive Temperature Control System – Stockholm	
	Home Energy Management System (HEMS) – Barcelona	X
	Virtual Energy Advisor – Barcelona	
	Dynamic Pricing Models – Barcelona (Stochastic Model of Appliances Energy Consumption)	

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Solution 4 – Local renewable energy production and integration		
4.1 Virtual power plant	Residential Estate Management – Cologne	
4.2 Smart energy and self-sufficient block	Smart Energy & Self-Sufficient Block – Barcelona	
	Building Energy Management System (BEMS) to minimize consumption of fossil fuels and electricity – Barcelona	X
Integrated infrastructures		
Solution 5 – Smart lighting, lamposts and traffic posts as hubs for comm.		
5.1 Smart streetlighting	Smart LED streetlighting – Stockholm	X
5.2 Combined electrical charging and street lighting poles + wifi	Combined electrical charging and street lighting poles + Wifi-to-grid connection – Barcelona	
	Combined electrical charging and street lighting poles + Wifi-to-grid connection – Stockholm	X
5.3 Smart meter information analysis and actuators	Smart Meter information analysis and actuators – Barcelona	
Solution 6 – New business models for district heating and cooling		
6.1 Open district heating with feed-in of waste heat	Open district heating – Stockholm	
6.2 District heating and cooling rings	District heating rings – Barcelona	
6.3 Smart local thermal districts	Smart local thermal districts – Barcelona	
Solution 7 – Smart waste collection, turning waste to energy		
7.1 Optical sorting of waste	Smart waste management – Stockholm	X
7.2 Introduction of AWCS		
7.3 Waste collection statistics for individual households/businesses		
Solution 8 Big open data platforms		
8.1 Big consolidated open data platform	Big consolidated open data platform – Stockholm	
	Big open data platform – Barcelona	

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	Urban Cockpit – Cologne	
	Urban Traffic – Cologne	
	Urban Environment Cologne	
8.2 Urban models		
8.3 Semi-automatic instance mapping		
8.4 Integration of sensor and heterogeneous data in standard data format	Integration of sensor data in a uniform in standard-driven data format – Barcelona	
8.5 Sustainable connected lighting to enhance safety and mobility		
Sustainable Urban Mobility		
Solution 9 – Sustainable delivery		
9.1 Integrated multi-mode transport for light goods	Communal service boxes for sustainable deliveries – Stockholm	
9.2 Micro-distribution of freight	Micro distribution of freight – Barcelona	
Solution 10 – Smart traffic management		
10.1 Traffic management through MFD	Smart traffic signals – Stockholm and Barcelona	X
10.3 Travel demand management		
10.4 Traffic control systems for passenger vehicles		
10.5 Traffic signals synchronized to prioritize movement of goods		
Solution 11 – Alternative fuel driven vehicles		
11.1 Developing charging infrastructure	Normal charging infrastructure for electric vehicles – Stockholm	X
	Fast charging infrastructure for electric vehicles – Stockholm and Barcelona	X
	eTankE – Cologne	
	Vehicle to X (V2X) Charging for EVs – Barcelona	
11.2 E-mobility management system		
11.3 Charging infrastructure for electric tricycles for micro-distribution		

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11.4 Refueling facilities for alternative heavy duty fuels	Alternative fuels for heavy duty vehicles – Stockholm	
11.5 Smart guiding to alternative fuel stations and fast charging		
11.6 Small distributed CNG grid	Small distributed CNG grid – Barcelona	
Solution 12 Smart mobility solutions		
12.1 Green parking index	Green parking index – Stockholm	
12.2 Electrical and cargo bike pool		
12.3 Mobility hub	Mobility Hub – Cologne	
12.4 Electrical and conventional car sharing		
12.5 Conventional/PHEV/CNG vehicle sharing fleets		
12.6 Smart taxi stand system	Smart taxi stand system – Barcelona	

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5.3 Smart City and District Replication

As Suceava city is actually a medium size one we do consider that all the city area (52 kmp) could be named as “replication district“. Nevertheless, based on the last 10 years process of transformation, we will nominate the “Centru” district as the replication one for this project. The District is identified in the following map.

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5.3.1 Smart District "Centru" Replication Profile

5.3.1.1 Q1 What are the main characteristics of the district and what is the replication potential?

The main information related the Centru district are :

- Population is about 25.000, but with the main public offices and private business located here, we can add a number of 2000- 5000 commuters per day
- The population structure here is about 37 % over 60 years, 47% 25 to 60 and 16% less than 25.
- The main public institutions buildings (from local and county level) are located in the district, together with a lot of banks, shops, central market, supermarkets, schools and high schools, restaurants, hotels
- Employment is mainly state 45 % - for public institutions and 55 % private sector
- The most important culture objectives are located here (including XV century monasteries and castle) the largest green areas are also here, the main leisure area and the only one 100% pedestrian street are here

There is a mixture of old apartments building (build in 1950 to 1980), new offices and shopping buildings (build after 1998) and a residential area with small old houses, most of them well preserved.
This specific document mentioned specific measures to be implemented in the district in order to improve the quality of life : rehabilitation of the old apartment buildings, of the lighting system, of the green areas, introduction of bikes lanes, extension of the pedestrian area, implementation of electro mobility concept, vehicle access restriction, increase the public transport accessibility.

In the past 15 years there were a lot of investments in rehabilitation of the district (streets, water and sewage network, public lighting, central heating system), traffic management and mobility efficiency.
There is still a strong demand of investments, mainly for the old apartment's buildings, for energy efficiency projects, efficient and smart climate refurbishment,

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smart waste collection, mobility management, sustainable delivery, smart lighting and alternative fuel driving vehicles.

Having in mind that this district includes the city centre there are still problems to be addressed in the field of traffic pollution reduction, delivery of goods, traffic management, smart local energy production including alternative sources of energy.

The district was included in the Local Sustainable Development Strategy in the Sustainable Energy Action Plan but also has its own Development Urban Plan created in 2013. This specific document mentioned specific measures to be implemented in the district in order to improve the quality of life:

- rehabilitation of the old apartment buildings,
- rehabilitation of the lighting system,
- rehabilitation of the green areas,
- introduction of bike lanes,
- extension of the pedestrian area,
- implementation of electro mobility concept,
- vehicle access restriction,
- increase public transport accessibility.

ERDF funding are available for the period of 2015- 2020 also local and central budget funds could contribute to district development.

In the next 5 years Suceava Municipality would like to invest in projects for:

-rehabilitation of the second part of the city castle, rehabilitation of the main green area, replacement of the existing lamppost for public lighting (with LED technology), increase energy efficiency in private and public buildings, installation of charging points and EV's, electric buses for local public transport system, alternative fuelled vehicles for goods delivery, smart mobility solution (access restriction, extension of the pedestrian area).

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5.3.1.2 Q2 Are there synergies and/or conflicts related to the Smart Solutions with the existing infrastructure, socio-economic profile and social acceptance?

Suceava Municipality is partner since September 2016 in the URBACT III project called: SMART IMPACT. This project aim is to create a local structure and group which will be able to define measures and actions regarding implementation of the SMART CITY concept in order to increase the efficiency and transparency of the local public authority activity.

Suceava municipality would like to benefit from the available existing funding opportunities – ERDF, national and regional funds (For example, central governmental funds for rehabilitation of public buildings or a possibility to access regional funds by forming an association of at least 2 municipalities for funding and implementation of common projects), private and public – in order to continue the implementation of the energy efficiency measures at local level (620 mil Eur available at the regional level for the period 2014 -2020, 85 % from the EU and 12% from the national budget):

SUMP and ISDS for the city of Suceava were designed and approved in 2017. These documents include measures, actions and indicators for future local development in the period of 2016 – 2023.
Two ongoing URBACT III projects, **FREIGHT TAILS** and **SMART IMPACT**, which are acting also in the field of developing local action plans for freight, traffic and smart measures to be implemented in Suceava city.

Starting from January 2017 Suceava Municipality is partner in INTEREG project called MOLOC –

"Low carbon urban morphology. New urban morphologies, new governances, new challenges for cities in energy transition". Through this new project in the next 3 years a Local Integrated Plan will be developed for Suceava City with measures regarding energy efficiency in residential and public buildings. This new Plan will be used for future application in order to secure funding for implementation of energy efficiency projects.

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5.3.1.3 Q3 How will local stakeholders be involved in the replication of Smart Solutions?

We do have a Local Support Group created in 2009 for the EVUE URBACT project and we do expect that the group will continue to be active and involved in Grow Smarter project also. The group has representatives from public institutions, private companies, local producers, NGO 's, university, consultancy companies, citizen's associations, schools and high schools. This group was responsible also for production of the Local Action Plans and we will invite also other potential members to join our local group (private companies mainly).

During the performing of the Sustainable Development Strategy there were meetings with citizens and district private companies. The main interest is the sustainable development of the district, the reduction of traffic pollution, increase the quality of life, reduce unemployment and create a better environment for the young generation and for future private investments in the district. We do expect to have a potential big interests from the young generation and possible few sceptical ideas and reaction from the oldest part of the inhabitants.

5.4 Smart Measures Specifications

The following solutions have been selected for replication in the city of Suceava.

Solution 1 – Efficient and smart climate shell refurbishment

1.1 Energy efficient refurbishment of the building

- Energy efficient refurbishment of residential buildings – Stockholm
- Efficient and smart climate shell and equipment refurbishment of residential buildings – Barcelona

Solution 2 – Smart building logistics and alternative fuelled vehicles

2.1 Integrated multimodal transport for constructions materials

- Construction consolidation centre – Stockholm

Solution 3 – Smart energy saving tenants

3.1 Active House/Home energy management system/ Smart home system

- Home Energy Management – Cologne
- Home Energy Management System (HEMS) – Barcelona

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Solution 4 – Local renewable energy production and integration
4.2 Smart energy and self-sufficient block
- BEMS to minimize consumption off fossil fuels and electricity – Barcelona

Solution 5 – Smart lighting, lampposts and traffic posts as hubs for communications
5.1 Smart street lighting
- Smart Led street lightening – Stockholm
- Combined electrical charging and street lightning poles

Solution 7 – Smart waste collection, turning waste to energy
Smart waste management – Stockholm

Solution 10 – Smart traffic management
10.1 Traffic management
- smart traffic signals – Stockholm and Barcelona

Solution 11 – Alternative fuel driven vehicles
11.1 Developing charging infrastructure
- Normal charging infrastructure for electric vehicles – Stockholm
- Fast charging infrastructure for electric vehicles – Stockholm and Barcelona

5.4.1 Replication of bundle of measures 1.1 – Efficient and smart climate shell refurbishment

5.4.1.1 Q1 What is the replication potential of the Smart Measure(s)?

In order to achieve national objectives on climate change by 2020, necessary measures to be adopted correspond to the **Memorandum "Approval of the final values of Romanian objectives for Europe 2020 strategy"**, signed by the Romanian Government on June 8th, 2010.

The main measures concern the following areas:

- *development of institutional capacity in the field of energy and climate change;*
- *reduction of greenhouse gas (GHG) emissions by promoting carbon capture and storage technology (CCS);*
- *increase the share of renewable energy in the final energy consumption;*
- *increase energy efficiency.*

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Romanian Energy Strategy for the period 2011 – 2020 will aim at fulfilling the main objectives of the new Energy – Environment Policy of the European Union, objectives also assumed by Romania.

The main directions of action of Romania's energy strategy, converging with the EU energy policy, are:

- choose a balanced energy mix, meant to provide the energy sector with competitiveness and security of supply with a focus on internal resources, namely coal, harness able economic hydropower potential, nuclear power potential and renewable energy sources potential;
- effectively manage and rationally use in safe condition exhaustible primary energy sources in Romania and maintain an acceptable level (in terms of economy and security) of the primary energy sources import (limited / controlled dependency);
- increase energy efficiency on the entire chain: extraction – production – transport – distribution – consumption; Romania no longer affords to waste energy while the sources of energy have a reduced availability and increased cost; energy efficiency is the most cost-effective way to reduce emissions, improve safety and lower competitiveness and energy service bill;
- promote energy production from renewable sources, so that the share of electricity produced from these sources in total gross electricity consumption would be 33% in 2010, 35% in 2015 and 38% in 2020;
- promote the use of renewable energy sources in accordance with EU practices, based on the National Allocation Plan in terms of renewable energy drawn up in 2010;
- create market conditions meant to stimulate greater energy savings and increased investment in low carbon technologies;
- facilitate investment in those projects that contribute to achieving the objectives set for 2020 according to EU policy;
- achieve objectives of environmental protection and reduce emissions of greenhouse gases.
- support research, development and dissemination of research results applicable in the field of energy.

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There is a strong political support at local level for implementation of measures concerning energy efficiency. Also the citizen's level of awareness regarding the positive impact of the energy efficiency measures is quite high and it is expected to increase in the next period of 5 to 15 years, so the people's support to measures like the one in the project is it expected to be at a medium to high level.In the past 10 years our experience of working with local stakeholders shows that there is a significant support for investments that could contribute to reduce the environmental impact of human activities.

The local development strategies, regional, national and European policies encourage and support local authorities in the implementation process for energy efficiency measures. The environmental impact of almost all actions undertaken by our local public authority is quantifiable and also taking into consideration not only because of"fashionable behavior"reasons but for the fact that immediate and adequate actions are needed in the process of improving the quality of life into the city.
There is a huge need for actions regarding energy efficiency in public and private buildings at local level , as the majority of these were built in 1960 – 1980, and the quantity of the non recoverable energy is quite high and the energy consumption is also at a very high level.

Feasibility studies for energy efficiency in public buildings (Town Hall and schools), private buildings (apartments blocks) are under designing phase and are expected to be finalized in the second half of 2017. There are close to 200 apartments and 1400 mp of public buildings which will be rehabilitated.
The technical documentation and application dossier will be send to the MA for ERDF programme 2014– 2020 as calls for projects are opened already and this kind of actions are eligible for local municipalities. If application will be successful, the grant contract will be signed in the first half of 2018 and works are to be completed till end of 2020.

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5.4.1.2 Q2 What is the business case and do financing opportunities already exist?

In the past 5 years in Suceava there were construction works for rehabilitation of 380 apartments (structure, heating system) in order to reduce the waste of energy and to improve energy efficiency using 0,864 million Euro – (central government not reimbursable funds).

For the moment we are working for the technical documentation necessarily for ERDF funding for rehabilitation the educational infrastructure (in order to reduce the energy consumption and improve energy efficiency – heat recovery and green energy production) and also for 200 apartments – using ERDF funds. It is expected that till 2020 these projects will be implemented.

The central market will be rehabilitated: Introduction of utility systems (especially lighting and heating) using alternative, renewable power sources. The rehabilitation process already started with construction works for the structure (walls and main roof).

- Currently our municipality has already finished several technical documentation (strategies, feasibility studies) for the implementation of the proposed measures. For almost all of them implementation request a technical execution project and these documents are not available yet.
- For the measures like: EV's, charging points, rehabilitation of the public lighting system, extension of the pedestrian"zero emission area", rehabilitation of the streets infrastructure and of the main central market we do have already secured the grant contracts, the technical documentations are available and in the second part of 2015 we will expect to sign the agreement for construction works.
- For other measures like: introduction of electric busses, establish of solar panels, rehabilitation of the municipal buildings and apartments buildings our municipality intention is to apply for ERDF funding.
- In this case we do expect that, soon after the application calls will be open – july 2015, we will start the process of preparation the technical documentation, we will prepare the requested documents and will apply for ERDF funding in 2016.
- Usually, if successful, the evaluation period is 6 –9 months, so 2017 could be the starting point for projects implementation.

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- Even we mentioned the ERDF funds as the main source for financing our local proposed measures there need to be also a substantial (up to 15 %) contribution from local budget and we do expect to have access also on central budget for the next 5 – 10 years.
- Regarding technological barriers, as concepts like electric vehicles, charging points, solar panels are quite new and less developed at local and national level, we do expect to have few problems during the implementation phase. In the same time we do count on our previous experience from other European projects that created the premises for transfer of best practice and knowledge from more advanced city partners around Europe.
- We do expect that the implementation of the smart measures (especially electric vehicles, charging points, alternative energy production and waste recycling) will determine a development of local and national market for the companies that are dealing with these innovative and new technologies. Also we do expect that these new technologies will determine the development of the local jobs market with benefits not only at local but also on regional and national level.

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The most relevant programme with potential association to the Smart solution is the Operational Programme directed at"Increase of Economic Competitiveness" incorporating:

- Priority 4 –"Increase of energy efficiency and sustainable development of the energy system"
- Priority Axis 3.1 :"Supporting energy efficiency, smart energy management and renewable energy used in public infrastructures, including public buildings and housing sectors"
- Priority Axis 4.2 : Capitalisation of Renewable Energy Resources

5.4.1.3 Q3 What are the main challenges and barriers related to the measure(s)?

The governmental financing authority established a strict set of rules and procedures for the awarding of the non-reimbursable funds. These rules, which include several specific actions to be undertaken, including several compulsory

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activities and interventions, which significantly increase the rehabilitation costs of the buildings in general the costs for rehabilitation of the buildings is quite high.

ERDF rules impose that the private owners (private individuals or association of residents) need to have their own contribution to the total costs, up to 15 %. There are situations when implementation of the project is blocked due to the fact that owners are unable/unwilling to provide the necessary co-financing.

According to ERDF regulations the local authority needs to co finance 25 % of the total costs and in this case decision regarding prioritize of the projects and time schedule depend on the cash flow and funds available from the local budget.

As the procurement procedures are quite difficult and time consuming, complains are very often present during development of the tender procedures, the road from the grant contract and start of the construction works could be a long one and this could conduct to delays in the implementation of the project.

5.4.1.4 Q4 How does the Smart Solution integrate with the existing and future infrastructure?

The smart proposed solution will be integrated with already existing implemented measures for increase energy efficiency for apartments buildings (reduce energy consumption, central heating using biomass for heat and energy production), rehabilitation of the central market and other public buildings, production of the energy from the renewable sources, rehabilitation of the heating network system.

5.4.1.5 Q5 What user / stakeholder involvement is foreseen?

We do have a Local Support Group created in 2009 for the EVUE URBACT project and we do expect that the group will continue to be active and involved in Grow Smarter project also. The group has representatives from public institutions, private companies, local producers, NGO 's, university, consultancy companies, citizens associations, schools and high schools. This group was responsible also for production of the Local Action Plans and we will invite also other potential members to join our local group (private companies mainly).

- During the performing of the Sustainable Development Strategy there were meetings with citizens and district private companies.
- The main interest is the sustainable development of the district, the reduction of traffic pollution, increase the quality of life, reduce unemployment and create a

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better environment for the young generation and for future private investments in the district.

- We do expect to have a potential big interests from the young generation and possible few skeptical ideas and reaction from the oldest part of the inhabitants.

5.4.1.6 Q6 What is the potential implementation timeframe?

2017 – 2023

5.4.1.7 Q7 What do you need to know for the successful deployment of the Smart Measure(s) beyond the GrowSmarter factsheets?

Our main purpose is to find out more information, best practice example or any suggestions from the leading cities, about:

- How is it working the process of getting the political approval for a new investment with some innovative technologies like the smart measures?
- Any already successful"recipes "for implementation of a smart measure would be very useful for a city like Suceava which already expressed the wiliness of becoming a smart city
- We do expect to be able to learn more about the introduction of measures that conduct to improve energy efficiency and for this reason we would like to transfer the best practice and experience from the city of Barcelona, not only for the rehabilitation of the residential and municipal buildings but also in being able to develop facilities at local level for"technological parks"for companies which will invest in new green technologies in order to develop the local market and to create new jobs
- One of our smart measures is in connection with the lighthouse cities measures like Home Energy Management Systems that will be installed in a pilot residential and municipal building, visualizing and manage energy consumption.
- City of Stockholm and the measures to be implemented in this project is a very reliable example of a"state of the art"example for mobility management and actions to avoid traffic congestion and to reduce traffic emissions. Our goal in this project is to transfer the best practice from Stockholm mainly in

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connection with the cycling facilities and traffic management and before these in connection with alternative solution for public transport (biogas or electric busses) in order to increase the number of passengers, reduce the car dependency, avoid traffic congestion and change people's behavior regarding mobility habits

- The aim of Suceava city measures is to replicate the lighthouse city experience (Stockholm in this case) in order to substitute the car in other trips, that are less regular and more individual.
- Our goal is to offer different and alternative solutions completing the existing public transport network like bike pools, e-bikes, EV-pools.

We consider that a successful preparation of the follower cities for replication of the smart measures involved meetings with both representatives from the public sector (procurement, technical, economic and design also) and with representatives from the private sector (consultancies, constructors, car dealers, retailers, providers for technologies and equipment).

Beside of these we consider that future links between local private sector and the same one from the lighthouse cities could contribute to development of local and European market but in the same time could facilitate the implementation and transfer of smart measures to the follower cities.

Of course that the site visits to a power plans or a recently refurbished neighborhood could be useful for us but in the same time we do consider that there is a strong demand in a cooperation between follower cities which can benefit each other and also provide necessarily technical support during the replication of smart measures process.

5.4.2 Smart solution: Efficient and smart climate shell refurbishment

5.4.2.1 Q1 What is the replication potential of the Smart Measure(s)?

In the past 5 years in Suceava there were construction works for rehabilitation of 380 apartments (structure, heating system) in order to reduce the waste of energy and to improve energy efficiency using 0,864 million Euro – (central government not reimbursable funds).

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The central market will be rehabilitated: Introduction of utility systems (especially lighting and heating) using alternative, renewable power sources. The rehabilitation process already started with construction works for the structure (walls and main roof).

- Currently our municipality has already finished several technical documentations (strategies, feasibility studies) for the implementation of the proposed measures. For almost all of them implementation request a technical execution project and these documents are not available yet.
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- In this case we do expect that, soon after the application calls will be open – july 2015, we will start the process of preparation the technical documentation, we will prepare the requested documents and will apply for ERDF funding in 2016.
- Usually, if successful, the evaluation period is 6 –9 months, so 2017 could be the starting point for projects implementation.
- Even we mentioned the ERDF funds as the main source for financing our local proposed measures there need to be also a substantial (up to 15 %) contribution from local budget and we do expect to have access also on central budget for the next 5 – 10 years.
- Regarding technological barriers, as concepts like electric vehicles, charging points, solar panels are quite new and less developed at local and national

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level, we do expect to have few problems during the implementation phase. In the same time we do count on our previous experience from other European projects that created the premises for transfer of best practice and knowledge from more advanced city partners around Europe.

- We do expect that the implementation of the smart measures (especially electric vehicles, charging points, alternative energy production and waste recycling) will determine a development of local and national market for the companies that are dealing with these innovative and new technologies. Also we do expect that these new technologies will determine the development of the local jobs market with benefits not only at local but also on regional and national level.

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The most relevant programme with potential association to the Smart solution is the Operational Programme directed at"Increase of Economic Competitiveness" incorporating:

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- Priority Axis 3.1 :"Supporting energy efficiency, smart energy management and renewable energy used in public infrastructures, including public buildings and housing sectors"
- Priority Axis 4.2 : Capitalisation of Renewable Energy Resources

5.4.2.2 Q3 What are the main challenges and barriers related to the measure(s)?

The governmental financing authority established a strict set of rules and procedures for the awarding of the non-reimbursable funds. These rules, which include several specific actions to be undertaken, including several compulsory activities and interventions, which significantly increase the rehabilitation costs of the buildings in general the costs for rehabilitation of the buildings is quite high.

ERDF rules impose that the private owners (private individuals or association of residents) need to to have their own contribution to the total costs, up to 15 %.

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There are situations when implementation of the project is blocked due to the fact that owners are unable/unwilling to provide the necessary co-financing.

According to ERDF regulations the local authority needs to co finance 25 % of the total costs and in this case decision regarding prioritize of the projects and time schedule depend on the cash flow and funds available from the local budget.

As the procurement procedures are quite difficult and time consuming, complains are very often present during development of the tender procedures, the road from the grant contract and start of the construction works could be a long one and this could conduct to delays in the implementation of the project.

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The smart proposed solution will be integrated with already existing implemented measures for increase energy efficiency for apartments buildings (reduce energy consumption, central heating using biomass for heat and energy production), rehabilitation of the central market and other public buildings, production of the energy from the renewable sources, rehabilitation of the heating network system.

5.4.2.4 Q5 What user / stakeholder involvement is foreseen?

We do have a Local Support Group created in 2009 for the EVUE URBACT project and we do expect that the group will continue to be active and involved in Grow Smarter project also. The group has representatives from public institutions, private companies, local producers, NGO 's, university, consultancy companies, citizens associations, schools and high schools. This group was responsible also for production of the Local Action Plans and we will invite also other potential members to join our local group (private companies mainly).

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5.4.2.5 Q6 What is the potential implementation timeframe?

2017 – 2023

5.4.3 Replication of bundle of measures 2.1 – Integrated multimodal transport for constructions materials

5.4.3.1 Q1 What is the replication potential of the Smart Measure(s)?

Smart solution included in the new SUMP elaborated for the city of Suceava. Overall, there is a very good replication potential for replicating Smart Solution 2.1, as outlined here.

During the last 15 years a number of important changes have been made at the local level in terms of the aspect and spatial development of the inner city commercial area. The redefinition of the central market square (underground parking) with pedestrian priority in the Marasti and part of the Enescu streets has had the most impact on city life and traffic calming. In parallel however the fact that services, the construction sector and general goods delivery activities have significantly increased over the last decade means that the number of vehicles entering and transiting the city also continues to increase (especially vehicles involved in goods delivery). Traffic congestion and level of air pollution is a major concern for local authorities.

In this situation the Municipality continues its aim of supporting local growth and (economic) local development but to achieve this through a sustainable approach to servicing and distribution. Freight TAILS is regarded as an opportunity to initiate and deliver appropriate local actions, measures and regulation for freight delivery (timing, routes, access, speed, weight, restrictions).

In order to achieve this, it is recognised that a number of challenges will be encountered and that understanding and capacity will require to be developed across the whole (public/private) governance spectrum. This includes focussed consideration of the following aspects in the case of Suceava:

- Increasing local stakeholder confidence in sustainable freight system implementation in the city

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- Increasing local stakeholder awareness and knowledge about the impact of conventional freight and other traffic in terms of the environmental consequences and effect on people's daily life, public health etc.
- Introduction of a delivery consolidation system for Suceava city
- Planning innovative measures to reduce the overall demand of road trips, to make freight movements sustainable and efficient, optimising support for local business development, but at the same time making delivery processes cleaner, safer and much more friendly for city life
- Creation of a local stakeholders' network and a commitment platform, regarding all future measures meant to initiate freight delivery implementation
- Awareness raising of applicable green energy sources, energy efficiency and alternative and sustainable modes of transportation (including freight)
- Introduction of local regulation for freight delivery (time schedule, routes, weight, access, speed)
- Implementation of specific actions for local sustainable mobility

The work already carried out in the EVUE project to plan for introduction (public transport) and encouragement of e-mobility has inspired the Municipality to extend this stimulation to the urban freight transport sector. However the development phase of the Freight TAILS project already provided some important insight into the problematic of establishing an integrated and sustainable regime for city logistics. In terms of generating support, raising awareness and engaging with operators and clients as well as designing a package of mutually reinforcing measures the conclusion is that the most useful type of Integrated Action Plan for Suceava at this stage would be development of a strategic policy document to look at the challenge in a holistic way. In this optic the option is to use the operational phase to elaborate a Sustainability Urban Logistics Plan engaging with private actors to reach joint agreement on project objectives outputs and results. Pursuit of electric or alternative fuelled last mile logistics can still form an important part of this policy orientation and can even be subject of pilot activity.

Integrated Action Plan for freight distribution will be finalized till March 2018 with actions for local level – including Consolidation Centre – designed together with the stakeholders which are part of the URBACT Local Group and the areas of

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intervention will be linked to the commercial areas of the city (supermarkets, open markets, pedestrian zone).

5.4.3.2 Q2 What is the business case and do financing opportunities already exist?

In 2013 Suceava Local Council approved a Sustainable Energy Action Plan (SEAP) regarding energy efficiency, implementation of projects regarding increase of alternative energy usage at local level and implementation of the electro mobility concept. The main objective of SEAP is to reduce the greenhouse gas emissions by at least 20% by 2020 and to promote the investments carried out within Suceava Municipality which can lead to an efficient use of energy by improving the existing energy performance or the development of constructions, installations, transport, equipment and technologies enjoying high energy efficiency, including feasible renewable energy sources.

SEAP is the methodology according to which Suceava Municipality will reach its objectives by 2020, using the results of BEI (Baseline Emission Inventory) in view of identifying the best fields of action and the best existing opportunities in order to meet the local objective of reducing CO_2 emissions.
SEAP concerns measures within the competence and reach of local authorities. Therefore, local authority is expected to play an exemplary role and consequently to take outstanding measures related to the local authority's own buildings and facilities, public and private fleets, producing energy from renewable sources, urban sustainable mobility etc.

According to the Sustainable Energy Action Plan, Sustainable Urban Mobility Plan and Local Development Strategy in the next 20 years the municipality will have to focuses on the following fields:

- Transport (municipal fleet, public, private and commercial fleets – including freight);
- Urban planning (strategic urban planning, sustainable mobility urban planning, development of local regulations to support sustainable mobility);
- Procurement (local energy-efficiency regulations, local regulations on the utilization of renewable energy sources);
- Electric vehicles (private and public) and electric busses for public transport

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In the past 5 years a number of studies and strategies were approved at local level: Urban Integrated Development Plan – 2010, Urban Sustainable Mobility Plan – 2014 , Sustainable Energy Action Plan – 2012, Local Action Plan (electro mobility) – 2012 in order to implement a sustainable development of the city, reduce traffic congestion and air pollution.

As it is demonstrated by the city of Barcelona, urban freight consolidation centres can be operated on a fully commercial basis. The same way, Suceava's SUMP which was finalized in 2017, includes, among other measures regarding improvement of traffic management into the city, the smart solution which consist in building of a Consolidation Centre, which will be operate by a private company.This Centre will act as a transfer station for all goods which need to be distributed into the city of Suceava and will be linked with a set of new local regulation regarding freight delivery (time schedule, routes, weight) with the general objective of the reduction of the traffic volume and traffic emissions in the city of Suceava.

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The most relevant programme with potential association to the Smart solution is the Operational Programme directed at "Increase of Economic Competitiveness" incorporating:

- Priority 4 –"Increase of energy efficiency and sustainable development of the energy system"
- Priority Axis 4.1 : Promotion of Local Sustainable Mobility Plans and Strategies for Reduction of CO^2 Emissions
- Priority Axis 4.2 : Capitalisation of Renewable Energy Resources
- Priority Axis 3.1 :"Supporting energy efficiency, smart energy management and renewable energy used in public infrastructures, including public buildings and housing sectors"

5.4.3.3 Q3 What are the main challenges and barriers related to the measure(s)?

– Procurement procedure for the local operator/operators of the consolidation centre it is expected to be long and difficult

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- We do expect to have some opposition from the local and national freight delivery companies, the shop owners and other business which could be potentially affected by the new local regulation regarding freight delivery and consolidation centre

- New sets of local transport and delivery regulations (weight, time schedule, routes, access) need to be approved by the local council and implemented at local level

- There could be potential delays in project implementation as the construction of the consolidation centre could be eider 100 % financed from the local budget or through PPP, because there are no ERDF funds available for this smart solution

5.4.3.4 Q4 How does the Smart Solution integrate with the existing and future infrastructure?

Building Energy Management Systems to minimize consumption of fossil fuels and electricity

5.4.3.5 Q5 What user / stakeholder involvement is foreseen?

In the various policy documents already produced by the city and shaping city management, planning and concrete intervention some fundamental key objectives can be identified as a reference base for action, namely:

- To reduce the overall demand of road delivery trips but also make the freight movement sustainable, efficient, safer and cleaner
- To reduce the traffic congestion and accompanying air pollution
- To implement a delivery consolidation system at local level
- To implement a local regulation for goods delivery

The Municipality would like to build a Consolidation Centre with 2 or 3 alternative possible locations in order to reduce the traffic congestion and the number of freight vehicles entries into the city centre, residential areas and commercial areas.
Members of the Freight TAILS Local Group will represent the following stakeholder groups/organisations building on the"Local Stakeholder Group" established to follow the EVUE and EVUE II URBACT projects, which is still active in supporting formulation of mobility policy and action in Suceava:

- Public transport (operators and associations of operators)
- Public institutions (Department of Environmental Protection, County Administration, local traffic police)
- Local media (newspaper, local radio)

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- Private Sector including car dealers and companies that have activities related to freight distribution, logistics operators
- Non-governmental Organizations (researchers, environment protection activists, human resources development)
- Education centres (high-schools, university of electric engineering and public administration, organization of students)
- Local decision makers (Suceava Local Council, leading staff of Suceava Town Hall)
- Retailers and shopping centre management

We do expect to have some less supportive stakeholders groups which are connected with local and regional freight and distribution companies, as some of the new regulation regarding freight and Consolidation Centre could determine significant changes and impacts over their business.

5.4.3.6 Q6 What is the potential implementation timeframe?

2020 – 2023

5.4.4 Replication of measure 3.1 – Home energy management systems

5.4.4.1 Q1 What is the replication potential of the Smart Measure(s)?

In order to achieve national objectives on climate change by 2020, necessary measures to be adopted correspond to the Memorandum "Approval of the final values of Romanian objectives for Europe 2020 strategy", signed by the Romanian Government on June 8th, 2010.

The main measures concern the following areas:

- *development of institutional capacity in the field of energy and climate change;*
- *reduction of greenhouse gas (GHG) emissions by promoting carbon capture and storage technology (CCS);*
- *increase the share of renewable energy in the final energy consumption;*
- *increase energy efficiency.*

Romanian Energy Strategy for the period 2011 – 2020 will aim at fulfilling the main objectives of the new Energy – Environment Policy of the European Union, objectives also assumed by Romania.

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The main directions of action of Romania's energy strategy, converging with the EU energy policy, are:

- choose a balanced energy mix, meant to provide the energy sector with competitiveness and security of supply with a focus on internal resources, namely coal, harness able economic hydropower potential, nuclear power potential and renewable energy sources potential;
- effectively manage and rationally use in safe condition exhaustible primary energy sources in Romania and maintain an acceptable level (in terms of economy and security) of the primary energy sources import (limited / controlled dependency);
- increase energy efficiency on the entire chain: extraction – production – transport – distribution – consumption; Romania no longer affords to waste energy while the sources of energy have a reduced availability and increased cost; energy efficiency is the most cost-effective way to reduce emissions, improve safety and lower competitiveness and energy service bill;
- promote energy production from renewable sources, so that the share of electricity produced from these sources in total gross electricity consumption would be 33% in 2010, 35% in 2015 and 38% in 2020;
- promote the use of renewable energy sources in accordance with EU practices, based on the National Allocation Plan in terms of renewable energy drawn up in 2010;
- create market conditions meant to stimulate greater energy savings and increased investment in low carbon technologies;
- facilitate investment in those projects that contribute to achieving the objectives set for 2020 according to EU policy;
- achieve objectives of environmental protection and reduce emissions of greenhouse gases.
- support research, development and dissemination of research results applicable in the field of energy.

There is a strong political support at local level for implementation of measures concerning energy efficiency. Also the citizen's level of awareness regarding the positive impact of the energy efficiency measures is quite high and it is expected to increase in the next period of 5 to 15 years, so the people's support to measures

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like the one in the project is it expected to be at a medium to high level.In the past 10 years our experience of working with local stakeholders shows that there is a significant support for investments that could contribute to reduce the environmental impact of human activities.

The local development strategies, regional, national and European policies encourage and support local authorities in the implementation process for energy efficiency measures. The environmental impact of almost all actions undertaken by our local public authority is quantifiable and also taking into consideration not only because of ”fashionable behavior”reasons but for the fact that immediate and adequate actions are needed in the process of improving the quality of life into the city.

There is a huge need for actions regarding energy efficiency in public and private buildings at local level , as the majority of these were built in 1960 – 1980, and the quantity of the non-recoverable energy is quite high and the energy consumption is also at a very high level.

Feasibility Studies are designed for rehabilitation of private and public buildings and the measured proposed to be implemented include also installation of HEMS. Also for the new public buildings which will be constructed at local level HEMS are compulsory to be considered, designed and installed.

The project for replacement of the existing bulbs with LED systems into the schools and high schools from Suceava city, which is funded through Swiss Romanian Cooperation program and will be implemented since the second half of 2017, does include also HEMS.

Suceava Municipality will implement in the next 3 years a regional project concerning energy efficiency in residential and public buildings. Within this projects there will be meetings with local and regional stakeholders and much more important, local public authority will developed several dissemination campaigns regarding the impact of HEMS among the energy consumption, energy efficiency and the quality of life.

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There are national regulation which established that implementation of the measures regarding increase of energy efficiency in particular for public and residential buildings are compulsory.

5.4.4.2 Q2 What is the business case and do financing opportunities already exist?

Smart, energy saving tenants through information

In the next 4 years Suceava Municipality is planning to develop pilot Home Energy Management Systems for public buildings (schools, cultural centers, apartments buildings) in order to promote among public servants, children and citizens "smart energy behavior" that is expected to conduct to reduction of energy consumption, friendly attitude to environment and also test the citizens availability to implement future measures concerning energy efficiency improvement.

"Green education" of peoples and especially young people by means of promotion, public information campaigns, invention projects and by setting up a class curricula within school programs for professional trainings

Similar actions described for measure 1.1 need to be fulfilled in order to complete the implementation of the activities related to this smart solution.

ERDF funding opportunities are open and available for local authorities till the end of 2021 for implementation of activities connected with this smart solution and also national governmental funding schemes are available.

The most relevant programme with potential association to the Smart solution is the Operational Programme directed at"Increase of Economic Competitiveness" incorporating:

- Priority 4 –"Increase of energy efficiency and sustainable development of the energy system"
- Priority Axis 3.1 :"Supporting energy efficiency, smart energy management and renewable energy used in public infrastructures, including public buildings and housing sectors"

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5.4.4.3 Q3 What are the main challenges and barriers related to the measure(s)?

As the financing authority established a strict set of rules and procedures for the awarding of the non reimbursable funds, rules which include several specific actions to be undertaken, several compulsory activities and intervention in general the costs for rehabilitation of the buildings is quite high.

ERDF rules impose that the private owners (individual or association of residents) need to have their own contribution to the total costs, up to 15 % , there are situation when implementation of the project is blocked due to the fact that some of the already mentioned rules are not fulfilled or agreed by the owners.

Home Energy Management Systems are quite a new and not very well developed at national and local level. The market exist but still not well developed and the costs for procurement and installation of this equipments is still high and the majority of the population could not afford it.

According to ERDF regulations the local authority needs to co finance 25 % of the total costs and in this case decision regarding prioritize of the projects and time schedule depend on the cash flow and funds available from the local budget.

As the procurement procedures are quite difficult and time consuming, complains are very often present during development of the tender procedures, the road from the grant contract and start of the construction works could be a long one and this could conduct to delays in the implementation of the project.

5.4.4.4 Q4 How does the Smart Solution integrate with the existing and future infrastructure?

The smart proposed solution will be integrated with already existing implemented measures for increase energy efficiency for apartments buildings (reduce energy consumption, central heating using biomass for heat and energy production), rehabilitation of the central market and other public buildings, production of the energy from the renewable sources(as solar panels and waste disposal), rehabilitation of the heating network system.

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5.4.4.5 Q5 What user / stakeholder involvement is foreseen?

- increase of energy efficiency, reduction of CO2 emissions, reduce the energy costs, improve the quality of life, change in people behavior regarding energy and environment, reduce the costs from the local budget for heating and lighting of the public buildings

- we do expect to be able to learn more about the introduction of measures that conduct to improve energy efficiency and for this reason we would like to transfer the best practice and experience from the city of Barcelona, not only for the rehabilitation of the residential and municipal buildings but also in being able to develop facilities at local level for "technological parks"for companies which will invest in new green technologies in order to develop the local market and to create new jobs.

- even the benefits both for environment, quality of life and own budget is easy understandable and accepted by the majority of the residents and decision makers, the fact related to the significant, still, cost of the HEMS could determine delays in implementation and less supportive groups.

- Local companies dealing with energy production and distribution, EPA, NGO's, consultants, constructions companies, manufacturers , local university (mainly for technology and energy).

5.4.4.6 Q6 What is the potential implementation timeframe?

2018 – 2023

5.4.5 Replication of bundle of measures 4.2 – Smart energy and self-sufficient block

5.4.5.1 Q1 What is the replication potential of the Smart Measure(s)?

As it is outlined below, there is a very good replication potential of these measures, due to the high national and local political commitment to increase the use of renewable energy sources. The production of energy from alternative sources is encouraged and financially supported by the central government, as Romania has to

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reach the reduction of CO2 emission with 20 % till 2020 according to the European agreements already signed.

The strategy for renewable energy sources valorisation approved by the Government Decision no. 1535/2003 has transposed into Romanian legislation the Directive 2001/77/EC. Therefore, valorisation of renewable energy sources is thus a major policy objective of the European Union, and thus Romania enrolled in the context of gradually renouncing to the use of conventional fuels and obtaining energy independence from foreign sources of energy.

Romania has a great potential of renewable energy sources due to its geographic location, as follows:

- solar energy – the exploitable potential of producing electricity by photovoltaic systems is about 1.200 GWh / year; the Southern Plain and Dobrogea are representative areas in this sense;
- wind energy – the wind energy potential is high in the Black Sea coast, highlands of Moldova and Dobrogea and mountain areas. In these areas, wind turbines can be installed with a total power of 14.000 MW;
- biomass – biomass energy potential is high across the country, estimated at about 7.594 thousand toe / year, which represents almost 19% of total primary energy consumption in 2000. About 54% of the heat produced from biomass is obtained from burning forest residues;
- geothermal energy – now about 70 pumps for hot water (with temperature above 60˚C) in different geographical areas. Geothermal reserve with current mining possibilities in Romania is around 167 thousand toe; West Plane and South Plane are representative areas in this sense.

National Renewable Energy Action Plans (NREAP) 2010 and promotion programmes

National Renewable Energy Action Plans (NREAP) 2010 contain the general objectives of the renewable energy source valorisation strategy, as follows:

- integrate renewable energy in the national energy system structure
- reduce technical, functional and psychosocial barriers in the use of renewable energy and, at the same time, identify cost and economic efficiency elements

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- promote private investments and create conditions to facilitate access of foreign capital on renewable energy markets
- ensure independence of the national economy energy consumption
- ensuring, where necessary, energy supply for isolated communities by valorising local renewable energy potential
- create conditions for Romania's participation on the European market of"green certificates" for renewable energy.

There is a strong political support at local level for implementation of measures concerning energy efficiency. Also the citizen's level of awareness regarding the positive impact of the energy efficiency measures is quite high and it is expected to increase in the next period of 5 to 15 years, so the people's support to measures like the one in the project is it expected to be at a medium to high level. In the past 10 years our experience of working with local stakeholders shows that there is a significant support for investments that could contribute to reduce the environmental impact of human activities.

The local development strategies, regional, national and European policies encourage and support local authorities in the implementation process for energy efficiency measures. The environmental impact of almost all actions undertaken by our local public authority is quantifiable and also taking into consideration not only because of"fashionable behavior"reasons but for the fact that immediate and adequate actions are needed in the process of improving the quality of life into the city.

Production of energy from alternative sources is encouraged and financial sustained by the central government as Romania has to rich the reduction of CO2 emission with 20 % till 2020 according to the European agreements already signed.

As an example for a concrete measure, a feasibility study for the construction of a photovoltaic park in the city – with solar panels and special grid – will be conducted in the next 2 years. ERDF requirements for secure funding need to be followed in the next 4 years in order to start the project implementation.

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5.4.5.2 Q2 What is the business case and do financing opportunities already exist?

Smart solution: Smart local electricity production and integration with buildings and grid

Local strategies and development plans include measures to increasing the local dependency on renewable electricity. Main funders include the Romanian Government, Swiss Government, ERDF and ESF. In the next few years the following actions will be implemented from these funds:

- establish a photovoltaic panels grid for own municipal needs – ERDF funds till 2021

- photovoltaic panels will be installed in 2017 in order to provide the amount of energy necessarily for the charging station for the electric bikes (**co-financed (80%) by the** Government of Switzerland through the Swiss-Romanian Cooperation Programme)

- alternative sources of energy for heating and lighting of the public local markets (food and local products mainly) like : mounting of systems providing the lighting and heating demand for three markets in Suceava, implementing the heating system to heat the halls in the Commercial Complex Bazaar – water-water system (geo-thermal power), mounting of inside heating systems and appropriate thermal insulation, mounting of photovoltaic panels in the three markets in Suceava, information of traders and citizens on the alternative solutions to provide the thermal power, introduction of equipment providing the optimization and reduction of power consumption (light sensors, heat distributors, etc.), implementation of systems providing the rain water and domestic water recycling and reuse in an integrated mechanisms for cost efficiency, consumption reduction and protection of natural resources.

- photovoltaic panels will be installed till 2020 in order to provide the amount of energy necessarily for the public lighting into the parks and green areas from the city of Suceava (**co-financed (80 %) by the** Government of Switzerland through the Swiss-Romanian Cooperation Programme)

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- rehabilitation of the Bazaar Commercial Centre (own by Suceava Municipality) – the main commercial building will be rehabilitated in order to increase the usage of daily lights, to reduce the waste of energy and also geothermal underground pumps will be introduced in order to provide the necessarily amount of heating by using alternative sources of energy. (**co-financed (80 %) by the** Government of Switzerland through the Swiss-Romanian Cooperation Programme) – 2022

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The most relevant programme with potential association to the Smart solution is the Operational Programme directed at"Increase of Economic Competitiveness" incorporating:

- Priority 4 –"Increase of energy efficiency and sustainable development of the energy system"
- Priority Axis 4.2 : Capitalisation of Renewable Energy Resources
- Priority Axis 3.1 :"Supporting energy efficiency, smart energy management and renewable energy used in public infrastructures, including public buildings and housing sectors"

There are Feasibility Studies performed for the Smart solution mentioned above but some of these technical documentations need to be updated and prepared for existing funding opportunities.

5.4.5.3 Q3 What are the main challenges and barriers related to the measure(s)?

According to ERDF regulations the local authority needs to co finance 25% of the total costs and in this case decision regarding prioritize of the projects and time schedule depend on the cash flow and funds available from the local budget.

Photovoltaic systems are quite a new and not very well developed at national and local level. The market exist but still not well developed and the costs for procurement and installation of this equipments is still high and the majority of the population and public authorities could not afford it.

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As the procurement procedures are quite difficult and time consuming, complains are very often present during development of the tender procedures, the road from the grant contract and start of the construction works could be a long one and this could conduct to delays in the implementation of the project.

5.4.5.4 Q4 How does the Smart Solution integrate with the existing and future infrastructure?

The smart proposed solution will be integrated with already existing implemented measures for increase energy efficiency for apartments buildings (reduce energy consumption, central heating using biomass for heat and energy production), rehabilitation of the central market and other public buildings, production of the energy from the renewable sources(as solar panels and waste disposal), rehabilitation of the heating network system.

5.4.5.5 Q5 What user / stakeholder involvement is foreseen?

- We do expect to have a wide range of support from the local stakeholders for introduction of these smart solutions as these measures objective are connected to reduction of energy consumption and improving the quality of life into the city

- Topics include: reduction of energy consumption and CO2 emissions , increase the usage of alternative energy, development of a local market for alternative energy solution and equipments, reduce the costs for public lighting for the local budget, development of the local job market

5.4.5.6 Q6 What is the potential implementation timeframe?

2017 – 2020

5.4.6 Replication of bundle of measures 5.1 and 5.2 2 – Smart street lighting and combined electrical charging

5.4.6.1 Q1 What is the replication potential of the Smart Measure(s)?

Replication is already in progress in Suceava, both with regards to LED lighting as well as with creating an infrastructure for e-mobility. The modernization of the public lighting infrastructure in Suceava municipality is the project which is under implementation phase at the moment.

Suceava Municipality also plans to continue the development of the vehicle charging infrastructure in the following years and one of the Smart solution which was taken

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into consideration is: combined electrical charging and street lighting poles. We need to perform a Feasibility Study, to evaluate the financial impact, to design the technical documentation and to find the appropriate source of financing the project implementation.

The following section summarises the current situation, first about smart lighting, then about e-mobility.

Indicators for the realization of the general objective:

- Power consumption related to the municipal public lighting reduced by at least 1,814 MWh/year (strictly referred to the replacement of the lighting units[1])
- CO2 emissions related to the municipal public lighting reduced by at least 1,271 t/year (strictly referred to the replacement of the lighting units)
- The number of projects in the energetic field in Suceava municipality increased by at least 1 until 2017

Specific objective The modernization of public lighting on the entire areal of Suceava municipality[2] in view of obtaining power savings as a response to the policy of climatic changes, including the increase of citizens' safety and comfort

Indicators for the realization of the specific objective:

- The number of lighting units with LED technology newly introduced in the municipal lighting system increased with 4.300 until the end of the project implementation
- The number of telemanagement systems of lighting units implemented in the municipal lighting system increased by 1 at the end of the project implementation
- A reduction of at least 10% of the crimes committed during the night as a result of the project implementation

The project „Electro-mobility – electric vehicles for a „green" municipality" is included in the list of priority projects mentioned in the SEAP, having as priority status (after the EEA procedure): HIGH PRIORITY. The SEAP list of priority projects

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came in direct response to the development options mentioned by all dialogue partners and which the community must address in the following period: the priorities set forth by the stakeholders, the general and specific opinion of the population, the opportunities provided by the ongoing access to European funds through operational instruments, as well as the priorities of local government political plans were considered.

The project outline described in SEAP was approved with conditions, and subsequently, on 12.09.2013 the Assistance Agreement by means of the Project Preparation Facility was signed.

From November 2009 to January 2013, Suceava Municipality has implemented the project EVUE Electric Vehicles in Urban Europe, developed under the URBACT programme, which aims to change the mentality of citizens on road traffic and passenger transport in view of supporting the use of green transport modes, especially electric, in order to reduce pollution caused by road traffic. By means of this project, Suceava Municipality plans to become a pioneer in introducing electric vehicles in the public and private sector in Romania, also having in view to set up additional measures to create an appropriate operating system as part of an integrated electric mobility strategy.

Suceava Municipality will implement a Dispatch office that will manage the entire system of charging electric cars. By means of RFID cards that can be purchased from the specialized offices of the Mayoralty based on a contract, chargers can be unlocked and the municipal vehicles can be charged, as well as the vehicles of citizens who purchased the cards. Through GPRS communicators, data will be transmitted to the central dispatcher which will meter every action to access the system following that monthly internal settlements will be performed (within the Mayoralty - for their own cars) and between the Mayoralty and the citizens who procured the cards.

Each standard or fast charging point, when an RFID card is used, will unlock the protection of the charging socket, releasing the terminal to plug in the cable. The construction works related to the electro-mobility system proposed to be carried out under the project are structured on 4 objects:

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Object 1 – STANDARD CHARGING POINTS

- Setting up a standard charging point (14 standard charging points – SCP) – having a longer charging duration, the standard charging network will be primarily located where the electric vehicles procured by the municipality will be parked, namely at the headquarters of institutions they are assign to. The operating conditions of the electric vehicles procured under the project allow for a longer parking time, for example during the night; The electric power of the standard chargers is 7,4kW.
- These EV charging services will be monitored in a centralized way, by means of a Dispatch Office, implemented within the Energy Office of Suceava Municipality.
- For each charging point, both fast and standard, two parking spaces will be set up, for which there will be road signs and road markings.

Object 2 – FAST CHARGING POINTS

- Setting up a fast charging network (14 fast charging points – FCP) – Having a maximum 2-hour duration, (depending on the characteristics of the electric vehicles), this network will be uniformly distributed within the municipality, in the most crowded urban areas. These fast charging points will be used by the municipal electric vehicles, but they will also ensure the necessary charging infrastructure for the electric vehicles of individual EV owners. The electric power of fast chargers is 22kW.
- These EV charging services will be monitored in a centralized way, by means of a Dispatch Office, implemented within the Energy Office of Suceava Municipality.
- For each charging point, both fast and standard, two parking spaces will be set up, for which there will be road signs and road markings.

Object 3 – ELECTRIC BIKES CHARGING POINT

- Setting up a charging point for 10 electric bikes, which will operate based on renting
- Equipping the points with 10 electric bikes;
- The electric energy supply of bicycles will be performed by means of

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photovoltaic panels with an installed power of up to 5 KVA (with possibility of storage); the panels are mounted on an independent steel structure and are oriented in view of maximum intake.

Object 4 – Electrical vehicles Purchase

- 2 Electrical utility acquisition:
  - Vehicle – Electrical sweeper
  - Vehicle – Electrical tank
- Acquisition of 11 electric cars
- Purchase of two electric vans

The project aims to improve the environment parameters, contributing to a sustainable environment climate in the context of the overall sustainable development in Suceava Municipality, through:

- Aligning to international standards in the field of energy efficiency by selecting an innovative solution, which can ensure the improvement of the essential environment aspects affected by road traffic: reduced CO_2 emissions in the atmosphere;
- Implementing forward solutions, modern and innovative technologies commonly used in European Union countries, through implementing a pilot electro-mobility system:
  - Setting up a network including 28 charging points for electric vehicles;
  - Setting up a bike-sharing system for 10 electric bikes, supplied by photovoltaic panels;
  - Procurement of 15 electric vehicles.
- Ensuring a thorough management of energy resources, by permanently monitoring the efficient operation of the charging equipment included in the electro-mobility system, by means of the Dispatch office implemented.

This project aims to refresh the car fleet which now is worn out and has a high mileage causing malfunction and pollution at the same time. To this aim, 15 electric vehicles will be procured, as follows:

- 11 electric cars;

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- 2 electric vans;
- 2 utility vehicles: 1 electric sweeper and 1 electric tanker;

5.4.6.2 Q2 What is the business case and do financing opportunities already exist?

5.4.6.2.1 Smart lighting, lampposts as hubs for communication

In the past 3 years in Suceava we successfully finalized the rehabilitation of the public lightning system – 24 km of network, replace the old lamps with new and energy saving ones and implementation of a management system in order to reduce the energy consumption and increase the efficiency – 1,2 mil Euro project ERDF funds.

In 2017 we have started the extension of this measure at the entire town level by implementing the project for rehabilitation of public lighting system – replacement of the all lamps (4300) with LED ones for the entire city in order to reduce the energy consumption – 3,2 mill Euro – (**co-financed (80 %) by the** Government of Switzerland through the Swiss-Romanian Cooperation Programme).

Through this project 4300 existing old lampposts will be replaced with new one (LED technology) in the Centru district. There will be also an implementation of a telemanagement system that will allow the Municipality to manage the utilization of the public lighting system in order to reduce the energy consumption and to minimize the environmental impact.

5.4.6.2.2 Smart charging of electrical vehicles (including combined electric charging and street light poles)

Suceava Municipality secured in 2013 a **3.112.489,61 CHF grant contract co-financed (80 %) by the** Government of Switzerland through the Swiss-Romanian Cooperation Programme. In the second part of 2015 the grant contract was signed and the implementation of the measures began in early 2017. Through this contract there were available funds as follow:

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Stimulating the use of electric vehicles by:

Setting up an infrastructure including 28 charging points in public places, out of which 14 standard charging points (SCP) and 14 fast charging points (FCP), selected based on the area of interest, the technical possibility to carry out the electric energy connection and to obtain property of land where the works are set to be undertaken

Implementing a bike charging and renting system (e-docking) for 10 electric bikes;

Energy autonomy by implementing renewable energy sources to feed the electric bike charging system – **1 photovoltaic charging system for bikes;**

618.225.6 CHF for 1 infrastructure corresponding to the pilot electro-mobility system carried out in Suceava Municipality that means: install of charging points for electric vehicles – at least 28; parking spaces for electric vehicles – at least 56; bike-charging and sharing centers in Suceava Municipality – at least 1; photovoltaic systems in Suceava Municipality –at least 1

Through this project there will be local and national dissemination activities in order to increase the number of electric vehicles used by private owners and public institutions, to increase the number of charging points.

There will be also activities related to development of local and national markets for car dealers and companies responsible for charging points installation. Suceava Municipality will implement the car sharing concept for EV's and will develop public dissemination campaigns in order to change public behavior and perception regarding EV's and to increase the number of EV's both of local and also national level.

One interesting idea is to create the " zero emissions " products – as we would like to encourage local producers (food, crafts) to increase the bio production and to deliver the products by using "zero emissions " vehicles – especially to local markets located in the Centru district.

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The most relevant programme with potential association to the Smart solution is the Operational Programme directed at"Increase of Economic Competitiveness" incorporating:

- Priority 4 –"Increase of energy efficiency and sustainable development of the energy system"
- Priority Axis 4.1 : Promotion of Local Sustainable Mobility Plans and Strategies for Reduction of CO^2 Emissions

5.4.6.3 Q3 What are the main challenges and barriers related to the measure(s)?

Specific equipments are quite a new and not very well developed at national and local level. The market exists but still not well developed and the costs for procurement and installation of this equipments is still high and this costs (even when funding are secured) could affect the local budget.

Having the fact that the is not a local market for charging station – both for installation, maintenance and delivery – we do expect to have some delays and difficulties during implementation and exploitation phases, as the lack of trained technicians and personal could create some gaps into the systems.

According to ERDF regulations the local authority needs to co finance 2 % of the total costs and this amount raise to 15 % in the case of Swiss Romanian Cooperation Program and in this case decision regarding prioritize of the projects and time schedule depend on the cash flow and funds available from the local budget.

As the procurement procedures are quite difficult and time consuming, complains are very often present during development of the tender procedures, the road from the grant contract and start of the construction works could be a long one and this could conduct to delays in the implementation of the project.

5.4.6.4 Q4 How does the Smart Solution integrate with the existing and future infrastructure?

There will be links with smart solutions regarding – charging infrastructure for electric vehicles, production of energy from renewable sources, regulation for freight delivery, smart traffic signals and lights.

5.4.6.5 Q5 What user / stakeholder involvement is foreseen?

There will be consultation with citizens, private and public companies, SMEs and chamber of commerce. The objectives are:

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- increase the quality of the urban public spaces, development of new smart technologies for local market, reduce the energy consumption and CO 2 emission, increase the quality of life into the city, reduce the costs for the local budget, transfer of smart solution and dissemination to local and national level

- as the poles and charging infrastructure are both public property we do expect to have a smooth implementation of this smart solution . However we do expect to have some less supportive individuals as residents could not be pleased all the time with the technical solution, location, time schedule

5.4.6.6 Q6 What is the potential implementation timeframe?

2017 - 2023

5.4.7 Replication of measure 7.3 - Smart waste collection

5.4.7.1 Q1 What is the replication potential of the Smart Measure(s)?

In connection with the smart waste collecting, turning waste to electricity, heat and biogas for vehicles our expectation is to be able to transfer the experience from city of Stockholm mostly in connection with separate waste connection, recycling facilities and production of "green energy" by using biomass and reduce the dependency of the conventional energy sources.

A new waste management system is implemented at county level and a new landfill site is located in the vicinity of Suceava City. As this new system includes separate waste collection and transfer stations Suceava Municipality would like to benefit from the existing infrastructure in order to extend the concept and implement the equipment necessarily for the production of energy using waste.

The technical documentation needs to be designed and the appropriate source of funding has to be correctly identified, as the ERDF funding is not available for this type of measures.

For the moment Suceava city is working of a tender documentation for the waste management supplier at local level. This will be a 7 year long contract and will include facilities for separate waste collection in order to increase the level of waste recycling at local level and to reduce the consumption of raw materials.

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5.4.7.2 Q2 What is the business case and do financing opportunities already exist?

5.4.7.2.1 Smart waste collecting, turning waste to electricity, heat and biogas for vehicles.

Starting from 2013 in Suceava, through a PPP, a new city power plant is functional, using only biomass, provided both heating for the entire city and electric energy. This project is considered to be a starting point for increasing the production of green energy at local level.

2011 was the starting point of a major waste management project at county level.

This project includes transfer stations for waste, a new landfill (with biogas production plant and modern systems for environment protection and separate recycling facilities) and it was financed using ERDF funds.

In the next 6 years Municipality would like to continue the development of the existing separate waste collection – increase the level of recycling with 25 – 20 % till 2020. Special facilities (bins, advertising) will be located in the district area with the main purpose of increasing the waste recycling. There will be specific actions undertaken with local retailers, supermarkets and producers for the development of facilities (locations but also incentives) for separate waste collection and recycling – especially plastic bottles and paper

The Romanian Regional Development Agency is the authority responsible for the North East Region Operational Programmes in respect of ERDF and ESF funding.

The most relevant programme with potential association to the Smart solution is the Operational Programme directed at"Increase of Economic Competitiveness" incorporating:

- Priority Axis 4.2 : Capitalisation of Renewable Energy Resources
- Priority Axis 3.1 :"Supporting energy efficiency, smart energy management and renewable energy used in public infrastructures, including public buildings and housing sectors"

5.4.7.3 Q3 What are the main challenges and barriers related to the measure(s)?

As the procurement procedures are quite difficult and time consuming, complains are very often present during development of the tender procedures, the road from the grant contract and start of the construction works could be a long one and this could conduct to delays in the implementation of the project.

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5.4.7.4 Q4 How does the Smart Solution integrate with the existing and future infrastructure?

Energy production using waste together with Home Energy Management Systems will contribute together to reduction of energy consumption and CO2 emission.

5.4.7.5 Q5 What user / stakeholder involvement is foreseen?

A consultation process is planned to be performed, involving NGOs, private companies and associations of residents. The implementation of the Smart solution will probably require a partnership between local and county public bodies. The objectives are:

- reduce the impact against environment, increase the percentage of the separate waste collection and recycling materials, reduce the amount of the waste which reach the waste disposal, create alternatives for energy production – using biomass and waste –, increase the public places aspect and the quality of the life into the city, changing people's behavior, reduce the costs for public services for the local budget

5.4.7.6 Q6 What is the potential implementation timeframe?

2018 – 2022

5.4.8 Replication of measure 10.1 – Smart traffic signals

5.4.8.1 Q1 What is the replication potential of the Smart Measure(s)?

In the past 5 years a number of related studies and strategies were approved at local level: Urban Integrated Development Plan – 2010, Urban Mobility Plan – 2014, Sustainable Energy Action Plan – 2012, Local Action Plan (electro mobility) – 2012. Their aim is to implement a sustainable development of the city, reduce traffic congestion and air pollution.

The city's SUMP includes specific actions and measures to implement a smart traffic lights system, such as: green waves, special priority for public transport, and real time information systems. Therefore smart traffic signals have good replication potential in Suceava.

As the next step, the technical documentation needs to be designed and the appropriate source of funding has to be correctly identified, as the EDRF funding could be available for these types of measures.

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Background:

Suceava faces the combined challenges of increased motorised traffic, stringent European environmental and energy targets mainly in the context of reduction the traffic emissions, waste recycling, economic growth, increase the energy efficiency, secure funding for implementation of local infrastructure projects and implementation of the sustainable development local plans, increase the quality of life into the city.

Also based on these strategic documents on local level Suceava Municipality had implemented a number of projects (with the total amount of 22, 4 mil euro) for rehabilitation of main streets and boulevards, traffic lights, for underground parking places, extension of the pedestrian area in the city centre, modernization of the public transport fleet and cycling lanes with the main purpose of increasing the sustainable mobility, reduce traffic congestion, reduce traffic emissions and increase the quality of life into the city.

Suceava Municipality expresses the intention to apply for ERDF funds for implementation of a metropolitan public transport system (by sending an official letter of intent to Regional Development Agency). This new project will include electric busses, intermodal points and transfer facilities (park and ride) and also system monitoring and controlling traffic signals an time providing real time information to users on traffic conditions in order to reduce the traffic emissions and impact against environment and public health, to reduce traffic congestion and energy consumption (especially conventional fuels).

Technical documentation is under the designing phase for a project concerning smart traffic lights, CCTV system, real time information system. It is expected that the project will be implemented in 2019.

SUMP includes specific actions and measures which consist in implementation of a Smart traffic lights system as : green way", special priority for public transport, real time information systems.

The technical documentation needs to be designed and the appropriate source of funding has to be correctly identified, as the EDRF funding could be available for this type of measures.

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5.4.8.2 Q2 What is the business case and do financing opportunities already exist?

5.4.8.2.1 Integrated traffic signal and lights management

Suceava Municipality expresses the intention to apply for ERDF funds for implementation of a metropolitan public transport system (by sending an official letter of intent to Regional Development Agency). This new project will include electric busses, intermodal points and transfer facilities (park and ride) and also system monitoring and controlling traffic signals an time providing real time information to users on traffic conditions in order to reduce the traffic emissions and impact against environment and public health, to reduce traffic congestion and energy consumption (especially conventional fuels).

The Centru district that is located in the city centre is the main hub for the local public transport will benefit from the implementation of this project. It is expected that there will be an increase of the PT attractively, the number of passengers will increase and there will be a reduction of the private cars traffic volumes in the city centre.

The Regional Development Agency is the authority responsible for the North East Region Operational Programmes in respect of ERDF and ESF funding.

The most relevant programme with potential association to the Smart solution is the Operational Programme directed at "Increase of Economic Competitiveness" incorporating:

- Priority 4 –"Increase of energy efficiency and sustainable development of the energy system"
- Priority Axis 4.1 : Promotion of Local Sustainable Mobility Plans and Strategies for Reduction of CO^2 Emissions

5.4.8.3 Q3 What are the main challenges and barriers related to the measure(s)?

As for the moment we are in the very early stage and we do not have technical studies (including traffic surveys) we will be able to add more information for this section in the following stages necessarily to be carried out in order to have the accurate data for the implementation of the measure.

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5.4.8.4 Q4 How does the Smart Solution integrate with the existing and future infrastructure?

This section will be updated in early 2018, based on the findings of the Local Action Plan from the URBACT project. Currently the two main topics are:

Consolidation Centre

Combined electrical charging and streets lighting poles

5.4.8.5 Q5 What user / stakeholder involvement is foreseen?

To reduce the traffic congestion and air pollution

To improve the quality of life into the city

To create premises for a sustainable development of the city

Public consultation and traffic studies need to be established and completed before the start of the Smart measure implementation as a significant number of stakeholders (private companies, citizens, residents, public transport operators) could be affected.

The ongoing FREIGHT TAILS URBACT III project has a Local Support Group which aim is to define the actions and activities to be included in the Local Action Plan. There are regular meetings and consultation related to the proposed measure and at the moment actions are design.

5.4.8.6 Q6 What is the potential implementation timeframe?

2021 – 2023

5.4.9 Replication of bundle of measures 11.1 – Developing charging infrastructure

5.4.9.1 Q1 What is the replication potential of the Smart Measure(s)?

Suceava Municipality would like to create the local charging infrastructure network for EV's in order to have the premises for the increasing of the EV,s used in private and public sectors, to reduce the traffic emissions and promote alternative ways of travelling. Therefore there is good replication potential for developing charging infrastructure in Suceava.

In order to achieve these goals some ideas/actions need to be considerate:

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For electric vehicles to actually become attractive for the possible users, it is necessary to increase the technological performance and reduce the procurement price;

The first steps must be taken by the local administration together with other public institutions, therefore public investments need to be made launching the concept on the market;

Charging points should be present in public parking spaces around supermarkets, in the City Hall parking area and in the parking areas of other public institutions, as well as in underground parking spaces, and the places should be reserved and specially marked for electric vehicles;
The use of electric vehicles in the city by public institutions, strategic economic operators using large vehicle fleets and especially by those economic operators performing distribution activities involving frequent travels in urban areas is an efficient method for promotion, and could be subjects for replication.

Stimulating the consumption of green power against conventional power to increase the ratio of power consumption from renewable sources in the total power consumption can be achieved by signing partnerships between the Municipality and the investors interested in alternative power production projects.

It is essential to communicate with young people about electric vehicles because it is a medium and long term project directly addressed to them;

The political segment continues to be the hardest to approach, however the new legal provisions at the European Union level shall be translated into the national laws and the performance of specific indicators for a smart economy shall determine the Romanian authorities to take decisions to finance and support the green power and industrial sectors.

- One must consider the need to train technical staff providing maintenance services for electric vehicles;
- The laws in the technical field must be improved on an ongoing basis according to the European Directives in the matter;

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Background:

In an increasingly globalized context, Romania's energy policy is made within the changes and developments taking place at national and European level. Under these circumstances, Romania's energy policy must be correlated with similar documents at European level in order to ensure the conformity of our country's policy with EU policy in the field.

Global warming currently involves two major problems for mankind: on the one hand, the need to drastically reduce emissions of greenhouse gases to stabilize the concentration of these gases in the atmosphere and thus prevent human influence on the climate system and enable natural ecosystems to adapt naturally, and, on the other hand, the need to adapt to climate change effects, since these effects are already visible and unavoidable due to the inertia of the climate system, regardless of the outcome of actions meant to reduce emissions.

The European Commission launched in March 2010 the Europe 2020 Strategy to exit the crisis and prepare EU economy for the next decade. In practice, the Union has set five key objectives - on employment, innovation, education, social inclusion and environment / energy - to be achieved by 2020.
In order to achieve national objectives on climate change by 2020, necessary measures to be adopted correspond to the **Memorandum "Approval of the final values of Romanian objectives for Europe 2020 strategy"**, signed by the Romanian Government on June 8th, 2010.

The main measures concern the following areas:

- *development of institutional capacity in the field of energy and climate change;*
- *reduction of greenhouse gas (GHG) emissions by promoting carbon capture and storage technology (CCS);*
- *increase the share of renewable energy in the final energy consumption;*
- *increase energy efficiency.*

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Romanian Energy Strategy for the period 2011 – 2020 will aim at fulfilling the main objectives of the new Energy – Environment Policy of the European Union, objectives also assumed by Romania.

The main directions of action of Romania's energy strategy, converging with the EU energy policy, are:

- choose a balanced energy mix, meant to provide the energy sector with competitiveness and security of supply with a focus on internal resources, namely coal, harness able economic hydropower potential, nuclear power potential and renewable energy sources potential;
- effectively manage and rationally use in safe condition exhaustible primary energy sources in Romania and maintain an acceptable level (in terms of economy and security) of the primary energy sources import (limited / controlled dependency);
- increase energy efficiency on the entire chain: extraction – production – transport – distribution – consumption; Romania no longer affords to waste energy while the sources of energy have a reduced availability and increased cost; energy efficiency is the most cost-effective way to reduce emissions, improve safety and lower competitiveness and energy service bill;
- promote energy production from renewable sources, so that the share of electricity produced from these sources in total gross electricity consumption would be 33% in 2010, 35% in 2015 and 38% in 2020;
- promote the use of renewable energy sources in accordance with EU practices, based on the National Allocation Plan in terms of renewable energy drawn up in 2010;
- create market conditions meant to stimulate greater energy savings and increased investment in low carbon technologies;
- facilitate investment in those projects that contribute to achieving the objectives set for 2020 according to EU policy;
- achieve objectives of environmental protection and reduce emissions of greenhouse gases.
- support research, development and dissemination of research results applicable in the field of energy.

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Romania has been using the "Joint Implementation" mechanism as host country since 2000. The legal framework for the development of these projects under the"Joint Implementation" mechanism consists in concluding and ratifying Memoranda of Understanding with various states. Romania concluded 10 such memoranda with governments and ministries of Switzerland, Netherlands, Norway, Austria, Denmark, Sweden, France, Finland and Italy. In this context, Suceava Municipality is the recipient of a grant awarded by the Swiss State Secretariat for Economic Affairs by means of the Swiss-Romanian Cooperation Programme to prepare an own Action Plan for Sustainable Energy and some project drafts to start its implementation

The WHITE PAPER Roadmap to a Single European Transport Area – Towards a competitive and efficient transport system in terms of resources, which establishes that by 2050 the European cities will have to drive only clean, non-polluting cars was adopted by Decision no. 38/2011 and thus Romania was aligned to the overall European transport policy, articulated around the objectives of developing and implementing new and sustainable fuels and new propulsion systems, optimizing the performance of multimodal logistic chains, including by an increased use of more energy-efficient ways, increased transport efficiency and infrastructure use by information systems based on market incentives.

The approval of this strategic document bonds our country and encourages Suceava Municipality to adopt certain measures linked to the objective of "*Development and implementation of fuels and sustainable propulsion systems"* through introducing by 2020 an information framework for implementing a multimodal transport system by decisively shifting to cleaner cars and fuels and reducing with 50% the number of cars with conventional fuel by 2030 and eliminating them progressively in cities by 2050.

The National energy saving potential and energy loss reduction potential is estimated at 27-35% of primary energy resources (industry 20 – 25%, buildings 40 – 50%, transport 35 to 40%).
In order to reduce energy intensity in sectors with high energy consumption and achieve the targets set up in the National Strategy for Energy Efficiency as well as in

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the Action Plan for Energy Efficiency corresponding to Directive 2006/32/EC on energy end-use efficiency, the following measures in transports will be taken:

- improve the quality of public transport in order to use it to reduce private car transport;
- extend public transport network through new transport routes;
- render traffic and more efficient parking management;
- provide means of public transport for employees by the beneficiary companies;
- encourage a greater development of vehicles running on tracks and part of the urban transport (trams, trolleybuses);
- increase the energy efficiency of vehicles by establishing minimum efficiency criteria;
- introduce norms to support the energy-efficient and clean vehicles;
- use gaseous fuels and biofuels in transport.

5.4.9.2 Q2 What is the business case and do financing opportunities already exist?

The main objective for this Smart solution will be: to stimulate the use of EV by creating a charging infrastructure, installing charging points in public and private car parks.

5.4.9.2.1 Alternative fuel driven cars for better air quality in cities

For the action Implementation of a local public transport with electric buses and establish measures to encourage the use of electric public transport means Suceava Municipality secured in 2013 200.000 CHF as part of a **3.112.489,61 CHF grant contract co-financed (80 %) by the** Government of Switzerland through the Swiss-Romanian Cooperation Programme. This amount will be used (in 2014) for performing the Feasibility Study and Technical Documentation which will allow the Municipality to apply for a funding scheme through ERDF in order to implement the electro mobility concept for public transport (purchasing of 30- 40 electric buses and charging facilities for local public transport company).

Also we have to mention here that Suceava will be starting from 2017 the first Romanian city with an electro mobility project implemented (municipal electric vehicles, electric bikes and charging points).

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The city centre roads infrastructure will be rehabilitated, with a 25% extension of the existing pedestrian"zero emission"area, there will be access restriction regulation for this area located in Centru district and only EV's will have permanent access.

5.4.9.2.2 Citizen engagement for smarter use of road space

The City Urban Plan is under a redesigning process and one of the new innovative parts of this study will be an Urban Mobility Plan (for public and private companies, public transport, measures for encouraging alternative ways of travelling). Based on the conclusion from this plan we will be able to start the implementation of other new innovative mobility projects at local level.

5.4.9.2.3 Car and bike pools in integrated mobility solutions

The new municipal EV's will be used for promoting the car pooling concept among public servants, citizens and private companies starting from 2016.

In 2013 we finalized the construction of 10,5 km of cycling lanes into the city centre (using ERDF funds) ad in 2015 other 4,6 km will be finalized (as part of another ERDF funding project for rehabilitation of the city road infrastructure).

The construction of a 164 underground parking facility in the city center together with the rehabilitation of the main city center pedestrian area in order to create facilities for reduce traffic congestion, traffic emissions and encourage walking instead of driving – 11, 4 mil Euro – ERDF funds was accomplished in 2013.
The electric bikes which will be available in Suceava from 2017 will be used for promotion of this alternative way of traveling (among citizens and tourists) as a rental system will be developed at local level.

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The most relevant programme with potential association to the Smart solution is the Operational Programme directed at"Increase of Economic Competitiveness" incorporating:

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- Priority 4 –"Increase of energy efficiency and sustainable development of the energy system"
- Priority Axis 4.1 : Promotion of Local Sustainable Mobility Plans and Strategies for Reduction of CO^2 Emissions

The EV's charging infrastructure is owned by the Municipality and access for private vehicles owners will be permitted based on specific agreements which will be singed as soon as the charging facilities will be operational.

If the Smart measure will be a successful one and the demand for charging infrastructure on local level will increase in the following years.

5.4.9.3 Q3 What are the main challenges and barriers related to the measure(s)?

The type of access to charging (open or restricted) and charging technology (manual or preferably intelligent) chosen will be a subject matter to be decided by decision makers in charge at the time, while the network capacity will be discussed with the electricity supplier and distribution operator. In what concerns the charging way and times, the type of supply technology used will allow rapid charging in on-street points and standard charging in off-street points, on public parking spaces. The public procurement will be a 2-stage procedure to provide a competitive dialogue with tenders in order to obtain a better understanding of the power equipment market.

By entering into public-private partnerships or concession contracts to provide installation, maintenance and operation of technological equipment in designated parking spaces, the number of above-ground charging points on public space could be increased, as well as the interest in the type of business.

The measures thus taken must consider all target groups; there must be a good communication and information between public authorities and local community, the benefits of this type of approach to planning are now well understood: the transparency of decision-making, legitimacy by public participation in decision-making, better public acceptance and a higher rate of success correctly and effectively respond to community needs and integrate ideas and opinions coming from all levels.

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Moreover, since vehicles and associated equipment with the same performance characteristics are required, buying an increasing number of vehicles in a single auction removes obstacles such as low interest from producers, lack of models on the Romanian market and high prices for those models entering however the market. Great benefits arise from the fact that such acquisition may show to manufacturers / dealers which is the demand, supports bringing new models on the market, accelerates the introduction of new technologies, leads to lower prices, helping to introduce EV infrastructure and supports the appearance of new business opportunities for EVs maintenance and service and related equipment. A two-step procurement procedure will be recommended, with pre-qualification of tenders and invitation to tender, preparing a plan of communication with vehicle manufacturers and dealers in order to determine the appropriate technical specifications of the equipment and ensure visibility and information on organizational rigours of a public tender procedure which most private market players are not used to.

The same complex project provides training for bus drivers on driving such vehicles and to ensure proper operation of equipment. At the same time, it will consider the need of technical training for mechanical and electrical specialists, specifically for this equipment.

The definition of the target group was required as an orientation guide for setting strategic objectives and activities planning, since they are actually the main beneficiaries of current planning measures and results.

- – traders active in the field of people transport by car (taxis)
- – car dealers
- – car service operators
- – car manufacturers
- – local public transport operators (SC TPL SA Suceava)
- – providers on the electricity market (producers and carriers indirectly)
- – providers of technological charging equipment
- – citizens (residents, students and tourists)

As the funding scheme for installation of the first 24 charging points is already established, we may need to have future discussion with local decision makers in

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order to secure funding for the extension of the network at local level and for future other actions related to this Smart solution.

5.4.9.4 Q4 How does the Smart Solution integrate with the existing and future infrastructure?

This is still to be defined. At presently the following integration points are considered: Smart Traffic signals and lights, electrical charging and streets lighting poles, freight delivery and consolidation centre.

5.4.9.5 Q5 What user / stakeholder involvement is foreseen?

Suceava Municipality would like to benefit from the transfer of knowledge and best practice experience of the city partners in GROW SMARTER project in order to increase the chances of a successful implementation process for the electro mobility concept planned for Suceava city.

It is expected that this new project should allow us to gain more experience, to allow access to funding resources together with the rest of the city partners, to continue the work with USLG, to achieve sustainable changes in people's behaviour regarding electric and alternative vehicles ,improve local team skills and to promote the local experience at regional and national level.

It is expected that after a successful implementation of the project (purchasing EV's, installation of charging points and electric vehicles in public transport, charging points foe vehicles in public spaces and underground parking places) Suceava City should become an example of integrated sustainable mobility management – electromobility – for the rest of the cities in Romania.

Also after this project shall be implemented, it is expected that the local decision makers should be much more "flexible „and should support local regulation and tax incentives designated to increase and encouraging the aquisition of EV's for private and public sectors, improve the traffic conditions and reduce the traffic impact against environment.

Through this project there will be local and national dissemination activities in order to increase the number of electric vehicles used by private owners and public institutions, to increase the number of charging points. There will be also activities related to development of local and national markets for car dealers and companies responsible for charging points installation. Suceava Municipality will implement the car sharing concept for EV's and will develop public dissemination campaigns in

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order to change public behaviour and perception regarding EV's and to increase the number of EV's both of local and also national level.

When talking about benefits coming from participation in European projects we have to mention that one of the most valuable one is the transfer of best practice and know how between partners. Our expectations from this new project are directly linked with the possibility of learning from the experience of the lighthouse cities in domains that are connected with the"green city"concept.

For example, having in mind that in the next 3 years Suceava City will start the implementation of the electro mobility concept at local level we expect that the participation in this project will facilitate the transfer of best practice that Stockholm has in the field of electric vehicles, charging points and facilities for electric vehicles.

5.4.9.6 Q6 What is the potential implementation timeframe?

2017 – 2019

5.4.9.7 Q7 What do you need to know for the successful deployment of the Smart Measure(s) beyond the GrowSmarter factsheets?

Our main purpose is to find out more information, best practice example or any suggestions from the leading cities, about:

- How is it working the process of getting the political approval for a new investment with some innovative technologies like the smart measures?

- Any already successful "recipes" for implementation of a smart measure would be very useful for a city like Suceava which already expressed the wiliness of becoming a smart city

- We do expect to be able to learn more about the introduction of measures that conduct to improve energy efficiency and for this reason we would like to transfer the best practice and experience from the city of Barcelona, not only for the rehabilitation of the residential and municipal buildings but also in being able to develop facilities at local level for "technological parks" for companies which will invest in new green technologies in order to develop the local market and to create new jobs

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- One of our smart measures is in connection with the lighthouse cities measures like Home Energy Management Systems that will be installed in a pilot residential and municipal building, visualizing and manage energy consumption.

- City of Stockholm and the measures to be implemented in this project is a very reliable example of a "state-of-the-art" example for mobility management and actions to avoid traffic congestion and to reduce traffic emissions. Our goal in this project is to transfer the best practice from Stockholm mainly in connection with the cycling facilities and traffic management and before these in connection with alternative solution for public transport (biogas or electric busses) in order to increase the number of passengers, reduce the car dependency, avoid traffic congestion and change people's behavior regarding mobility habits

- The aim of Suceava city measures is to replicate the lighthouse city experience (Stockholm in this case) in order to substitute the car in other trips, that are less regular and more individual.

- Our goal is to offer different and alternative solutions completing the existing public transport network like bike pools, e-bikes, EV-pools.

We consider that a successful preparation of the follower cities for replication of the smart measures involved meetings with both representatives from the public sector (procurement, technical, economic and design also) and with representatives from the private sector (consultancies, constructors, car dealers, retailers, providers for technologies and equipments).

Beside of these we consider that future links between local private sector and the same one from the lighthouse cities could contribute to development of local and European market but in the same time could facilitate the implementation and transfer of smart measures to the follower cities. Of course that the site visits to a power plans or a recently refurbished neighbourhood could be useful for us but in

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the same time we do consider that there is a strong demand in a cooperation between follower cities which can benefit each other and also provide necessarily technical support during the replication of smart measures process.

As Suceava Municipality committed to implement a number of smart measures at local level in the future 5 years the transfer of best practice examples from the LHCs will be very useful for a smooth and fruitful implementation of the projects.

In regard with this we would like to have information related to :

- Dialog with the politicians and decision makers which can conduct to approval of the project implementation and, more important, to allocation of necessarily funds for this
- The road map from an idea to a successful project implemented at local level in LHCs
- Technical details regarding : financing scheme, best practice solution, evaluation results, public consultation, involvement of the local,regional and national private sector and industrial partners, procurement and dissemination

Capacity building needs and areas of interest:

Local councilors, politician, Municipality's staff, decision makers and technical experts from local public administration, local NGO's, private companies (especially the ones involved in energy sector, construction sector, freight, lighting and electric vehicles are potential interested in exchange of best practice examples, knowhow and technology related to measures concerning energy efficiency in private and public buildings, public lighting, waste management, electric vehicles and traffic management.

We do also expect to have some interest from local University in the IT domain related to local platform for real time information.

Business dialogues with companies involved in implementation:

We do consider that business cases already tested, implemented and evaluated in LHCs could contribute to a better understanding of the problems, measures and outcomes for the local decision makers and stakeholders and also could contribute to future smooth implementation of the replication measures.

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6 GrowSmarter Replication Plan

6.1 Replication plan of Solution 1 – Efficient and smart climate shell refurbishment. Measures: (Energy efficient refurbishment of the building); (Home energy management systems) and (Smart energy and self-sufficient block)

6.1.1 Summary of implementation activity

In order to achieve national objectives on climate change by 2020, necessary measures have to be implemented accordingly to the **Memorandum "Approval of the final values of Romanian objectives for Europe 2020 strategy"**, signed by the Romanian Government on June 8th 2010 Suceava Municipality is planning to continue the implementation of local projects regarding rehabilitation and increasing of energy efficiency for the residential and public buildings.

The main measures concern the following areas:

- *development of institutional capacity in the field of energy and climate change;*
- *reduction of greenhouse gas (GHG) emissions*
- *increase the share of renewable energy in the final energy consumption;*
- *increase energy efficiency.*

Energy efficiency measures(green energy HEMS) will be implemented in RESIDENTIAL AND PUBLIC BUILDINGS in Suceava for the first time .

Feasibility studies for energy efficiency in public buildings (Town Hall and schools), private buildings (apartments blocks) are under designing phase or finalized . There are close to 200 apartments and 5400 mp of public buildings which will be rehabilitated.

The technical documentation and application dossier will be sending to the MA for ERDF programme 2014- 2020 as calls for projects are opened already and this kind of actions are eligible for local municipalities.

The application for the rehabilitation, increase the energy efficiency and reduce energy consumption for the Town Hall of Suceava City was submitted in September 2017 to the Nord East Regional Development Agency and in February 2018 the application was declared successful.

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Suceava Municipality is currently designing for the technical documentation for ERDF funding which will be used for energy efficient refurbishment of the " Petru Musat " technical college. The allocation from ERDF funds for this project is close to 600.000 E, the project consists in implementation of several measures for increase of energy efficiency (including alternative energy production) and it is expected to be completed till the end of 2020.

For a successful implementation of these actions technical documentation need to be designed, funds (both from local budget and ERDF) need to be secured and after the tender procedures will be finalized the construction works need to be completed till the end of 2023.

6.1.2 Phase 1: Preparation of the implementation framework

Objective: Set the basis for a successfully implementation of the measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
September 2018 – September 2019	**Policy and regulatory screening**: Romanian Energy Strategy for the period 2011 – 2020 will aim at fulfilling the main objectives of the new Energy – Environment Policy of the European Union, objectives also assumed by Romania. **The main directions** of Romania's energy strategy, converging with the EU energy policy, are: increase energy efficiency on the entire chain: extraction – production – transport – distribution – consumption promote energy production from renewable sources, so that the share of electricity produced from these sources in total gross electricity consumption would be 33% in 2010, 35% in 2015 and 38% in 2020; promote the use of renewable energy sources in accordance with EU practices, based on the National Allocation Plan in terms of renewable energy drawn up in 2010; create market conditions meant to stimulate greater energy savings and increased investment in low carbon technologies; facilitate investment in those projects that contribute to achieving the objectives set for 2020 according to EU policy; Also the Integrated Urban Development Strategy for Suceava	**Technical Department in cooperation with European Integration and Development Strategies Department**

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	City (2016 – 2023) mentioned the investments in energy efficiency buildings as one of the main priorities . **Stakeholder´s roles definition:** The implementation of these projects will be managed by Technical Department in cooperation with European Integration and Development Strategies Department on behalf of Suceava Municipality .One of the key roles will be fulfilled by two local private companies (one dealing with energy production and the second one responsible with central heating distribution) .	

6.1.3 Phase 2: Project inception planning, performance and finance

Objective: Outline key structural aspects for the measure's implementation.

Indicative timeframe	Description of key activities	City departments/ offices involved
September 2018 – September 2023	**Governance designation**: Suceava Municipality will lead the implementation process and if necessarily there will be partnerships with association of private owners (for residential buildings) and other public entities (in case of public buildings).The project implementation team will be established trough mayor's decision before the beginning of the construction works . **Targets and goals setting (short- to long-term** According to SEAP and IDUS 200 apartments and 5400 mp of public buildings (up to 3 different units) will be rehabilitated. **Technology and infrastructure planning:** The interventions will consists in : rehabilitation of the structure , utilities , implementation of less energy consuming technologies and alternative solution for energy production (solar panels , photovoltaic cells) , technologies for increase the energy efficiency and reduce the energy consumption (HEMS). Companies dealing with designing and implementation of the technical solution together with the equipment suppliers will cooperate with the technical departments form municipality and the local company dealing with the heating distribution .	**Technical Department in cooperation with European Integration and Development Strategies Department Public Procurement and Financial offices**

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	Definition of key performance indicators (KPIs KPI – number of square meters of presidential and public buildings rehabilitated , energy consumption , alternative sources of energy installed **Cost-benefit analysis:** The cost benefit analysis will be part of technical documentation that is requested to be prepared for application necessarily for funding the projects implementation and it is a subject of subcontracted external expertise. **Business and financial model definition**: There will be partnership with owners association and other public entities .The financial model is expect to be local or European. As ERDF funding are available there will be application for secure funding under this programme .	

6.1.4 Phase *3: Political approval and stakeholder engagement*

Objective: Obtain and maintain political and stakeholder commitment for the implementation.

Indicative timeframe	Description of key activities	City departments/ offices involved
September 2018 – September 2023	**Political commitment:** There is a strong political support at local level for implementation of measures concerning increasing of energy efficiency. Also the citizen's level of awareness regarding the positive impact of the energy efficiency measures is quite high and it is expected to increase in the next period of 2 to 5 years, so the people's support to measures like the one in the project is it expected to be at high level. In the past 10 years our experience of working with local stakeholders shows that there is a significant support for investments that could contribute to reduce the environmental impact of human activities. Local strategies for increasing the energy efficiency have been already approved by the Local Council but beside this each single application for funding (local or European programme) will be subject of separate approval . **Strategic intermediaries** The local development strategies, regional, national and	**European Integration and Development Strategies Department** **Legal advisory Department** **Secretariat of Local Council of Suceava City**

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	European policies encourage and support local authorities in the implementation process for energy efficiency measures. The environmental impact of almost all actions undertaken by our local public authority is quantifiable and also taking into consideration not only because of "fashionable behavior" reasons but for the fact that immediate and adequate actions are needed in the process of improving the quality of life into the city. **Public participation and citizen engagement:** Suceava Municipality planned to design and implement local campaigns for promotion of alternative technologies designated to increasing the energy efficiency and behaviour changes at local level . **Capacity building of city staff**: Suceava Municipality's employees have experience in implementation of energy efficiency projects .Audit , project evaluation and monitoring could be subjects for external expertise.	

6.1.5 Phase 4: Project implementation

Objective: Plan the effective implementation of the defined measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
September 2019 – September 2023	**Implementation plan:** There is a huge need for actions regarding energy efficiency in public and private buildings at local level , as the majority of these were built in 1960 – 1980, and the quantity of the non recoverable energy is quite high and the energy consumption is also on a very high level. Feasibility studies for energy efficiency in public buildings (Town Hall and schools), private buildings (apartments blocks) are available or under designing phase and are expected to be finalized in the second half of 2017. There are close to 200 apartments and 5400 sqm of public buildings which will be rehabilitated. The technical documentation and application dossier will be send to the MA for ERDF programme 2014– 2020 as calls for projects are opened already and this kind of actions are eligible for local public authorities. The application for the rehabilitation , increase the energy efficiency and reduce energy consumption for the	**Technical Department in cooperation with European Integration and Development Strategies Department Public Procurement and Financial offices**

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City Hall of Suceava City was submitted in September 2017 to the Nord East Regional Development Agency and in February 2018 the application was declared successful . The grant contract will be signed in the second half of 2018 and works are expected to be completed till 2021.
The implementation of this project is seen as an example for the rest of the public buildings in Suceava which need major investments in the field of energy efficiency .
Suceava Municipality is currently in the design phase for the technical documentation for ERDF funding which will be used for energy efficient refurbishment of the " Petru Musat " technical college. The allocation from ERDF funds for this project is close to 600.000 E , the project consist in implementation of several measures for increase of energy efficiency (including alternative energy production) and it is expected to be completed till 2021 .
This is also a pilot project and the results will be replicated to other educational units in Suceava .
We do have a Local Support Group created in 2009 for projects concerning energy efficiency and we do expect that the group will continue to be active and involved in implementation phase. The group has representatives from public institutions, private companies, local producers, NGO 's, university, consultancy companies, citizens associations, schools and high schools. This group was responsible also for production of the Local Action Plans(including SEAP) and we will invite also other potential members to join our local group (private companies mainly).
During the performing of the Integrated Urban Development Strategy there were meetings with citizens and private companies.
The main interest is the sustainable development of the central heating network , the reduction of traffic pollution, increase the quality of life, reduce unemployment and create a better environment for the young generation and for future private investments in the district.
We do expect to have a potential big interests from the young generation and possible few skeptical ideas and reaction from the oldest part of the inhabitants.

Procurement model

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	The project will be implemented based on specific technical documentation (which include technical specification , construction and safety requirements , allocated budget , time schedule for execution , project management , indicators and expected results).This documentation (feasibility study) will be part of the tender documentation which will be design and approved according to national legislation for public procurement .It is expected that the procedure will be " open tender " published on Romanian national portal for public acquisition . There will be an " ex ante " verification for the procedures and also the representatives from regional and national level could be part of the evaluation team depending on the project budget value . The governmental financing authority established a strict set of rules and procedures for the awarding of the non reimbursable funds. These rules, which include several specific actions to be undertaken, including several compulsory activities and interventions, which significantly increase the costs of the construction works . **Contract negotiation and management**: The contract awarding procedure will be performed by a procurement team (established trough mayor's decision) and will be performed in accordance with national legislation . The contract will include specific requirements for payments (based on a cash flow agreed with the private company which will be declared as winner after the evaluation process) , penalties (usually for delaying of the construction works and some cases when the supplied equipments are not in compliance with the technical requirements). There are major risks concerning the tender procedure connected with the : duration , compliance , possible appeals from tendering participants . The responsibility for management of the contract is divided between the technical and financial departments which are responsible for project implementation . As the procurement procedures are quite difficult and time consuming, complains are very often present during development of the tender procedures so the road from the grant contract to start of the construction works could be a long one and this could conduct to delays in	

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	the implementation of the project.	

6.1.6 Phase 5: Monitoring and progress evaluation

Objective: Plan the monitoring, evaluation and reporting of the implementation of the measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
September 2020 – September 2023	**Project monitoring:** The measurements will be done directly and also there will be comparisons between data collected before and after the project implementation. The data will be available mostly from communication with HEMS, but special measurement will be requested to be performed during implementation phase by independent experts as a condition for acceptance and payments for the construction works and equipment supplied. Specific data and measurements will be performed / collected for different projects in order to have an accurate image of the achievements and results. There is an internal structure (as part of Technical Department) in Suceava Municipality which is responsible with monitoring of projects implementation. **Project evaluation:** Each single project will include a special part of the technical documentation dedicated to evaluation. This will include specific indicators (such numbers of rehabilitated buildings , surface of photovoltaic panels installed) , expected results (such reduction of energy consumption and production of energy using alternative sources) but also expected impact (such quality of life into the city, improving the working and living conditions , numbers of jobs created as a direct result for the construction company and implementation of new technologies). All these aspects will be subjects of an internal evaluation and a final auditing report from an independent company with expertise in energy efficiency . **Internal and external reporting:** There are specific internal procedures for reporting	**Technical Department in cooperation with European Integration and Development Strategies Department Financial office**

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	during project implementation (between departments and members of implementation team) and also periodic financial and technical reports need to be submitted to regional and national institutions (in case of ERDF programme) .Each single project has special allocated budget (as part of the total budget) for local and national dissemination (including leaflets , press releases , conferences , workshops). As mentioned above special promotion campaigns for changing behaviour and promotion of alternative technical solution already implemented will be considered as part of communication strategy at local level.	

6.2 Replication of Solution 2. (Integrated multimodal transport for constructions materials)

6.2.1 Summary of implementation activity

This measure is a Smart solution included in the new SUMP elaborated for the city of Suceava.

During the last 15 years a number of important changes have been made at the local level in terms of the aspect and spatial development of the inner city commercial area. In parallel however the fact that services, the construction sector and general goods delivery activities have significantly increased over the last decade means that the number of vehicles entering and transiting the city also continues to increase (especially vehicles involved in goods delivery). Traffic congestion and level of air pollution is a major concern for local authorities.

In this situation the Municipality continues its aim of supporting local growth and (economic) local development but to achieve this through a sustainable approach to servicing and distribution. During URBACT Project called Freight TAILS we had the opportunity to initiate and deliver appropriate local actions, measures and regulation for freight delivery (timing, routes, access, speed, weight, restrictions).

In order to achieve this it is recognised that a number of challenges will be encountered and that understanding and capacity will require to be developed across the whole (public/private) governance spectrum. This includes focussed consideration of the following aspects in the case of Suceava:

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- Increasing local stakeholder confidence in sustainable freight system implementation in the city
- Increasing local stakeholder awareness and knowledge about the impact of conventional freight and other traffic in terms of the environmental consequences and effect on people's daily life, public health etc.
- Introduction of a delivery consolidation system for Suceava city
- Planning innovative measures to reduce the overall demand of road trips, to make freight movements sustainable and efficient, optimising support for local business development, but at the same time making delivery processes cleaner, safer and much more friendly for city life
- Creation of a local stakeholders' network and a commitment platform, regarding all future measures meant to initiate freight delivery implementation
- Awareness raising of applicable green energy sources, energy efficiency and alternative and sustainable modes of transportation (including freight)
- Introduction of local regulation for freight delivery (time schedule, routes, weight, access, speed)
- Implementation of specific actions for local sustainable mobility

6.2.2 Phase 1: Preparation of the implementation framework

Objective: Set the basis for a successfully implementation of the measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
September 2019 – September 2020	The status of an European city, to which Suceava City aspires, implies, among other things, the provision of optimal, decent, ecological and civilized conditions for carrying out the transport activity. This can be accomplished by making substantial investments in infrastructure for the insurance and support of freight transport. Freight transport, by its very nature, has a negative impact on the city – urban deliveries are increasing and often they are made by large, noisy, polluting vehicles, most of them equipped with diesel engines. In order to cope with the steady growth of road freight transport, specific to the last decades, and to achieve more sustainable solutions, a whole series of initiatives have been adopted around the world, such	**Technical Department in cooperation with European Integration and Development Strategies Department**

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	as new traffic regulations, infrastructure improvement measures, related to sharing space and regulating the way and times of delivery of goods, etc. A promising solution, successfully adopted in major cities, is the Urban Consolidation Centers (UCC). It consist in logistics facility located in the proximity of the geographic area they serve, from where consolidated deliveries are transported to the area served. The overall goal of the UCC is to avoid crossing the city by heavy-duty vehicles to deliver cargo to urban centers / areas. This goal can be achieved by providing facilities to consolidate the products for later deliveries in the city by using low-capacity / durable means of transport (vans, freight bikes), preferably with alternative fuels. Also the Integrated Urban Development Strategy for Suceava City (2016 – 2023) mentioned the investments in energy efficiency buildings as one of the main priorities . According to the Sustainable Energy Action Plan, Sustainable Urban Mobility Plan and Local Development Strategy in the next 20 years the municipality will have to focuses on the following fields : Transport (municipal fleet, public, private and commercial fleets – including freight); Urban planning (strategic urban planning, sustainable mobility urban planning, development of local regulations to support sustainable mobility); Procurement (local energy-efficiency regulations, local regulations on the utilization of renewable energy sources); Electric vehicles (private and public) and electric busses for public transport **Stakeholder´s roles definition:** The implementation of the project will be managed by Technical Department in cooperation with European Integration and Development Strategies Department on behalf of Suceava Municipality .One of the key roles will be fulfilled by local private operators (freight suppliers, carriers,even local producers and customers), local traffic police and Environmental Protection Agency .	

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6.2.3 Phase 2: Project inception planning, performance and finance

Objective: Outline key structural aspects for the measure's implementation.

Indicative timeframe	Description of key activities	City departments/ offices involved
September 2019 – September 2023	**Governance designation**: Suceava Municipality will lead the implementation process and there will be partnerships with local private operators (freight suppliers, carriers, customers), local traffic police and Environmental Protection Agency.The project implementation team will be established trough mayor's decision before the beginning of the construction works . **Targets and goals setting (short- to long-term):** SEAP and Suceava' SUMP which was finalized in 2017, include, among other measures regarding improvement of traffic management into the city, the smart solution which consist in building of a Consolidation Centre, which will be operate by a private company .This Centre will act as a transfer station for all goods which need to be distributed into the city of Suceava and will be linked with a set of new local regulation regarding freight delivery (time schedule, routes, weight) with the general objective of the reduction of the traffic volume and traffic emissions in the city of Suceava. **Technology and infrastructure planning:** The interventions will consist in creating at least one Consolidated Distribution Center. In order to identify the appropriate location so as to generate the advantages and benefits of implementing such a system, an investment opportunity study and location / locations identification will be carried out. Special issues will be considered in corelation with the main action as : Involving all economic operators (freight suppliers, carriers, customers) , find an operator of the center must be able to control all involved carriers , establish a "Urban Freight Transport Carta" to encourage store owners to allow their freight to be delivered by carriers using clean vehicles and complying with the rules of delivery of the goods, define regulations on the carriage of goods must	**Technical Department in cooperation with European Integration and Development Strategies Department Local Transport , Traffic and Roads , Public Procurement and Financial offices**

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	be sufficiently strict and must be applied strictly. Public-private partnership is recommended as a useful financial scheme and ensure the involvement of all specific and relevant stakeholders . **Definition of key performance indicators (KPIs):** KPI - the number of UCC created , number of private operators using the facilities , sets of local freight distribution regulation , reduction of CO2 emissions **Cost-benefit analysis:** The cost benefit analysis will be part of technical documentation need to be prepared for secure funding for project implementation and it is a subject of subcontracted external expertise. **Business and financial model definition**: there will be partnerships with local private operators (freight suppliers, carriers, customers), local traffic police and Environmental Protection Agency.The financial model is expect to be local or European. As ERDF funding are available there will be application for secure funding under this programme but also public - private partnership need to be considered .	

6.2.4 Phase 3: Political approval and stakeholder engagement

Objective: Obtain and maintain political and stakeholder commitment for the implementation.

Indicative timeframe	Description of key activities	City departments/ offices involved
September 2018 – September 2023	**Political commitment:** There is a strong political support at local level for implementation of measures concerning reduction of CO2 emissions and reduce the traffic values into the city centre (mainly) . Also the citizen's level of awareness regarding the positive impact of the measures concerning reduction of the traffic congestions and improve the quality of life into the city is quite high so the people's support to measures like the one in the project is it expected to be at a high level. In the past 10 years our experience of working with local stakeholders shows that there is a	**European Integration and Development Strategies Department** **Legal advisory Department** **Secretariat of Local Council of Suceava City**

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	significant support for investments that could contribute to reduce the environmental impact of human activities. Local strategies for reduction of C02 emissions and the negative impact of traffic against environment and citizens have been already approved by the Local Council but beside this each single application for funding (local or European programme) will be subject of separate approval . **Strategic intermediaries** The local development strategies, regional, national and European policies encourage and support local authorities in the implementation process for measures concerning reduction of C02 emissions. The environmental impact of almost all actions undertaken by our local public authority is quantifiable and also taking into consideration not only because of "fashionable behavior" reasons but for the fact that immediate and adequate actions are needed in the process of improving the quality of life into the city. **Public participation and citizen engagement:** Suceava Municipality planned to define and implement local campaigns for promotion of alternative technologies designated to reduce traffic congestion , CO2 emissions and behaviour changes at local level .In order to create a positive atmosphere in the relation between carriers, shop owners and authorities a good communication strategy need to be considered , discussed and implemented . **Capacity building of city staff**: Suceava Municipality's employees have experience in implementation of traffic and urban planning projects .Audit , project evaluation and monitoring could be subjects for external expertise.	

6.2.5 Phase 4: Project implementation

Objective: Plan the effective implementation of the defined measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
September 2019 – September 2023	**Implementation plan:** The measure consists in : Creation of a public-private partnership for shaping the building of the Consolidated Distribution Center, adaptation of local regulations in order to provide operators and distribution companies with facilities to use the Consolidated Distribution Center	**Technical Department in cooperation with European Integration and Development**

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	for their current activity, adaptation of local regulations to establish restrictions that encourage the use of the Consolidated Distribution Center.The implementation plan could include the following aspects at least : Involving all economic operators (freight suppliers, carriers, customers) to take into account all deliveries; The operator of the center must be able to control all involved carriers. This can be correlated with a incentive and discouragement scheme, for example, by means of regulations in favor of clean vehicles; Establish a "Urban Freight Transport Carta" to encourage store owners to allow their freight to be delivered by carriers using clean vehicles and complying with the rules of delivery of the goods; A good communication strategy: creating a positive atmosphere in the relation between carriers, shop owners and authorities by organizing workshops. Regulations on the carriage of goods must be sufficiently strict and must be applied strictly, otherwise they will not be complied with (for example, the regulation of the schedule, the tonnage, the environmental aspects, the type of vehicles specified for the areas concerned); Initial funding is needed to set up a distribution center. However, the goal is a self-financing center after two or three years. Public-private partnership is recommended as a useful financial scheme; It is possible to initiate a distribution center with only a few (for example, two) partners. If the service proves to be effective and successful, other potential participants may show interest in the concept; Carriers need to be convinced of the efficiency of business measures, which means they can carry out more efficient transport operations at lower costs and faster deliveries; Temporary schemes are needed to manage deliveries to large construction sites. During the performing of the Sustainable Urban Development Strategy there were meetings with citizens and district private companies. The main interest is the sustainable development of the	**Strategies Department Local Transport , Traffic and Roads , Public Procurement and Financial offices**

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city, the reduction of traffic pollution, increase the quality of life, reduce the traffic congestion , reduce unemployment and create a better environment for the young generation and for future private investments in the district.

We do expect to have a potential big interests from the citizens and possible few skeptical ideas and reaction from the private companies dealing with freight delivery .

Procurement model

The project will be implemented based on specific technical documentation (which include technical specification , construction and safety requirements , allocated budget , time schedule of execution , project management , indicators and expected results).This documentation (feasibility study) will be part of the tender documentation which will be design and approved according to national legislation for public procurement .It is expected that the procedure will be " open tender " published on Romanian national portal for public acquisition . There will be an " ex ante " verification fo the procedures and also the representatives from regional and national level could be part of the evaluation team depending on the project budget value .

The governmental financing authority established a strict set of rules and procedures for the awarding of the non-reimbursable funds.

Beside this the PPP contract for the operator of the UCC need to be subject of a public tender procedure.

Contract negotiation and management:

The contract awarding procedure will be performed by a procurement team (nominated trough mayor's decision), will have to be performed in accordance with national legislation . The contract will include specific requirements for payments (based on a cash flow agreed with the private company which will be declared as winner after the evaluation process) , penalties (usually for delaying of the construction works and some cases when the supplied equipments are not acceptable or in compliance with the technical requirements).

There are major risks concerning the tender procedure connected with the: duration, compliance, possible appeals from tendering participants.

We do expect to have some opposition from the local and

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	national freight delivery companies, the shop owners and other business which could be potentially affected by the new local regulation regarding freight delivery and consolidation centre The responsibility for management of the contract is divided between the technical and financial departments which are responsible for project implementation. As the procurement procedures are quite difficult and time consuming, complains are very often present during development of the tender procedures, the road from the grant contract and start of the construction works could be a long one and this could conduct to delays in the implementation of the project.	

6.2.6 Phase 5: Monitoring and progress evaluation

Objective: Plan the monitoring, evaluation and reporting of the implementation of the measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
September 2020 – September 2023	**Project monitoring:** The measurements will be done directly and also there will be comparison between data (mainly traffic volumes) collected before and after the project implementation .The data will be available mostly from traffic measurements , data from the EPA and traffic police , reports from the private operators , but special measurement will be requested to be performed during implementation phase by independent experts as a condition for acceptance and payments for the construction works and equipment supplied. Specific data and measurements will be performed / collected for different projects in order to have an accurate image of the achievements and results . There is an internal structure (as part of Technical Department) in Suceava Municipality which is responsible with monitoring of projects implementation. **Project evaluation:** The project will include a special part of the technical documentation dedicated to evaluation. This will include specific indicators (numbers of UCC , surface of facilities,	**Technical Department in cooperation with European Integration and Development Strategies Department Local Transport , Traffic and Roads office**

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	number of private operators using the new facilities) , expected results (reduction of CO2 emission , traffic congestion , number of heavy vehicles in transit inside the city centre) but also expected impact (such quality of life into the city, improving the conditions and the performances of freight delivery , numbers of jobs created as a direct result for the construction company and implementation of new technologies). All these aspects will be subjects of an internal evaluation and a final auditing report from an independent company with expertise in traffic and freight delivery . **Internal and external reporting:** There are specific internal procedures for reporting during project implementation (between departments and members of implementation team) and also periodic financial and technical reports need to be submitted to regional and national institutions (in case of ERDF programme) .Each single project has special allocated budget (as part of the total budget) for local and national dissemination (including leaflets , press releases , conferences , workshops). As mentioned above special promotion campaigns for changing behaviour and promotion of alternative solution already implemented will be considered as part of communication strategy at local level . We do expect to have some less supportive stakeholders groups which are connected with local and regional freight and distribution companies, as some of the new regulation regarding freight and Consolidation Centre could determine significant changes and impacts over their business.	

6.3 Replication plan of Solution 5 (Smart Street lighting and combined electrical charging) and (Developing a charging infrastructure)

6.3.1 Summary of implementation activity

Suceava Municipality would like to create the local charging infrastructure network for EV's in order to have the premises for the increasing of the EV's used in private and public sectors, to reduce the traffic emissions and promote alternative ways of travelling.
In order to achieve these goals some ideas/actions need to be considerate :

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For electric vehicles to actually become attractive for the possible users, it is necessary to increase the technological performance and reduce the procurement price;
The first steps must be taken by the local administration together with other public institutions, therefore public investments need to be made launching the concept on the market;
Charging points should be present in public parking spaces around supermarkets, in the City Hall parking area and in the parking areas of other public institutions, as well as in underground parking spaces, and the places should be reserved and specially marked for electric vehicles;
The use of electric vehicles in the city by public institutions, strategic economic operators using large vehicle fleets and especially by those economic operators performing distribution activities involving frequent travels in urban areas is an efficient method for promotion and could be subjects for replication.

Regarding the charging infrastructure for EV's 28 units (14 standard and 14 fast) are already functional since march 2018 . These are located in public places (residential areas , public institutions parkings , underground parking) and the network covered the entire city area .Also since December 2017 one infrastructure (with 10 units) for charging of electric bikes is functional in Suceava city .All this information are available on Municipality website : www.primariasv.ro .

In addition to this we are designing the technical documentation for ERDF funding of charging infrastructure (on street and on parking place) for electric busses which will be purchased using ERDF funding also .
Replication is already in progress with regards to LED lighting. The modernization of the public lighting infrastructure in Suceava (LED systems , tele management system) is the project which is under implementation phase at the moment and was finalized in July 2018 with a number of 4168 lampposts which means the whole range of public lighting into Suceava City . As an extension to the project concerning replacement of all public lighting lampposts in Suceava , till 2020 Suceava Municipality will implement a new project which consist in replacement of 9221 lighting units located into 18 educational units (schools , kindergartens and high schools) with LED units . This project is financed through Swiss Romanian Cooperation Programme with a total amount of 2.343.260 Euro and it will be implemented till 2020.

Suceava Municipality also plans to continue the development of the vehicle charging infrastructure in the following years and one of the Smart solution which was taken into consideration is : combined electrical charging and street lighting poles. We need to perform a Feasibility Study, to evaluate the financial impact, to design the technical documentation and to find the appropriate source for financing the project implementation.

The political segment continues to be the hardest to approach however the new legal provisions at the European Union level shall be translated into the national laws and the

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performance of specific indicators for a smart economy shall determine the Romanian authorities to take decisions to finance and support the green power and industrial sectors.

6.3.2 Phase 1: Preparation of the implementation framework

Objective: Set the basis for a successfully implementation of the measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
April 2015 – September 2022	**Policy and regulatory screening**: In an increasingly globalized context, Romania's energy policy is made within the changes and developments taking place at national and European level. Under these circumstances, Romania's energy policy must be correlated with similar documents at European level in order to ensure the conformity of our country's policy with EU policy in the field. Global warming currently involves two major problems for mankind: on the one hand, the need to drastically reduce emissions of greenhouse gases to stabilize the concentration of these gases in the atmosphere and thus prevent human influence on the climate system and enable natural ecosystems to adapt naturally, and, on the other hand, the need to adapt to climate change effects, since these effects are already visible and unavoidable due to the inertia of the climate system, regardless of the outcome of actions meant to reduce emissions. Romanian Energy Strategy for the period 2011 – 2020 will aim at fulfilling the main objectives of the new Energy – Environment Policy of the European Union, objectives also assumed by Romania. **The main direction of action** of Romania's energy strategy, converging with the EU energy policy, in regards with this measure , is: The WHITE PAPER Roadmap to a Single European Transport Area – Towards a competitive and efficient transport system in terms of resources, which establishes that by 2050 the European cities will have to drive only clean, non polluting **cars** was adopted by Decision no. 38/2011 and thus Romania was aligned to the overall European transport policy through introducing by 2020 an information framework for	**Technical Department in cooperation with European Integration and Development Strategies Department**

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	implementing a multimodal transport system by decisively shifting to cleaner cars and fuels and reducing with 50% the number of cars with conventional fuel by 2030 and eliminating them progressively in cities by 2050. **Stakeholder´s roles definition:** The implementation of these projects will be managed by Technical Department in cooperation with European Integration and Development Strategies Department on behalf of Suceava Municipality. The definition of the target group was required as an orientation guide for setting strategic objectives and activities planning, since they are actually the main beneficiaries of current planning measures and results, so the key stakeholders are : traders active in the field of people transport by car (taxis), car dealers ,public institutions , private companies, car service operators, car manufacturers, local public transport operators (SC TPL SA Suceava) ,providers on the electricity market (producers and carriers indirectly), providers of technological charging equipment , citizens and tourists.	

6.3.3 Phase 2: Project inception planning, performance and finance

Objective: Outline key structural aspects for the measure's implementation.

Indicative timeframe	Description of key activities	City departments/ offices involved
April 2015 – September 2022	**Governance designation**: Suceava Municipality will lead the implementation process and there will be partnerships with private operators (car dealers, energy providers) and other public entities (such public institutions which would like to use the existing facilities or to contribute for the extension of the network).The project implementation team will be established trough mayor's decision before the beginning of the construction works . **Targets and goals setting (short- to long-term):** According to SEAP and the technical documentation for this measures are related to : • The number of lighting units with LED technology newly introduced in the municipal lighting system	**Technical Department in cooperation with European Integration and Development Strategies Department Public Procurement and Financial offices**

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increased with 4.168 until the end of the project implementation

- The number of telemanagement systems of lighting units implemented in the municipal lighting system increased by 1 at the end of the project implementation
- The number of charging units for EV's is 28 (14 standard and 14 fast) and one unit for charging of electric bikes
- The number of charging units for electric busses will be 26

Technology and infrastructure planning:

The interventions consists in : purchasing EV's and electric busses for public transport, installation of charging points, charging points for vehicles in public spaces and underground parking places , modernization of the public lighting infrastructure in Suceava with a number of 4168 lampposts using LED technology , combined electrical charging and street lighting poles .

Companies dealing with designing and implementation for the technical solution together with the equipment suppliers, car dealers and energy providers will cooperate with the technical departments form the municipality .

Through this interventions there will be an increase the number of the electric vehicles used by private owners and public institutions. There will be also activities related to development of local and national markets for car dealers, companies responsible for charging points installation and replacement of existing lampost with LED technology. Suceava Municipality will implement the car sharing concept for EV's and will develop public dissemination campaigns in order to change public behaviour and perception regarding EV's and to increase the number of EV's both at local and also national level.

Definition of key performance indicators (KPIs

KPI – number charging point installed(28) , number of LED in use for the public lighting system(4186), number of EV's(13), number of LED systems in public buildings (9221). The electro mobility projects and the rehabilitation of the public lighting system are finished and the combined electrical charging and street lighting

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	poles is supposed to be finished in 2022. . As an extension to the project concerning replacement of all public lighting lampposts in Suceava , till 2020 Suceava Municipality will implement a new project which consist in replacement of 9221 lighting units located into 18 educational units (schools , kindergartens and high schools) with LED units . This project is financed through Swiss Romanian Cooperation Programme with a total amount of 2.343.260 Euro Also energy consumption related to the municipal public lighting was reduced by 1,814 MWh/year and CO2 emissions related to the municipal public lighting was reduced by 1,271 t/year , together with the quality of life and the reduction of negative effect of traffic against environment need to be considered. **Cost-benefit analysis:** The cost benefit analysis will be part of technical documentation that is requested to be prepared for application necessarily for funding the projects implementation and it is a subject of subcontracted external expertise. **Business and financial model definition**: There will be partnership with private operators (car dealers, energy providers) and other public entities (such public institutions which would like to use the existing facilities or to contribute for the extension of the network) .The financial model is expect to be local or European. For the LED technology , charging stations and EV's Suceava Municipality secured in 2013 a **3.112.489,61 CHF grant contract co-financed (85 %) by the** Government of Switzerland through the Swiss-Romanian Cooperation Programme .As ERDF funding are available there will be application for secure funding under this programme for EV's, electric busses and combined electrical charging and street lighting poles .	

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6.3.4 Phase 3: Political approval and stakeholder engagement

Objective: Obtain and maintain political and stakeholder commitment for the implementation.

Indicative timeframe	Description of key activities	City departments/ offices involved
April 2015 – September 2022	**Political commitment:** There is a strong political support at local level for implementation of measures concerning energy efficiency and reduce traffic emissions . The fact that a major part of these activities under this measure have been implemented already (with a co financing part from local budget – up to 17 %) demonstrate that the commitments and local support is strong and the future activities will benefit from support of the local decision makers also . In the past 10 years our experience of working with local stakeholders shows that there is a significant support for investments that could contribute to reduce the environmental impact of human activities. Local strategies for increasing the energy efficiency have been already approved by the Local Council but beside this each single application for funding (local or European programme) will be subject of separate approval . According to the decision nr. 177 from 31st May 2018 of the Local Council of Suceava City in the following months the Mayor of Suceava City will sign the documents for Covenant of Mayors which confirm the decision to continue the implementation of the measures regarding energy efficiency , to reduce the CO2 emissions and to allocate funds for projects implementation in the following 5 years . **Strategic intermediaries** The local development strategies, regional, national and European policies encourage and support local authorities in the implementation process for energy efficiency measures, for reduction of traffic emissions and promotion of the alternative ways of traveling. Suceava City would like to act as a Pioneer City in this field of SMART City Concepts by implementing this measures and become an example for other cities in Romania .The environmental impact of almost all actions undertaken by our local public authority is quantifiable and also taking	**European Integration and Development Strategies Department** **Legal advisory Department** **Secretariat of Local Council of Suceava City**

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	into consideration not only because of "fashionable behavior" reasons but for the fact that immediate and adequate actions are needed in the process of improving the quality of life into the city. **Public participation and citizen engagement:** Suceava Municipality has been implemented and implement local campaigns for promotion of alternative technologies designated to increasing the energy efficiency and behaviour changes at local level (electric vehicles , LED technology).There were special campaigns designated to the promotion of alternative ways of travelling , implementation of car sharing system and till 2022 the cost of charging for private electric vehicles (which belongs to Suceava citizens) will be covered form local budget as a measure for encouraging the changing of traffic modes to alternative ones . It is expected that these new projects should allow us to gain more experience, to allow access to funding resources , to continue the work with local stakeholders, to achieve sustainable changes in people's behaviour regarding electric and alternative vehicles, LED systems for lighting ,improve local team skills and to promote the local experience at regional and national level. **Capacity building of city staff**: Having in mind that 2 of the measured have been implemented already we can confirm that Suceava Municipality's employees have experience in implementation of energy efficiency projects .Audit , project evaluation and monitoring will be subjects for external expertise.	

6.3.5 Phase 4: Project implementation

Objective: Plan the effective implementation of the defined measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
April 2015 – September 2022	**Implementation plan:** Suceava City expressed into the SEAP and IUDS the willingness to implement new technologies for public lighting system, to create the local charging infrastructure network for EV's in order to have the premises for the increasing of the EV's used in private and public sectors, to reduce the traffic emissions and promote alternative ways	**Technical Department in cooperation with European Integration and Development Strategies**

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	of travelling. In order to achieve these goals some ideas/actions need to be considerate : For public lighting it is highly important to invest in “smart technology “ and to implement practical solution which can conduct to the achievement of objectives (reduction of energy consumption and CO2 emissions). For electric vehicles to actually become attractive for the possible users, it is necessary to increase the technological performance and reduce the procurement price; The first steps must be taken by the local administration together with other public institutions, therefore public investments need to be made launching the concept on the market; Charging points should be present in public parking spaces around supermarkets, in the City Hall parking area and in the parking areas of other public institutions, as well as in underground parking spaces, and the places should be reserved and specially marked for electric vehicles; The use of electric vehicles in the city by public institutions, strategic economic operators using large vehicle fleets and especially by those economic operators performing distribution activities involving frequent travels in urban areas is an efficient method for promotion, and could be subjects for replication. Regarding the charging infrastructure for EV’s 28 units (14 standard and 14 fast) are already functional since march 2018 . These are located in public places (residential areas , public institutions parkings , underground parking) and the network covered the entire city area .Also since December 2017 one infrastructure (with 10 units) for charging of electric bikes is functional in Suceava city . In addition to this we are designing the technical documentation for ERDF funding of charging infrastructure (on street and on parking place) for electric busses which will be purchased using ERDF funding also . Suceava Municipality will implement till 2021 the project called “ Integrated public transport system “ , financed by ERDF with a total of 24.500.000 Euro . This project	**Department Public Procurement and Financial offices**

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consist in :
- acquisition of 40 full electric busses which will replace the existing Euro 3 ones and which will perform the public transport service for the entire city area
- installation of 26 charging station for electric busses , from which 6 are fast charging station , located on the main routes for local public transport
- implementation of traffic management systems for public transport , real time information systems and e-ticketing

Till the end of 2019 in Suceava city 5 electric mini busses designated for local public transport will be operational .This project is financed through Swiss Romanian Cooperation Programme with a total amount up to 1.100.000 Euro .

Small capacity electric buses will be used to carry out the public passenger transport service, a service of public interest that Suceava Municipality is obliged to provide and finance, according to the law.

The introduction of electric mini buses for the public passenger service aims to reduce CO2 emissions, which contributes to the main objective of the project.

Replication is already in progress in Suceava with regards to LED technology for public lighting(on street and in public buildings). The modernization of the public lighting infrastructure in Suceava municipality is the project which is under implementation phase at the moment and will be finalized in July 2018 with a number of 4168 lampposts which means the whole range of public lighting into Suceava City. As an extension to the project concerning replacement of all public lighting lampposts in Suceava , till 2020 Suceava Municipality will implement a new project which consist in replacement of 9221 lighting units located into 18 educational units (schools , kindergartens and high schools) with LED units . This project is financed through Swiss Romanian Cooperation Programme with a total amount of 2.343.260 Euro and it will be implemented till 2020.

Suceava Municipality also plans to continue the development of the vehicle charging infrastructure in the following years and one of the Smart solution which was taken into consideration is: combined electrical charging and street lighting poles. We need to perform a Feasibility

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	Study, to evaluate the financial impact, to design the technical documentation and to find the appropriate source of financing the project implementation. There will be consultation with citizens, private and public companies, SMEs and chamber of commerce in order to increase the quality of the urban public spaces, development of new smart technologies for local market, reduce the energy consumption and CO 2 emission, increase the quality of life into the city, reduce the costs for the local budget, transfer of smart solution and dissemination to local and national level As poles and the charging infrastructure are both public property we do expect to have a smooth implementation of this smart solution. However we do expect to have some less supportive individuals as residents could not be pleased all the time with the technical solution, location, time schedule. The Local Support Group created for these projects was active in implementation phase and it will remain active for the evaluation and monitoring of the projects. The group has representatives from public institutions, private companies, local producers, NGO 's, university, consultancy companies, citizens associations, schools and high schools. This group was responsible also for production of the Local Action Plans(including SEAP) .During the performing of the Integrated Urban Development Strategy there were meetings with citizens and district private companies. **Procurement model** The projects were implemented based on specific technical documentation (which include technical specification , construction and safety requirements , allocated budget , time schedule of execution , project management , indicators and expected results).This documentations (feasibility study and technical project) were part of the tender documentation which were design and approved according to national legislation for public procurement The procedures were " open tenders " published on Romanian national portal for public acquisition . There were an " ex ante " verification for the procedures and also the representatives from regional and national level took part of the evaluation team depending on the project budget value .	

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	These rules, which include several specific actions to be undertaken, including several compulsory activities and interventions. **Contract negotiation and management**: The contract awarding procedures have been performed by a procurement team (established trough mayor's decision) in accordance with national legislation . The contracts included specific requirements for payments (based on a cash flow agreed with the private company which will be declared as winner after the evaluation process) , penalties (usually for delaying of the construction works and some cases when the supplied equipments are not in compliance with the technical requirements). There were major risks concerning the tender procedure connected with the : duration , compliance , possible appeals from tendering participants .Besides these aspects we were able to finalised the procedures and used the savings for 2 integrated projects (electric minibuses and LED lampposts in public institutions – schools and high schools) The responsibility for management of the contract has been divided between the technical and financial departments which are responsible for project implementation. As the procurement procedures are quite difficult and time consuming, complains are very often present during development of the tender procedures, the road from the grant contract and start of the construction works could be a long one and this could conduct to delays in the implementation of the project. Fortunately it was not the case here but as few more projects are to be implemented we still have to consider this risk connected to project implementation duration .	

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6.3.6 Phase 5: Monitoring and progress evaluation

Objective: Plan the monitoring, evaluation and reporting of the implementation of the measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
April 2015 – September 2022	**Project monitoring:** The measurements were done directly and also there were comparisons between data collected before and after the project implementation .The data was available mostly from communication with charging points and from the information which will come from the energy provider company regarding the level of energy consumption for public lighting , but special measurement were requested to be performed during implementation phase by independent experts as a condition for acceptance and payments for the construction works and equipment supplied. Specific data and measurements were performed / collected for different projects in order to have an accurate image of the achievements and results. There is an internal structure (as part of Technical Department) in Suceava Municipality which is responsible with monitoring of projects implementation. **Project evaluation:** Each single project included a special part of the technical documentation dedicated to evaluation. This will include specific indicators (such numbers of charging station , number of electric vehicles , number of LED systems installed and combined electric charging with street polls) , expected results (such reduction of energy consumption , reduction of traffic emissions) but also expected impact (such quality of life into the city, improving the working and living conditions , numbers of jobs created as a direct result for the construction company and implementation of new technologies). With regards to LED systems we can confirm that the energy consumption for public lighting has been reduced with up to 59 % after the project implementation , the number of EV's increased with a total of 22 (13 public and 9 private) and all the charging station have been used (with an average of 2 charging sessions per day).	**Technical Department in cooperation with European Integration and Development Strategies Department**

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	All these aspects will be subjects of an internal evaluation and a final auditing report from an independent company with expertise in energy efficiency . **Internal and external reporting:** There are specific internal procedures for reporting during project implementation (between departments and between members of implementation team) and also periodic financial and technical reports need to be submitted to regional and national institutions (in case of ERDF programme) .Each single project has special allocated budget (as part of the total budget) for local and national dissemination (including leaflets , press releases , conferences , workshops).We have already performed several local , regional and national promotion campaigns for dissemination of the p[projects results. As mentioned above special promotion campaigns for changing behaviour and promotion of alternative technical solution already implemented will be considered as part of communication strategy at local level.	

6.4 Replication plan of Solution 7 Smart waste collection

6.4.1 Summary of implementation activity

In connection with the smart waste collecting, turning waste to electricity, heat and biogas for vehicles our expectation was to be able to transfer the experience from city of Stockholm mostly in connection with separate waste connection, recycling facilities and production of ”green energy” by using biomass and reduce the dependency of the conventional energy sources.

A new waste management system is implemented at county level and a new landfill site is located in the vicinity of Suceava City. As this new system includes separate waste collection and transfer stations Suceava Municipality would like to benefit from the existing infrastructure in order to extend the concept and implement the equipment necessarily for the production of energy using waste.

The technical documentation needs to be designed and the appropriate source of funding has to be correctly identified as the ERDF funding is not available for this type of measures.

For the moment Suceava city is performing the tender procedure for the private operators which will be responsible with the waste management at local level. This will be a 7 year long contract that will include facilities for separate waste collection in order to increase the level of waste recycling at local level and to reduce the consumption of raw materials.The system will allow to increase the percentage of recycling (glass, metal , paper) at city level .

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6.4.2 Phase 1: Preparation of the implementation framework

Objective: Set the basis for a successfully implementation of the measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
January 2017 – September 2024	**Policy and regulatory screening**: According to the EU policies , national and local strategies the local public authorities need to consider and implement measures concerning waste management in order to reduce the quantity of waste , to implement facilities for separate waste collection , to encourage implementation of facilities for waste recycling and to reduce the negative impact of the waste management against environment and increase the quality of the life into the city . Suceava municipality has started the pilot projects for separate waste collection and recycling in 2002 and since then there was a major political support for implementation of modern and efficient waste management systems . **Stakeholder´s roles definition:** The implementation of these projects will be managed by Waste Management Department. The definition of the target group was required as an orientation guide for setting strategic objectives and activities planning, since they are actually the main beneficiaries of current planning measures and results, so the key stakeholders are : citizens , EPA , private operators dealing with waste recycling , private companies, public institutions .	**Waste management Department** **Legal advisory Department** **Secretariat of Local Council of Suceava City**

6.4.3 Phase 2: Project inception planning, performance and finance

Objective: Outline key structural aspects for the measure's implementation.

Indicative timeframe	Description of key activities	City departments/ offices involved
January 2017 – September 2024	**Governance designation**: Suceava Municipality will lead the implementation process and there will be partnerships with private operators, other public entities (such public institutions which would like to use the existing facilities or to contribute for the extension of the facilities), schools ,	**Waste management Department** **Legal advisory Department** **Public**

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	Environment Protection Agency , associations of citizens .The project implementation team will be established trough mayor's decision before the beginning of the construction works . **Targets and goals setting (short- to long-term):** According to SEAP and the technical documentation the measure is related to implementation of a modern waste management system for Suceava city , which will include special facilities for separate waste collection and waste recycling. **Technology and infrastructure planning:** The interventions consists in : 4 different types of containers (bins) designate for : paper , metal , plastic and glass need to be placed and managed for each already existing collection point in the city , facilities for each neighborhood , 6280 containers(bins) will be located into the city, from which 55 % will be underground ones , new waste management system with exact specification of the quantities for each material which can be recycled. **Definition of key performance indicators (KPIs):** KPI -- reduce the impact against environment, increase the percentage of the separate waste collection and recycling materials, reduce the amount of the waste which reach the waste disposal, create alternatives for energy production , increase the public places aspect and the quality of the life into the city, changing people's behavior, reduce the costs for public services covered by the local budget . **Cost-benefit analysis:** The cost benefit analysis was part of technical documentation that was requested to be prepared for application necessarily for funding the projects implementation and it was a subject of subcontracted external expertise. **Business and financial model definition**: There will be partnership with private operators, other public entities (such public institutions which would like to use the existing facilities or to contribute for the extension of the facilities), schools , Environment Protection Agency , associations of citizens .The financial model is expect to be local or European.As ERDF funding are not available	**Procurement and Financial offices**

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	there will be application for secure funding from local and national budget.	

6.4.4 Phase 3: Political approval and stakeholder engagement

Objective: Obtain and maintain political and stakeholder commitment for the implementation.

Indicative timeframe	Description of key activities	City departments/ offices involved
January 2017 – September 2024	**Political commitment:** There is a strong political support regarding actions to reduce the negative impact of the municipal waste . Actually in Suceava municipal facilities for plastic , paper and glass recycling have been implemented since 2012 in a partnership with a private operator . In the past 10 years our experience of working with local stakeholders shows that there is a significant support for investments that could contribute to reduce the environmental impact of human activities. According to the decision nr. 177 from 31st May 2018 of the Local Council of Suceava City in the following months the Mayor of Suceava City will sign the documents for Covenant of Mayors which confirm the decision to continue the implementation of the measures regarding energy efficiency ,waste management and to allocate funds for projects implementation in the following 5 years . **Strategic intermediaries** The local development strategies, regional, national and European policies encourage and support local authorities in the implementation process for waste separate collection and recycling measures.The environmental impact of almost all actions undertaken by our local public authority is quantifiable and also taking into consideration not only because of "fashionable behavior" reasons but for the fact that immediate and adequate actions are needed in the process of improving the quality of life into the city. **Public participation and citizen engagement:** Suceava Municipality planned to design and implement local campaigns for promotion of alternative technologies	**Waste management Department** **Legal advisory Department** **Secretariat of Local Council of Suceava City**

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	designated to increasing the efficiency of the waste management system , to reduce the negative impact against environment and to achieve changing behaviours among citizens , public institutions and private companies . **Capacity building of city staff**: Suceava Municipality's employees have experience in implementation of waste management projects based on the fact that the first pilot project regarding separate waste collection was implemented in 2002 .Audit , project evaluation and monitoring will be subjects for external expertise.	

6.4.5 Phase 4: Project implementation

Objective: Plan the effective implementation of the defined measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
January 2017 – September 2024	**Implementation plan:** Starting from 2013 in Suceava, through a PPP, a new city power plant is functional, using only biomass, provided both heating for the entire city and electric energy. This project is considered to be a starting point for increasing the production of green energy at local level. Besides this 2011 was the starting point of a major waste management project at county level and currently there are facilities for separate waste collection and recycling of paper , glass and plastic items (mainly PET) . This project includes transfer stations for waste, a new landfill (with biogas production plant and modern systems for environment protection and separate recycling facilities) and it was financed using ERDF funds. In the next 7 years Municipality would like to continue the development of the existing separate waste collection – increase the level of recycling with 25 – 20 % till 2020. Special facilities (bins, advertising) will be located in the district area with the main purpose of increasing the waste recycling. There will be specific actions undertaken with local retailers, supermarkets and producers for the development of facilities (locations but also incentives) for separate waste collection and recycling – especially plastic bottles and paper . In 2017 Suceava Municipality launched the open tender	**Waste management Department Public Procurement and Financial offices**

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	procedure for the private company which will be responsible for the collection and recycling of municipal waste in the next 7 years . In the tender dossier there are specific criteria and obligation regarding separate waste collection and recycling or waste like : 4 different types of containers (bins) designate for : paper , metal , plastic and glass need to be placed and managed for each already existing collection point in the city , a total number of 6280 containers will be located into the city , separate waste collection need to be carefully performed by the operator , with exact specification of the quantities for each recyclable material . In December 2017 a new modern and ecological landfill was finalized in the vicinity of Suceava city , as part of a regional integrated waste management system , together with 2 transfer station in which the waste will be separated and prepared to be recycled . In January 2018 in Suceava a number of two private operators are active in the field of waste recycling: one for paper and the second one for plastic. We do expect to have a functional and efficient waste management system , that include also recycling , starting from January 2019 , depending on the tender procedure progress . Suceava Municipality also plans to continue the development of the waste management system . There were consultation with citizens, private and public companies, owners associations in order to increase the quality of the urban public spaces, development of new smart technologies for waste recycling, increase the quality of life into the city, reduce the costs for the local budget. However we do expect to have some less supportive individuals as residents could not be pleased all the time with the technical solution, location, time schedule and the process of implementation of the separate waste collection highly depends on changing behaviors. During the performing of the Integrated Urban Development Strategy there were meetings with citizens and district private companies. **Procurement model**	

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	The project will be implemented based on specific technical documentation (which include technical specification , construction and safety requirements , allocated budget , time schedule of execution , project management , indicators and expected results).This documentations (feasibility study and technical project) were be part of the tender documentation which will be design and approved according to national legislation for public procurement The procedures were " open tenders " published on Romanian national portal for public acquisition . There were an " ex ante " verification for the procedures and also the representatives from regional and national level took part of the evaluation team depending on the project budget value . The governmental financing authority established a strict set of rules and procedures for the awarding of the non reimbursable funds. **Contract negotiation and management**: The contract awarding are currently performed by a procurement team (established trough mayor's decision) in accordance with national legislation . The contract include specific requirements for payments (based on a cash flow agreed with the private company which will be declared as winner after the evaluation process) , penalties (usually for delaying of the construction works and some cases when the supplied equipments are not in compliance with the technical requirements). The responsibility for management of the contract has been divided between the technical(waste management) and financial departments which are responsible for project implementation. The procurement procedures are quite difficult and time consuming, complains are very often present during development of the tender procedures the road from the grant contract and start of the construction works could be a long one and this could conduct to delays in the implementation of the project. Unfortunately it was the case here and this could conduct to major delays for the project implementation .	

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6.4.6 Phase 5: Monitoring and progress evaluation

Objective: Plan the monitoring, evaluation and reporting of the implementation of the measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
January 2017 – September 2024	**Project monitoring:** The measurements will be done directly and also there will be comparisons between data collected before and after the project implementation .The data will be available mostly from the information which will come from the private operator of waste management system regarding the quantity and types of collected and recycled waste , but special measurement will be requested to be performed during implementation phase by independent experts as a condition for acceptance and payments for the construction works and equipment supplied. Specific data and measurements will be performed / collected for different projects in order to have an accurate image of the achievements and results. There is an internal structure (as part of Technical Department) in Suceava Municipality which is responsible with monitoring of projects implementation. **Project evaluation:** The project will include a special part of the technical documentation dedicated to evaluation. This will include specific indicators (such numbers of recycling facilities created , the number of citizens using these facilities , the quantity of the recycled materials) , expected results (such reduction of waste management costs both for inhabitants and local authority) but also expected impact (such quality of life into the city, improving the working and living conditions , numbers of jobs created as a direct result for the private operator and implementation of new technologies). All these aspects will be subjects of an internal evaluation and a final auditing report from an independent company with expertise in energy efficiency . **Internal and external reporting:** There are specific internal procedures for reporting during project implementation (between departments and	**Waste management Department and Financial offices**

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	between members of implementation team) and also periodic financial and technical reports need to be submitted to regional and national institutions . The project has special allocated budget (as part of the total budget) for local and national dissemination (including leaflets , press releases , conferences , workshops).We have already performed several local , regional and national promotion campaigns for dissemination of the projects results. As mentioned above special promotion campaigns for changing behaviour and promotion of alternative and most efficient solution for separate waste collection and waste recycling , technical solution already implemented will be considered as part of communication strategy at local level.	

6.5 Replication plan of Solution 10.1 – Smart traffic signals

6.5.1 Summary of implementation activity

In the past 5 years a number of related studies and strategies were approved at local level: Urban Integrated Development Strategy – 2017, Sustainable Urban Mobility Plan – 2014, Sustainable Energy Action Plan – 2012, Local Action Plan (electro mobility) – 2012. The purpose of these strategic documentations is to implement a sustainable development of the city, reduce traffic congestion and the negative impact of traffic against environment and inhabitants. The city's SUMP includes specific actions and measures to implement a smart traffic lights system, such as: green way , special priority for public transport, modernization of traffic lights and real time information systems. Therefore smart traffic signals have good replication potential in Suceava.

Suceava city have access to ERDF funding for replication of this measure so the next step is to design the technical documentation and send the application form in order to secure funding. The objective is to modernize all existing traffic light system into Suceava city in order to reduce traffic congestion and more important to implement facilities for public transport vehicles in order to optimize this public service.

The technical documentation and application dossier will be sending to the MA for ERDF programme 2014– 2020 as calls for projects are opened already and this kind of actions are eligible for local municipalities.
For a successful implementation of this action technical documentation need to be designed , funds need to be secured and after the tender procedures will be finalized the construction works need to be completed till the end of 2023 .

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6.5.2 Phase 1: Preparation of the implementation framework

Objective: Set the basis for a successfully implementation of the measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
June 2018 – September 2019	Suceava faces the combined challenges of increased motorised traffic, stringent European environmental and energy targets mainly in the context of reduction the traffic emissions, waste recycling, economic growth, increase the energy efficiency, secure funding for implementation of local infrastructure projects and implementation of the sustainable development local plans, increase the quality of life into the city. Also based on these strategic documents on local level Suceava Municipality had implemented a number of projects (with the total amount of 22, 4 mil euro) for rehabilitation of main streets and boulevards, traffic lights, underground parking places, extension of the pedestrian area in the city centre, modernization of the public transport fleet and cycling lanes with the main purpose : sustainable mobility, reduce traffic congestion, reduce traffic emissions and increase the quality of life into the city. Suceava Municipality expresses the intention to apply for ERDF funds for implementation of a metropolitan public transport system. This project will include electric busses, intermodal points and transfer facilities (park and ride) , systems for monitoring and controlling traffic signals an real time information to users on traffic conditions in order to reduce the traffic emissions and impact against environment and public health, to reduce traffic congestion and energy consumption (especially alternative vehicles). Also the Integrated Urban Development Strategy for Suceava City (2016 – 2023) mentioned the investments in traffic infrastructure as one of the main priorities . **Stakeholder´s roles definition:** The implementation of the project will be managed by Technical Department (Streets and Traffic) in cooperation with European Integration and Development Strategies Department on behalf of Suceava Municipality . Local councilors, politician, Municipality's staff, decision makers	**Technical Department in cooperation with European Integration and Development Strategies Department**

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	and technical experts from local public administration, local NGO's, private companies (especially the ones involved freight, traffic lights , public transport vehicles) are potential interested in exchange of best practice examples, knowhow and technology related to this measure. We do also expect to have some interest from local University in the IT domain related to local platform for real time information and traffic signs .	

6.5.3 Phase 2: Project inception planning, performance and finance

Objective: Outline key structural aspects for the measure's implementation.

Indicative timeframe	Description of key activities	City departments/ offices involved
June 2018 – September 2023	**Governance designation**: Suceava Municipality will lead the implementation process .The project implementation team will be established trough mayor's decision before the beginning of the construction works. **Targets and goals setting (short- to long-term):** According to SEAP and IDUS all traffic lights will be modernized in order to implement the necessarily infrastructure for improving traffic conditions , reduce traffic congestion and improve the quality and accessibility of public transport. **Technology and infrastructure planning:** The interventions will consists in : rehabilitation of the traffic light infrastructure (both for vehicles and pedestrians) with special requested technologies for implementation of special priorities for public transport vehicles in order to reduce traffic congestion , improve the PT conditions and reduce accidents . Companies dealing with designing and implementation of the technical solution together with the equipment suppliers will cooperate with the technical departments form the municipality. **Definition of key performance indicators (KPIs):** KPI – number of traffic light modernized , number of special equipments implemented , number of PT	**Technical Department(Streets and traffic) in cooperation with European Integration and Development Strategies Department Public Procurement and Financial office**

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	passengers , facilities created for traffic and PT. **Cost-benefit analysis:** The cost benefit analysis will be part of technical documentation that is requested to be prepared for application necessarily for funding the projects implementation and it is a subject of subcontracted external expertise. **Business and financial model definition**: There will be partnership with IT and equipment suppliers companies , the local public transport company and with other public entities .The financial model is expect to be local or European. As ERDF funding are available there will be application for secure funding under this programme .	

6.5.4 Phase 3: Political approval and stakeholder engagement

Objective: Obtain and maintain political and stakeholder commitment for the implementation.

Indicative timeframe	Description of key activities	City departments/ offices involved
June 2018 – September 2023	**Political commitment:** There is a strong political support at local level for implementation of measures concerning traffic , improving the PT accessibility and reduce the negative impact against citizens. Also the citizen's level of awareness regarding the positive impact of these measures is quite high so the people's support to measures like the one in the project is it expected to be at high level. In the past 10 years our experience of working with local stakeholders shows that there is a significant support for investments that could contribute to reduce the environmental impact of human activities. Local strategies for this type of measure have been already approved by the Local Council but beside this each single application for funding (local or European programme) will be subject of separate approval . **Strategic intermediaries :** The local development strategies, regional, national and European policies encourage and support local authorities in the implementation process for measures concerning improving the traffic conditions and reduce congestion	**Technical Department(Streets and traffic) in cooperation with European Integration and Development Strategies Department Public Procurement and Financial offices Legal advisory Department Secretariat of Local Council of Suceava City**

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into the city. The environmental impact of almost all actions undertaken by our local public authority is quantifiable and also taking into consideration not only because of ”fashionable behavior” reasons but for the fact that immediate and adequate actions are needed in the process of improving the quality of life into the city.

Public participation and citizen engagement:

Suceava Municipality planned to design and implement local campaigns for promotion of alternative technologies designated to improve traffic conditions , reduce traffic congestion, increase the accessibility of PT and implement behaviour changes at local level .

The local public administration intents to set up a local "eco-innovation" structure to identify, propose, develop and then actively participate in the process of implementing, evaluating and monitoring innovative "smart" ideas which could enable action, projects, prototypes, regulations and procedures in order to improve the local community's living standards, sustainable and durable development, to encourage entrepreneurship, to stimulate the introduction of practical sessions in the educational process, and to support innovative idea providers, especially in the ecological sector with practical application in all areas of activity.

The structure of this "local initiative group" will consist of: academics, teachers, students, specialists from various departments of local the public administration (engineering, economics, judicial), specialists from decentralized units and local institutions (the Environmental Protection Authority, the Chamber of Commerce and Industry Suceava), entrepreneurs, citizens.

The Local Public Authority will finance the activity of this structure for an indefinite period of time, establishing, in the meantime, the possibility of infusion of funds also from the private sector.

Innovative ideas from various fields of activity will be developed until the feasibility study phase, and then they will be presented to potential sponsors for implementation and subsequent evaluation and monitoring.

Capacity building of city staff: Suceava Municipality’s

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	employees have experience in implementation of traffic projects .Audit , project evaluation and monitoring could be subjects for external expertise.	

6.5.5 Phase 4: Project implementation

Objective: Plan the effective implementation of the defined measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
June 2018 – September 2023	**Implementation plan:** There is a huge need for actions regarding improving traffic condition, reduce traffic congestion, create facilities for alternative ways of travelling and for PT. In July 2017 the Local Council of Suceava City approved the traffic plan which consist in : implementation of the " one way " concept for the main 2 major boulevards in Suceava , implementation of a special lane dedicated exclusively to PT , implementation of " green way ' concept and modernization of the traffic intersections (lights , signals , management systems). It is expected that the project will be implemented till end of 2018 and after this the measure for smart traffic signals will start to be implemented into the city also . Feasibility study is under designing phase and is expected to be finalized in the second half of 2018. The exact number of traffic facilities to be implemented is still a subject of technical and economic analysis .The technical documentation and application dossier will be sending to the MA for ERDF programme 2014- 2020 as calls for projects are opened already and this kind of actions are eligible for local public authorities. Suceava Municipality is currently in the design phase for the technical documentation for ERDF funding which will be used for modernization of traffic system into the city: alternative ways of travelling, facilities for PT , traffic light and management systems . The allocation from ERDF funds for this project is not yet established but it is expected to be close to 1.200.000 E and it is expected that the project will be completed till 2021. Special attention need to be allocated to :dialog with the politicians and decision makers which can conduct to approval of the project implementation and, more	**Technical Department(Streets and traffic) in cooperation with European Integration and Development Strategies Department Financial office**

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important, to allocation of necessarily funds , the road map from an idea to a successful project implemented at local level and technical details regarding : financing scheme, best practice solution, evaluation results, public consultation, involvement of the local, regional and national private sector and industrial partners, procurement and dissemination.

During the performing of the Integrated Urban Development Strategy there were meetings with citizens and district private companies.

Public consultation and traffic studies were completed before the start of this measure implementation as a significant number of stakeholders (private companies, citizens, residents, public transport operators) could be affected . The main interest is the sustainable development of the district, the reduction of traffic pollution, increase the quality of life, reduce unemployment and create a better environment for the citizens and for future private investments .

Procurement model

The project will be implemented based on specific technical documentation (which include technical specification , construction and safety requirements , allocated budget , time schedule of execution , project management , indicators and expected results).This documentation (feasibility study) will be part of the tender documentation which will be design and approved according to national legislation for public procurement .It is expected that the procedure will be " open tender " published on Romanian national portal for public acquisition . There will be an " ex ante " verification for the procedures and also the representatives from regional and national level could be part of the evaluation team depending on the project budget value .

Contract negotiation and management:

The contract awarding procedure will be performed by a procurement team (established trough mayor's decision) and will be performed in accordance with national legislation . The contract will include specific requirements for payments (based on a cash flow agreed with the private company which will be declared as winner after the evaluation process) , penalties (usually for delaying of the construction works and some cases

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	when the supplied equipments are not in compliance with the technical requirements). There are major risks concerning the tender procedure connected with the : duration , compliance , possible appeals from tendering participants .The responsibility for management of the contract is divided between the technical and financial departments which are responsible for project implementation . As the procurement procedures are quite difficult and time consuming, complains are very often present during development of the tender procedures, the road from the grant contract and start of the construction works could be a long one and this could conduct to delays in the implementation of the project.	

6.5.6 Phase 5: Monitoring and progress evaluation

Objective: Plan the monitoring, evaluation and reporting of the implementation of the measure.

Indicative timeframe	Description of key activities	City departments/ offices involved
June 2018 – September 2023	**Project monitoring:** The measurements will be done directly and there will be comparisons between data collected before and after the project implementation .The data will be available mostly from communication with the equipments which will be part of traffic lighting and management systems .There will be also measurements and data collected from the CCTV system which is functional in Suceava (since 2012) and that consists in 108 traffic cameras which are currently (24/7) monitoring all the surface of the city . Beside this special measurement will be requested to be performed during implementation phase by independent experts as a condition for acceptance and payments for the construction works and equipment supplied. Report from the traffic control office which will be installed at the Local Public Transport headquarter will be used for real time information regarding public transport. Specific data and measurements will be performed / collected for different projects in order to have an accurate image of the achievements and results. There is an internal structure (as part of Technical Department) in	**Technical Department(Streets and traffic) in cooperation with European Integration and Development Strategies Department Financial office**

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	Suceava Municipality which is responsible with monitoring of projects implementation. **Project evaluation:** The project will include a special part of the technical documentation dedicated to evaluation. This will include specific indicators (such number of traffic lights and management facilities) , expected results (such reduction of traffic congestion, improving the PT accessibility , number of PT passengers , number of traffic accidents) but also expected impact (such quality of life into the city, improving the working and living conditions , numbers of jobs created as a direct result for the construction company and implementation of new technologies). All these aspects will be subjects of an internal evaluation and a final auditing report from an independent company with expertise in energy efficiency. **Internal and external reporting:** There are specific internal procedures for reporting during project implementation (between departments and members of implementation team) and also periodic financial and technical reports need to be submitted to regional and national institutions (in case of ERDF programme) .The project will have a special allocated budget (as part of the total budget) for local and national dissemination (including leaflets , press releases , conferences , workshops). As mentioned above special promotion campaigns for changing behaviour and promotion of alternative technical solution already implemented will be considered as part of communication strategy at local level.	

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7 Conclusions

As can be surmised from the above information, there is no single Smart Solution being replicated by all five FCs – conversely, there are four measures which are only planned for implementation in a single city each. Of course, all this is a reflection of quite different local contexts and needs driving each of the FCs towards certain smart city priorities over others, which logically results in interesting variations amongst the FCs' assessments of their preferred LCs' Smart Solutions.

Suceava's smart city approach clearly is aiming for a quite broad range of options, with strong interest in eight of the twelve Smart Solution groupings, more than any other FC, and as can be seen from the details in their report above the city is already quite aware of the benefits of linking up strong synergies between its diverse smart intentions.

The participation of Suceava as Follower City in GrowSmarter has clearly demonstrated the facilitated transfer of knowledge and best practice from the Lighthouse cities.

Most importantly, Suceava is showcasing how a smart city strategy and clear urban targets coupled with a strong commitment of administrative staff to explore innovation and strive systematically for securing national and European funding for replication of smart solutions within e.g. the fields of electric vehicles, energy efficiency technologies for public and private buildings and well as the application of LED for public lighting is feasible and highly beneficial for cities in Romania and other Central and Eastern European Countries.

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