

**Measure title:** Policy option for freight distribution schemes in craiova

**City:** Craiova

**Project:** MODERN

**Measure number:** 07.03

## Executive summary

The measure focus on the developing of policy options for freight distribution management in the city centre.

The urban area of Craiova is composed by several activity centres that require large amounts of goods for functioning. Purpose of this measure was to develop, implement and test a new scheme for goods distribution within the town, with special attention to city Centre. The central areas as focus point of urban activities are unable to deal with high-intensity traffic flows. The freight transport process is hindered by lack of capacity in combination with high passenger traffic intensities. Opposite, the passengers' traffic is hindered by goods traffic. These problems appear in the large cities of the European Union and began also to increase in Craiova too.

The objectives defined in this measure are: the improving of the freight distribution, system reducing the chemical pollution with 10% and decreasing the number of vehicles for goods transport that operate in the zone of interest with 5%.

The measure developed step-by-step, beginning with studying the freight distribution process in Craiova, compared with other Romanian and EU cities experiences.

This led to examine several opportunities for Craiova city: scheme dealing with central hub in which all the needed goods have to be concentrated and distributed for the mile with environmental friendly vehicle, scheme in which, to avoid traffic congestion the freight distribution will be managed by several time windows and so on. Moreover it was developed a study aimed to characterize the central area of the town in terms of road situation, economic activity, goods need and possible organisation.

During the study the interactions between this measure, the one related to the centre town traffic closure, the heavy works related to the construction of the bridge and the tunnel and the project for City centre rehabilitation came out , so generating a new picture of the work to be done. The study prepared a scenario with several proposals to be implemented.

Due to the complexity of the scenario and to the necessity to wait the completion of the works and of the rehabilitation Craiova Municipality decided only to improve the existing scheme just introducing a new zone and by an increase of entrance fee. The new freight goods distribution scheme was approved with HCL "DECISION NO. 448 regarding the local taxes in 2012".

The new system consist in a division of zones from one large zone to two zones one smaller zone B (basically the city centre) and another one zone A (the rest of the freight distribution zone in the city). The freight distribution scheme in zone B consists in a new tax and a division of the taxes by what good they transport and type of vehicle are transporting the goods.

In the framework of this measure, as a result of the implementing of this new scheme, a social impact was realised.

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The MODERN project in Craiova had good results in the area of decongesting the crowded intersections from the city centre and in reducing the pollution in the area of interest.

Our recommendations for other cities that want to implement this kind of measures are:

- Before implementing a new good distribution systems make a survey with a target group the local distributors about how they see a new scheme and what are their wishes about this;
- Make the distribution scheme based on car capacity, car weight and level of pollution;
- All new changes take time and are money consuming, depending on the acceptance of the population on the city hall;
- Integrate in every step you make the relevant stakeholders;
- The freight distribution scheme, especially in the restricted areas, centre city, must be very flexible to permit the organization of different social and cultural activities (encouraging riding a bicycle, children entertainment, free air shows).

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## **A Introduction**

### **A1 Objectives**

The measure objectives are:

(A) High level / longer term:

- To reduce congestion and emissions in city centre due to freight distribution vehicles
- To provide to people a clean air in the city centre for walking and shopping

(B) Strategic level:

- To reduce the emissions and congestion in the central area by implementing of taxation rules for freight vehicles

(C) Measure level:

- (1) To Implement freight distribution specific schemes for vehicles in the central area in order to reduce the emissions level in this area by 10 % and reduce the number of freight vehicles operating in this area by 5 %

### **A2 Description**

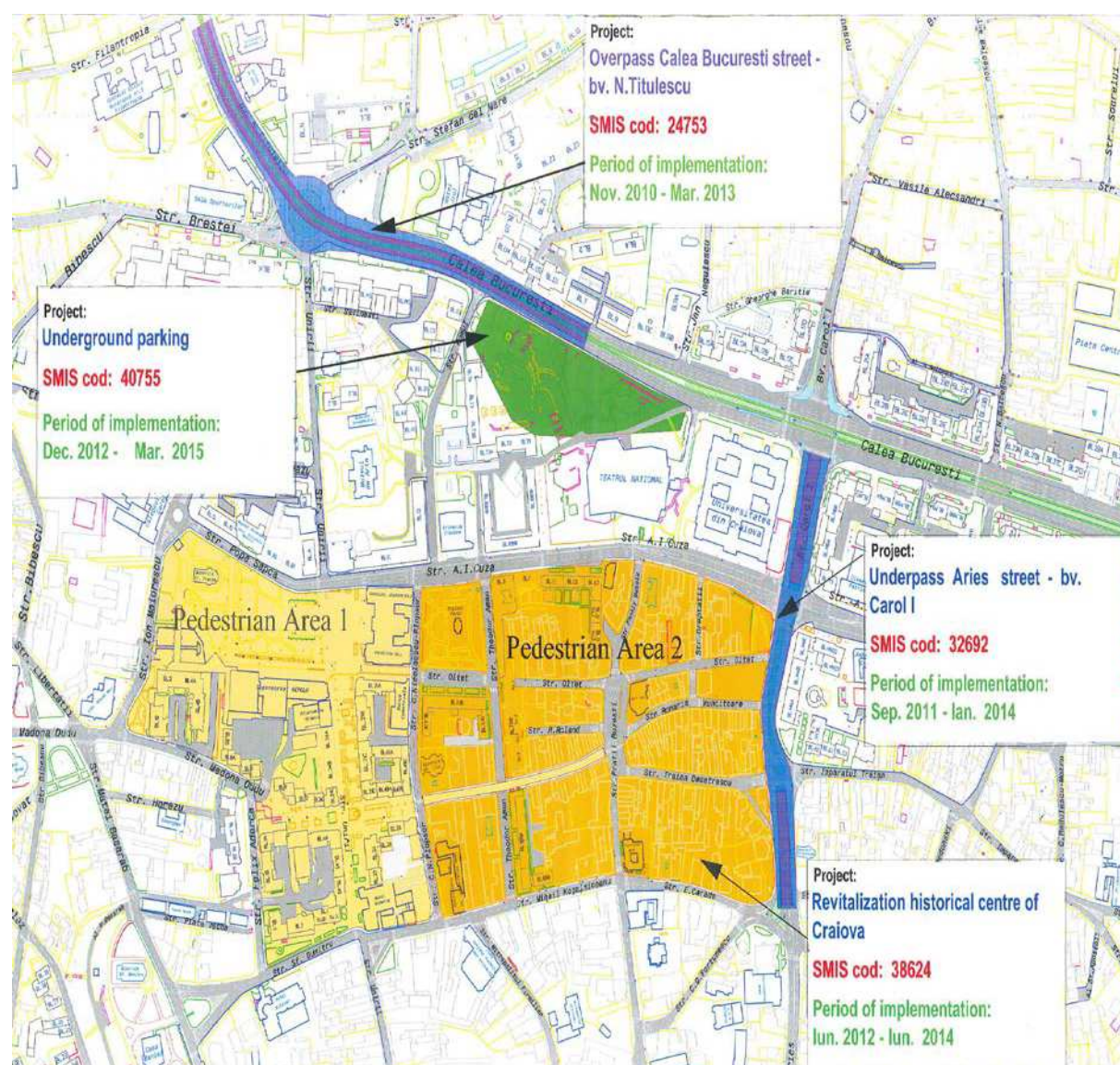
The central area of Craiova was subjected to several interventions. Among them the works for the erection of a bridge and of a tunnel, shown in the following figure represents the first phase of the whole rehabilitation of the Historical centre.

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**Figure A2.1 – Rehabilitation of the historical centre**

Within this context Craiova Municipality decided to enforce the freight distribution scheme already adopted just adding a new zone for Historical Centre and slightly modifying the access fees.

Areas were defined as follows:

- zone A
- zone B (corresponding to the historical Centre).

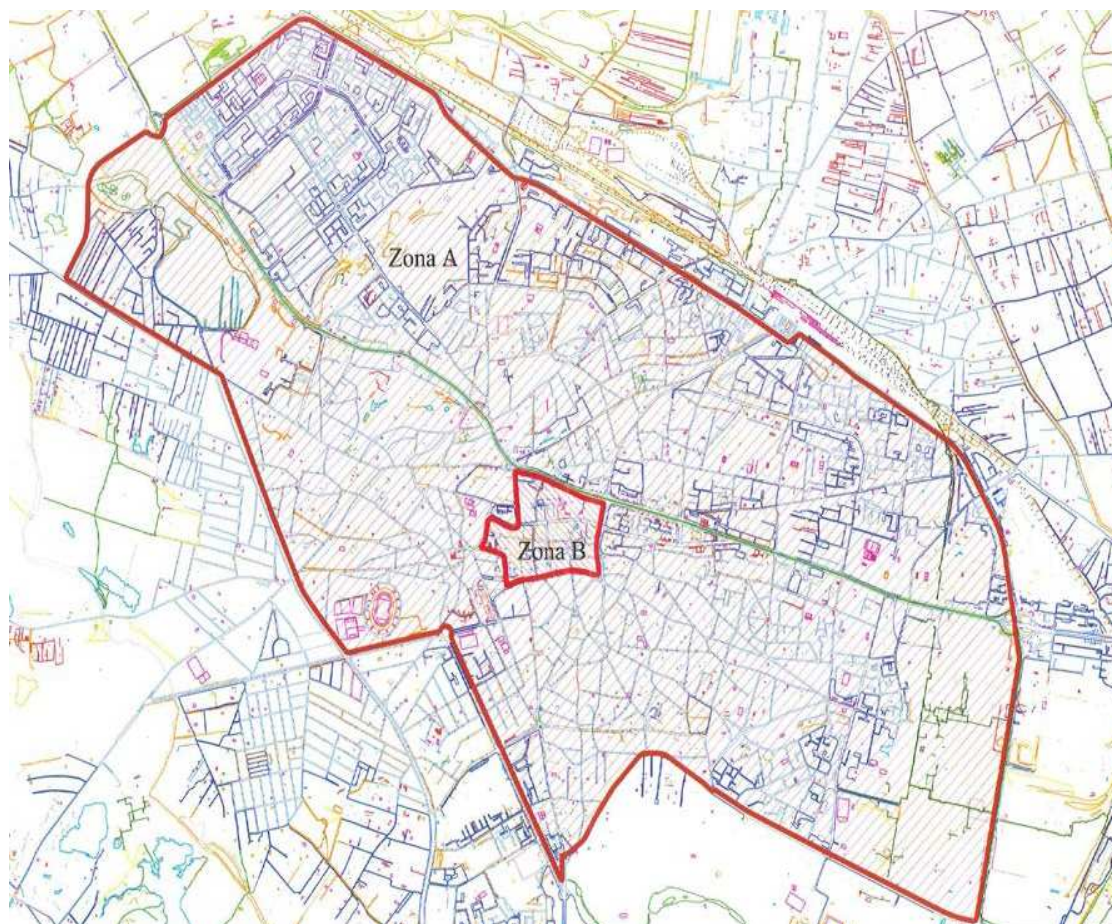


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**Figure A.2 – Map showing the 2 zones delimiting the freight distribution areas**

The new distribution scheme approved by the municipality is the following:

Area	Specifications	Tax level for the year 2012 (lei/day/vehicle)
Perimeter “A”: Dacia Avenue – Decebal avenue – Caracal street – Corneliu Coposu street – 1 Mai avenue – Stirbei Voda avenue – Pelendava street; from which is excepted the perimeter “B”	For transporting perishable goods (meat, fish, dairy products, wine etc.) and construction materials	12 Lei
	For transporting other types of goods	24 Lei
Perimeter “B”: Calea Bucuresti avenue – Carol I avenue – Aries street	For transporting perishable goods (meat, fish, dairy products, wine	15 Lei

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Area	Specifications	Tax level for the year 2012 (lei/day/vehicle)
– M. Kogalniceanu street – Sf. Dumitru street – Felix Aderca street – Madona Dudu street – Ion Maiorescu street – Mihai Viteazu street	etc.) and construction materials For transporting other types of goods	30 lei

Particular attention was paid to the next particular aspects:

- Free access for rapid intervention vehicles and those that are subordinated to the municipality.
- Special taxation for access to the city's main leisure area (Nicolae Romanescu park)

Entering in the area restricted by the distribution scheme is allowed on the basis of a pass stamped and signed by the mayor staff in charge of the freight distribution. All the companies can make a choice if they want to pay the distribution fee daily, monthly or yearly.

After fee payment operators and companies get the pass and are obliged to show it on display so that the police can see it.

Access control is at this stage performed by local police on the basis of “manual” identification of vehicle.

By defining areas within the city, the local authorities are provided with the means to obtain info concerning freight transport vehicles (which represent mandatory input data for establishing a freight distribution system).

The new scheme presents the following advantages:

1. A decrease of accesses, due to the increase of tax fees;
2. Better vehicles capacity utilization, so increasing the loads transported for each of the journeys;
3. Enhancement of the information about the number of vehicles accessing to the Central area of the town and about the current needs of goods for economic activities operating there.

Even a reduction in the number of heavy vehicles was observed the effects related to better environmental quality and to traffic congestion reduction were not so clear because of the rehabilitation works occurring in the same period.

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## **B Measure implementation**

### **B1 Innovative aspects**

The innovative aspects of the measure are:

New conceptual approach – The main innovative aspect achieved in this measure is urban zoning in zones A and B. The generated benefits are great: providing consistency of fiscal instruments, development of modern procurement practices, better information control, networking possibilities with other measures, etc.

Also the zoning, as the new measure, gives possibilities regarding future research directions:

- Building useful databases
- Developing local initiatives with distribution schemes modern and flexible which take into account the supply schedule, supply routes and common tax benefits.

A second innovative aspect is represented by the **adaptive structure concept** which offers possibilities to represent and quantize the modalities of apparition in a hierarchical structure, especially in terms of implementing some economic instruments (which will generate advantages for local communities, economic agents and institutions that develop their activity in the targeted urban zones).

### **B2 Research and Technology Development**

Planning and design of the measure was the first RTD activity and refers to the definition and implementation of the measure. The introduction of this measure involves the acceptance of companies and institutions in the area besides a thorough analysis of existing situation to develop a realistic and effective logistic plan. During this RTD activity many aspects have been investigated - the existing situation, downtown plans, project's documentation on closing of the city centre, the current regulations on the freight distribution in the city – and the area for good distribution where the scheme developed under this measure will be applied has been identified.

The analysis carried out showed that economic activities in these areas are mainly shops and offices. Commercial activities are those involving a large volume of goods circulation (see fig. B2.1), both the supply of shops and for the delivery to the buyers. The impact of the measure will be more pronounced on commercial operators than on other stakeholders.

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**Figure B2.1 – Traffic flows in the city**

In parallel, a study about the solutions adopted by other cities, in order to understand better the rules applied and to verify the possibility of their adoption in Craiova and to evaluate the most appropriate solution for the city, was carried out.

In cooperation with the Municipality the technical content of the measure has been defined and the necessary steps to implement this measure have been set up. Goods distribution scheme in the centre will be a differential tax scheme based on the criteria of the different level of emissions of the vehicle, to prevent as much as possible pollution in the downtown area. At the same time the scheme will foresee incentive as well, for those operators using cars with low pollution levels.

The RTD tasks are generally targeted to study the current structure of the goods distribution in Craiova, to identify the target area for the application, and the technical content of the measure.

To create a very detailed good distribution plan were identified some topic that have to be deeply investigated: number of companies in the area of interest, number and type of vehicles used by each company for good transportation, supply frequency and volumes, GHG emissions and standard emissions of distribution vehicles, loading / unloading points. For this it is needed to appoint a specialized company to perform a study on these topics and to provide us the required data to develop a regulation to supply goods.

Goods distribution has a great impact on several social-economical groups in the city: companies based in the target areas, residents, Municipality, environment agency and others. As usual it is difficult in this situation to find a good balance among the interests of each group and to create consensus. Discussions and debates with operators in the area to find optimal solutions are necessary and elaboration of a distribution scheme plan more based on benefits than on restrictions and charges.



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### **B3 Situation before CIVITAS**

Before the implementation of this measure the regulation scheme for freight distribution in Craiova was about the good distribution in the whole metropolitan area. The Craiova Local Council approved the regulation in 2009 Resolution No. 449.as follows:

“The tax for access of vehicles with weight over 3.5 tons, in the perimeter of Craiova municipality raging between: Dacia Avenue – Decebal Avenue – Caracal Street – Corneliu Coposu Avenue – 1 Mai Avenue – Stirbei Voda Avenue – Brestei Avenue Pelendava Street is the following:

Specification	Starting 2010 (lei/day/vehicle) 1 Euro = 4,32 lei
For transporting perishable goods (meat, fish, dairy products, wine etc.) and construction materials	12 Lei
For transporting other types of goods	24 lei

Free access for:

- Vehicles belonging to Craiova municipality and other public institutions;
- Vehicles belonging to military units, medical transportation cars, fire-cars, country police cars, penitentiary cars;
- Vehicles used for sanitation;
- Auto-vehicles used for gas tanks for stoves, waste pickup and funeral transportation.

### **B4 Actual implementation of the measure**

The measure was implemented in the following stages:

#### **Stage 1: Planning and design of the measure (Sept 2009- Sept 2010)**

The planning and designing of the measure were realised at the beginning of the project. Modern partners and main stakeholder were organized in a team in charge to define the working steps and to find the best solution.

The main actions that were undertaken in this task were several meetings with the Municipality in which all aspects were investigated.

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An analysis of the economic activities within the defined area and their characteristics has been carried out. The analysis showed that economic activities in target area are mainly shops and offices. Commercial activities need a large volume of goods circulation, both for the supply of shops and for the delivery to the buyers.

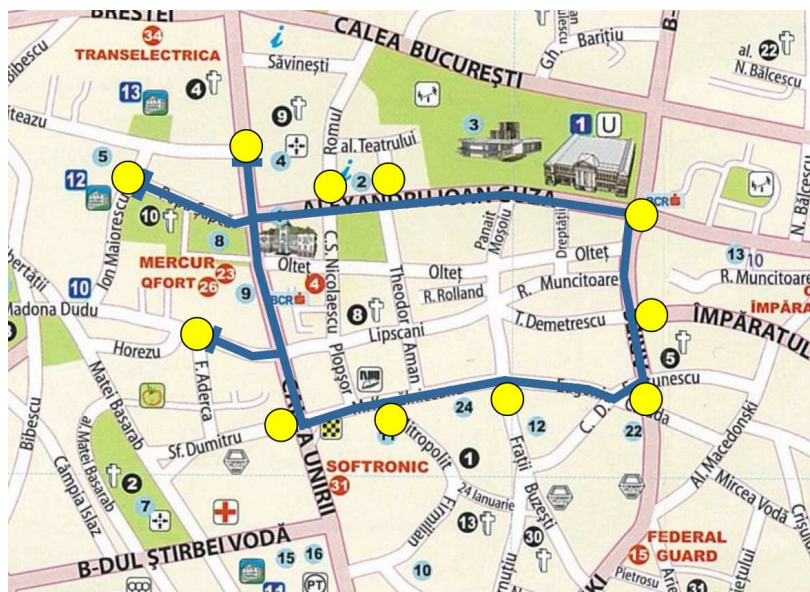
## **Stage 2: Study for goods distribution in Craiova (May 2010- Dec. 2011)**

The first action decided by the working group in charge for design and plan the measure was to carry out a study on the current structure of the goods distribution in Craiova.

The analysis of the current structure of the goods distribution was based on some topics that were investigated: number of companies in the area of interest, number and type of vehicles used by each company for good transportation, supply frequency and volumes, GHG emissions and standard emissions of distribution vehicles, loading / unloading points.

The results of the study described in detail in the deliverable 07.03.04 should be summarized as follows:

- Definition of the area in which the measure will be applied and the potential access points.

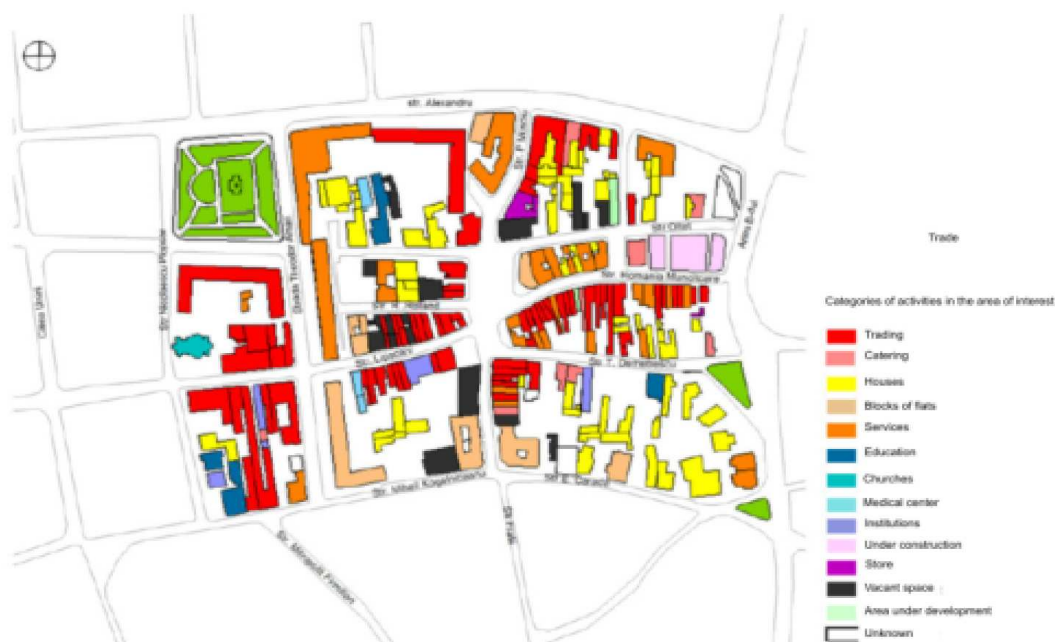


**FigureB4.1 – Area defined for the freight distribution scheme and potential access points**

- Research on other European cities experiences. In the rules design driver elements are:
  - urbanistic situation, with special reference to road and parking capacity;
  - description of the needs in terms of volume and merceology;
  - vehicles' characteristics in terms of load capacity, engine pollution level, fuel and all others data;

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- general organization: central or local hubs, night operations, time windows et cetera.
- Mapping of the economic activities in the downtown area. (This activity was described in details in the deliverable 07.03.04)



Because goods distribution has a great impact on several social-economical groups in the city and it is difficult to find a good balance among all the involved interests several meetings with all the stakeholders and operators were organized,

The conclusions can be summarized as follows:

- a) Analytical description of the target zone reporting
  - the characteristics of the central area
  - Classification of the area on the basis of the different types of activities
  - Definition of the access points

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b) 5 schemes for the space organization:

1. The scheme of urban logistic areas consisting of grouping the logistic operators closer to the areas of a high density of beneficiaries (closer to the central area) and has as main objectives the decrease of the number of vans that use the main urban arteries and the increase of productivity for the delivery services.

For the realization of this scheme large real estate investments are necessary for the creation of urban logistic areas, without being required any modifications of technologies from the transporters and the beneficiaries. Application of this scheme requires interventions of the municipality, department of urbanism and the administration of territory, as well as the involvement of all transporters and operators from the logistic chain.

2. The scheme with urban distribution centres in which goods destined for central beneficiaries are deposited, the activities of distribution being reunited and conducted by a single operator named by the municipality.

The advantages in this case are the following:

- the reduction of transport routes for good vehicles
- the improvement of the usage of urban space
- the limitation of noise created by the goods transport vehicles in certain day periods

Applying this scheme creates inadequacies in the connection transporter – beneficiary and that is why a new delivery schedule must be created having relatively high function costs.

3. The scheme with dedicated stationary locations for the realization of deliveries and supplies avoiding the inconveniences of the other road users.

In this case, the deliveries from the stationary locations of the area to the beneficiaries within a radius of about 100 m are being made on foot (eventually by carriages).

The relation between the transporter and beneficiary does not change, and the sequence of the performed operations is the same, the only changing being the distance travelled on foot, with the merchandise. For applying this scheme low investments are being required, the exploitation costs remaining approximately the same, but it is necessary the implication of the carriers in creating the adequate routes.

4. The scheme with points (locations) for goods accumulation in which the supply of these locations is being made by the transporters after the rush hours. The pursued objectives are: the fulfilling of the poor accessibility areas requirements and the satisfaction of the less available beneficiaries.

This scheme modifies the placement of the delivery locations; the scheme requires important efforts for the realization of interactions between the actors of the logistic chain.



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5. *The scheme with urban logistic boxes* consists of the placement of some containers, of variable dimensions, in locations accessible to beneficiaries that would constitute temporary deposits for goods, supplied by the transporters after the rush hours, without being necessary the presence of beneficiaries.

Moreover it was proposed a new solution for the freight distribution scheme, based on other European cities experience.

The application of this scheme requires low involvement from authorities, but modifies the relations between transporters and beneficiaries (the locations of the delivery points and the schedule are being modified).

Beside the solutions proposed on the basis of the freight goods distribution study, in Craiova city, presented above, the deployment team from IPA proposed a new solution for the freight distribution scheme, based on model from other European cities.

You can see, below, the proposal made by IPA:

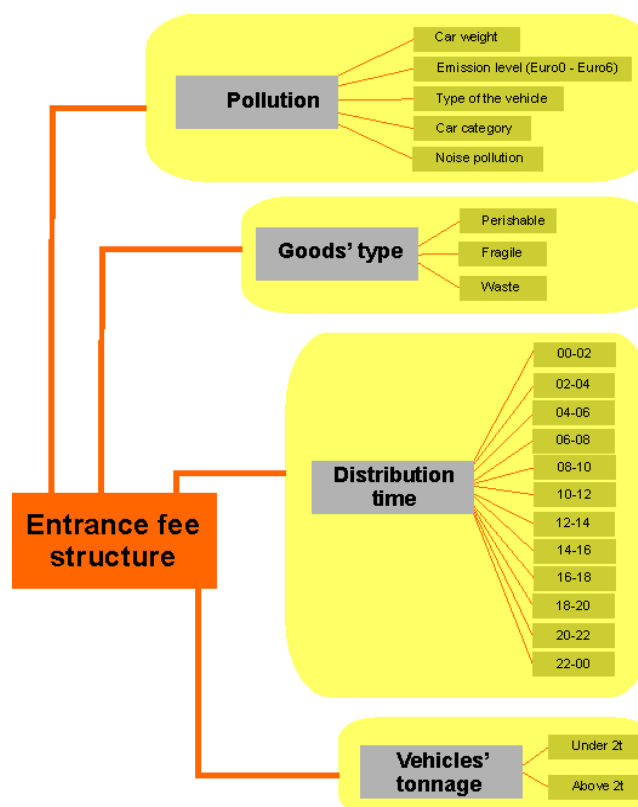


Figure B4.3 – fee policy proposal

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After the implementation of the MODERN measure 07.03 the new good distribution scheme approved by the Municipality and the Local Council was introduced in the “DECISION NO. 448 on the approving of the local taxes in 2012”

The decision contains more information about the local taxes in Craiova but below is extracted from the decision the paragraphs regarding the taxes for the distribution scheme.

The fee for the permits access of the vehicles weighing more than 3.5 tons in area "A" and "B" of Craiova is set at the following levels:

Area	Specifications	Tax level for the year 2012 (lei/day/vehicle)
		1 Euro = 4.4 lei
Perimeter “A”: Dacia Avenue – Decebal avenue – Caracal street – Corneliu Coposu street – 1 Mai avenue – Stirbei Voda avenue – Pelendava street; from which is excepted the perimeter “B”	For transporting perishable goods (meat, fish, dairy products, wine etc.) and construction materials	12 Lei
	For transporting other types of goods	24 Lei
Perimeter “B”: Calea Bucuresti avenue – Carol I avenue – Aries street – M. Kogalniceanu street – Sf. Dumitru street – Felix Aderca street – Madona Dudu street – Ion Maiorescu street – Mihai Viteazu street	For transporting perishable goods (meat, fish, dairy products, wine etc.) and construction materials	15 Lei
	For transporting other types of goods	30 Lei

- The following categories of auto-vehicles are exempted from the tax fee:
- Auto-vehicles belonging to budgetary units from the Craiova municipality;
- Auto-vehicles for interventions of any kind at economical units and public institutions;
- Auto-vehicles belonging to military units, medical transportation cars, fire-cars, country police cars, penitentiary cars;
- Auto-vehicles used for sanitation;
- Auto-vehicles used for transportation to the population of Craiova gas tanks for stoves;
- Auto-vehicles used for transportation of the employee to and from the work place;
- Auto-vehicles that performs waste pickup and funeral transportation.

### **Stage 3: implementation of the goods distribution scheme in Craiova**

The new good distribution scheme approved by the Municipality and the Local Council was introduced in the “DECISION NO. 448 on the approving of the local taxes in 2012”

The new scheme entered operationally in force from 01.01.2012 and the fees for the heavy vehicles are collected by the Municipality of Craiova.

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The entrance in the area restricted by the distribution scheme can be done by using a pass stamped and signed by the mayor staff in charge with the freight distribution. All the companies can choose if they want to pay the distribution fee daily, monthly or yearly. The fee is then paid accordingly with their choice, meaning that they pay the sum for a day multiplied by the number of days they will enter the zone. After the payment companies get the pass and are imposed to put it on display so that the police that enforce the distribution scheme can see it.

#### **Stage 4: social impact study**

Due to the relevance of the measure it was decided to perform a Socio impact study about the new freight distribution scheme; the results of this study are described in the Del 7.3.08. Assessment of the social impact gave important information about the perception of the population and operators about the effect of the measure implementation. The conclusions can be summarized as follows:

1. Most of the interviewed was informed about the new scheme implementation;
2. There is a huge approval about the general objectives of the measure.
3. The new scheme was accepted by the operators (both Distribution companies and shopkeepers) and does not generated excessive new costs.

The necessity for City Centre requalification is well known and the possibility to develop and implement new schemes should be well accepted.

## **B5 Inter-relationships with other measures**

The measure is related to other measures as follows:

**The Measure 07.03.** and **The measures M 03.02** aim to reduce the emissions in the central area. The implementation area is the same for both measures.

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## C Impact Evaluation Findings

### C1 Measurement methodology

#### C1.1 Impacts and Indicators

Table C1.1: Indicators.

No	Impact	Indicator	Data used	Comments
13-14	Society	Acceptance Level	Number of freight vehicles moving in the city centre	The number are count by the Police in relevant access points
		Awareness Level		
25	Transport	Freight vehicles number in demo areas	Face to face survey	Surveys on dealers and merchants in central area

#### Indicator 13 (Awareness level)

#### Indicator 14 (Acceptance level)

The survey was made to see the impact of the measure on drivers that crossed the demonstration area and residents, people living around the demonstration area, shopkeepers and transport operators. Taking into consideration a population of maximum 30'000 people consisted in drivers and residents and using the methodology of sample size calculation, we found a sample of 74 people.

130 questionnaires were circulated (to make sure that we get the sample) in ex-ante period and the same number in ex-post, keeping the same dedicated target group. Also, the contact data of ex-ante respondents were kept to be in contact for ex-post evaluation period.

Feedbacks were: 80 questionnaires filled in ex-ante and 95 questionnaires filled in ex-post.

The questionnaires for ex-ante were disseminated face-to face to people within the Communication Campaign and seminar presentation that took place in a pavilion located in the prefecture market (in the downtown) . The questionnaires in ex-post were filled face to face, by phone or e-mail using the contact data of dedicated target group.

The feedbacks of 80 and 95 questionnaires are slightly more than the sample of 74 people calculated.

The questionnaires were structured in 2 sections:

- General information about citizens (job, age, gender, education level, contact data)
- Questions referring to the measure split by indicator type:



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### **Awareness level**

The most important questions are:

Have you heard about the measure?

1. Do you recognize the logo of the project?
2. Do you understand the aim of the project and the potential benefits and not benefits of the measures?
3. Have noticed the benefits lately?
4. How useful do you think the implementation of the measure is?

For this indicator the question taken into consideration has been the number 3. The other questions in the survey were taken to reduce the errors in the filling of the questionnaire and in order to make the survey as real as possible.

### **Acceptance level**

The most important questions are:

1. "How useful do you think the implementation of the measure is?"
2. Do you accept or not the implementation of measure?
3. Are you affected by the measure
4. Willingness to implement the measure

For this indicator the only question that we have taken into consideration is number 4. The other questions in the survey were taken to reduce the errors in the filling of the questionnaire and in order to make the survey as real as possible.

### **Indicator 25 (Freight Movement)**

The information regarding the indicator 25, freight movement, was provided by the Municipality of Craiova. The freight distribution vehicles were controlled and counted by the Local Police and Road Police that then informed the Municipality about the results.

## **C1.2 Establishing a Baseline**

Big industrial and commercial companies have own system for goods distribution uncorrelated at a central (urban) level. This kind of policy exists in Craiova at a low scale, and doesn't take into consideration the free air pollution. It is about the freight distribution cars entering into Craiova fair and fruits and vegetables markets, which have access only 2 hours in the morning and 2 hours in the night to not disturb the commercial activity. There is not a logistic policy for freight distribution in the city centre which leads many times to discomfort and unpleasant situations for residents and even for firms located in the centre.

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The only regulation scheme for freight distribution in Craiova that was available before the implementation of this measure, was about the good distribution in the metropolitan area. The Craiova Local Council approved the regulation in 2009 in the Local Council Resolution No. 449.

The regulation is in the Article 33 of the Local Council Resolution No. 449 and below is it's translation in English:

“The tax for the release of the documents for free access for auto-vehicles with weight over 3.5 tones, in the perimeter of Craiova municipality, raging between: Dacia Avenue – Decebal Avenue – Caracal Street – Corneliu Coposu Avenue – 1 Mai Avenue – Stirbei Voda Avenue – Brestei Avenue Pelendava Street is chosen accordingly:

Specification	Level for 2010 (lei/day/auto-vehicles)
	1 Euro = 4,32 lei
For transporting perishable goods (meat, fish, dairy products, wine etc.) and construction materials	12 Lei
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The following categories of auto-vehicles are exempted from the tax fee:

- Auto-vehicles belonging to budgetary units from the Craiova municipality;
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- Auto-vehicles used for transportation to the population of Craiova gas tanks for stoves;
- Auto-vehicles used for transportation of the employee to and from the work place;
- Auto-vehicles that performs waste pickup and funeral transportation.

Indicators and respective parameters	Ex-Ante values
Indicator 25 – Freight Movement	1'115 veh/day

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### **C1.3 Building the Business-as-Usual scenario**

Interviews with representatives of the Local Council have been organised to understand what would have been the actions of Municipality referring the central area restriction in the case that MODERN project wouldn't have been implemented.

The initiative of the Municipality was that in 2011 to begin the work in the city centre and to close all adjacent roads and accesses gradual as the work advance. This initiative was stopped because of the construction of the overpass bridge and the underpass road in the city centre. These constructions are very important for the traffic management in Craiova due to an increase in the last 10 years of the vehicles that are registered in Craiova.

<b>Indicators</b>	<b>BAU Values</b>
Indicator 25 – Freight Movement (2009)	1'115 veh/day
Indicator 25 – Freight Movement (2010)	1'115 veh/day
Indicator 25 – Freight Movement (2011)	1'115 veh/day
Indicator 25 – Freight Movement (2012)	1'115 veh/day

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## **C2 Measure results**

### **C2.4 Transport**

The new distribution scheme introduced two new zones for the freight distributors, zone A and zone B. Zone B is the area of interest for us. The evaluation begins from the ex-ante period, meaning the year 2009 and in the present 2012. The new freight distribution scheme was implemented and started from 01.01.2012.

The values of the vehicles' structure and number in the central area were gathered by the Craiova Municipality. These are taken from the data basis with all the cars that transport goods in the central zone.

Under the new freight distribution scheme of the town, in order to a vehicle can enter the interest zone it needs a license for free passage for good distribution. This license is released by the Craiova Municipality, based on what it can be gathered information about the goods distribution, such as: the identification number of the vehicle, the company and the number of days when it is realised the goods distribution, etc.

Indicators	BAU Values
Indicator 25 – Freight Movement (2009)	1'115 veh/day
Indicator 25 – Freight Movement (2010)	1'250 veh/day
Indicator 25 – Freight Movement (2011)	1'335 veh/day
Indicator 25 – Freight Movement (2012)	968 veh/day

The commercial vehicles /day that enters in the area of interest is then needed. The value provided has been calculated based on the permits and is a medium between all the distribution vehicles that enter in a year in area of interest and the number of days in a year and can be seen below.



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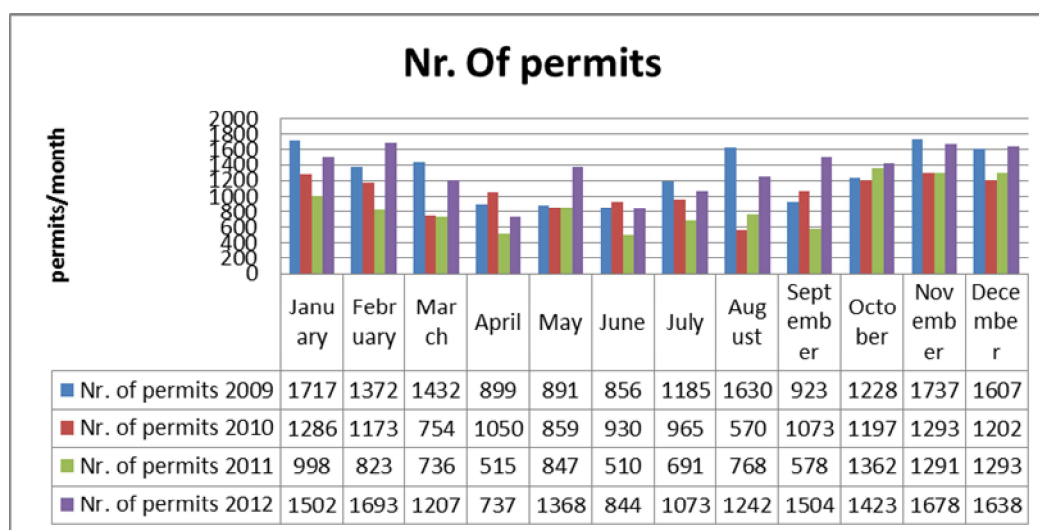


Figure C2.4.1 – Number of permits issued per month

The above figure shows how many permits are issued every year divided to every month. In the next figure the number of vehicles/year that enter into the area of interest based on the number of permits issued daily, weekly, monthly, yearly are shown.

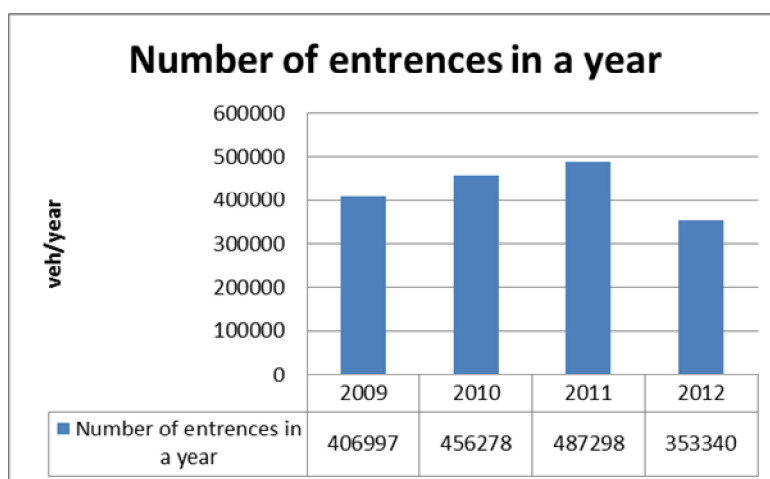


Figure C2.4.2 – number of entrances per year

It can be noted that the number is very high but divided to 300 day in a year find the numbers for distribution vehicles that enter the area of interest daily.

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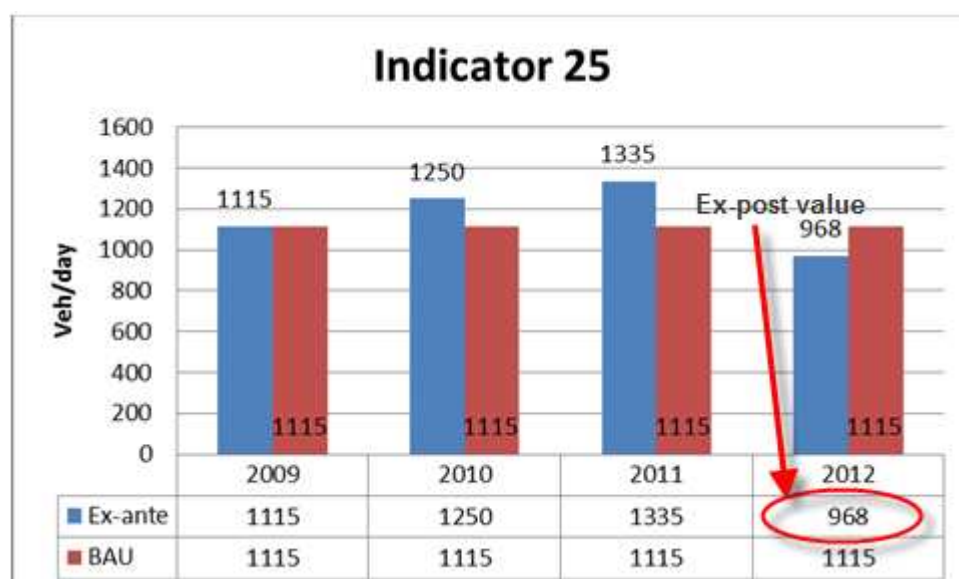


Figure C2.4.3 – Vehicles per day trend

As can be seen from the figure above the trend of the transport vehicles that enter the area of interest in a day had a growth trend until the first of the 2012.

At the beginning of 2012 the new distribution scheme enters into operation and caused a reduction of 13% from 2009.

The difference between the 2011 and 2012 is about 27%.

The number of access passes is for all commercial vehicles on which the freight distribution scheme is applied (all commercial vehicles over 3.5 tons).

The conclusion from this figures is that although the distribution scheme is hasn't changed very much the new scheme had done what we had proposed to do at the beginning of MODERN project meaning, a reduction of 5% of transport cars in the area o f study, meaning zone B of the new distribution scheme.

Indicators	Ex-ante	BAU	Ex-post	Ex-post-Ex-ante	Ex-post - BAU
	(2009)	(2009)	(2012)	Decreased by:	Decreased by:
Indicator 25 Freight Movement	1'115 veh/day	1'115 veh/day	968 veh/day	(2009)	(2009)
	(2010)	(2010)		13% veh/day	13% veh/day

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Indicators	Ex-ante	BAU	Ex-post	Ex-post-Ex-ante	Ex-post - BAU
	1'250 veh/day	1'115 veh/day		(2010)	(2010)
	(2011)	(2011)		22% veh/day	13% veh/day
	1'335 veh/day	1'115 veh/day		(2011)	(2011)
		(2012)		27% veh/day	13% veh/day
		1'115 veh/day			

## C2.5 Society

Data collection concerning the indicators involved the organization of questionnaire surveys to focus group, on their attitudes and perceptions of central area restriction.

The filling of the questionnaires was realised by a target group composed from representative categories of people for the community in the area of interest.

Our interest regarding these questionnaires was to find out how the society feels the changings due to the freight distribution scheme.

The results obtained after answering the questionnaires by the target group can be seen in the table below.

Fig C2.5.2 to C2.5.4 show a picture of society indicators evolution.

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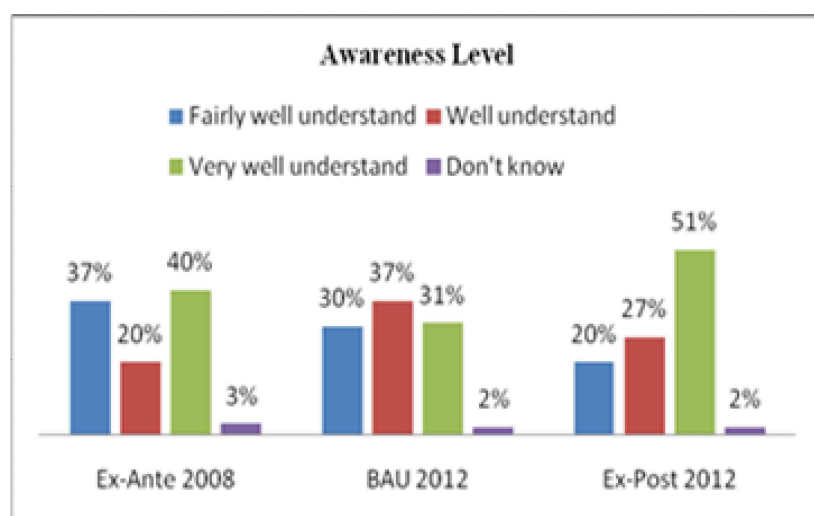


Figure C2.5.2



Figure C2.5.3

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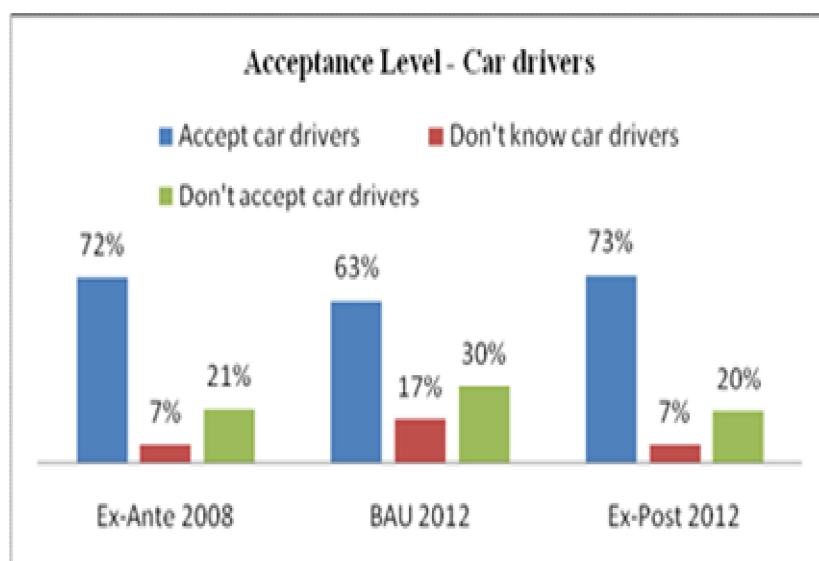


Figure C2.5.4

The figures above shows that the awareness levels for this measure is very high and maxim 5% from the people that completed the questionnaires didn't know about the measure and what it does to the environment and city centre.

On the other hand the acceptance level among the drivers is very high this meaning that not only the people that are in the pedestrian area want the changes but also the drivers that need to transit the closed are every day and now are taking detours around this area.

Indicator	Ex-Ante	BAU	Ex-Post	Difference: After – Before	Difference: After – B-a-U
Indicator 13 Awareness level	37% fairly well understand; 20% well understand; 40% very well understand 3% don't know  (2008)	30% fairly well understand; 37% well understand; 31% very well understand 2% don't know  (2012)	20% fairly well understand; 27% well understand; 51% very well understand 2% don't know  (2012)	-17	-10
				7	-10
				11	-20
				-1	0
Indicator 14 Acceptance	Citizens living in city centre: 90 % accept;	Citizens living in city centre: 85 % accept;	Citizens living in city centre: 95 % accept;	5	-10
				-5	-10

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Indicator	Ex-Ante	BAU	Ex-Post	Difference: After – Before	Difference: After – B- a-U
Level	10 % don't know (2008)	15 % don't know (2012)	5 % don't know (2012)		
	cars drivers:	cars drivers:	cars drivers:	1	10
	72% accept and 21% don't accept; 7% don't know (2008)	63% accept and 30% don't accept; 17% don't know (2012)	73% accept and 20% don't accept; 7% don't know (2012)	-1	-10
				0	-10

### C3 Achievement of quantifiable targets and objectives

No.	Target	Rating
1	<p>To reduce the number of vehicle operating in the area of study with 5%</p> <p>The reduction of the vehicle operating in the area of study compared to 2012 are as follow:</p> <ul style="list-style-type: none"> <li>- 2009 – 13%</li> <li>- 2010 – 22%</li> <li>- 2011 – 27%</li> </ul>	<p>*** = Exceeded for the indicator 25</p>
<p>NA = Not Assessed      O = Not Achieved      * = Substantially achieved (at least 50%)      ** = Achieved in full      *** = Exceeded</p>		

### C4 Up-scaling of results

The up-scaling of the results is uncertain now because of the new changes that take place in Craiova.

Although the social impact showed us that the population want's a new and improved freight distribution scheme for now the current scheme will remain unchanged. We have faith that after the finalization of the underpass and overpass the work for the modernization of the historical centre of Craiova will began. In that moment a new distribution scheme will need to be implemented so that the pedestrian area that the municipality will create will remain unpolluted and clear of cars.



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## **C5 Appraisal of evaluation approach**

In order to know the awareness and acceptance level of the measure, we have circulated 130 questionnaires to drivers and citizens that live in central area, in the ex-ante period, and the same number in the ex-post. We received 80 feedbacks – filled questionnaires in the ex-ante and 95 feedbacks in the ex-post. The conclusion of survey was the awareness level increased by 27%, acceptance level increased by 5% for citizens living in city centre and by 1% for drivers, too.

The freight movement indicator was evaluated by the evidence provided to us by the municipality of Craiova based on their database with the freight distribution vehicles that enter the area of interest the traffic flow decreased by average of 20% in the area of interest, respectively zone B of the new distribution scheme.

## **C6 Summary of evaluation results**

The key results are as follows:

- **Key result 1 – Freight Movement** – the freight distribution vehicles was reduced by the measure implementation by a average of 20% compared with the year 2009, 2010 and 2011.
- **Key result 2 – Acceptance and awareness level** – Generally, the measure was accepted by drivers and the distributors. Awareness level increased by 27 %, acceptance level increased by 5%.

## **C7 Future activities relating to the measure**

The results of the measure will be further disseminated inside of country in order to inform drivers, citizens and the transport companies and, especially, representatives of Municipalities about the benefits of freight distribution schemes in the city. Up to the end of 2013, the rehabilitation of historical centre will be finished and we hope that a new and improved freight distribution scheme will operate in Craiova.

More coherent and periodical communication with the population is mandatory, aiming to present the necessity of the freight distribution schemes as measure to reduce the traffic congestion and CO<sub>2</sub> in the city.

Craiova city needs a revision of the adopted freight distribution schemes, according the implementation of the rehabilitation plan of the historical city centre.

The Municipality of Craiova is willing to foster the use of clean vehicles for freight distribution. The new underground parking prevue to be built near the centre city has the capacity of 600 cars (partly dedicated to electric cars).

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## D Process Evaluation Findings

### D.0 Focused measure

x	0	No focussed measure
	1	Most important reason
	2	Second most important reason
	3	Third most important reason

### D.1 Deviations from the original plan

The deviations from the original plan comprised:

- **Delay** – The measure registered a delay of 5 month within the task 07.03.02 where a study for goods distribution in Craiova had to be performed. The delay was due to a longer time devoted to preliminary meetings with the Municipality and because, of some improvement of the study itself. This unexpected activity led to the extension of the task with 5 months.

### D.2 Barriers and drivers

#### D.2.1 Barriers

##### Preparation phase

No barriers have been encountered.

##### Implementation phase

- **Planning** - Insufficient technical planning and analysis to determine requirements of measure implementation, insufficient economic planning and market analysis to determine requirements for measure implementation, lack of user needs analysis: limited understanding of user requirements Implementation team found that not enough data and information to elaborate better freight schedule in the central area.
- **Involvement, communication** - Constructive and open involvement of policy key stakeholders, constructive and open consultation and involvement or citizens or users. The Municipality has provided some studies on historical centre where the measure will be implemented.

##### Operation phase

- **Institutional** - The extension of the City Council review and approval process has delayed the implementation of the scheme.

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- **Problem related** - A large number of data was required for the scheme elaboration which produced a delay in the scheme implementation.
- **Planning** - Implementation team found that not enough data and information are available to elaborate a freight distribution scheme in the central area.

## D.2.2 Drivers

### Preparation phase

No drivers have been encountered.

### Implementation phase

- **Institutional** - Facilitating administrative structures, procedures and routines, facilitating laws, rules, regulations and their application, facilitating structure of organizations and programs. The Municipality has issued a regulation that does not allow the vehicle traffic during the night.

### Operation phase

- **Political / strategic** - The Municipality is aware that the distribution of goods in the city centre must be regulated and supported by local policies.
- **Institutional** - The Municipality implemented two regulations related to freight distribution in the city: first regulation covers the metropolitan area and is based on a fee for the free access in the Craiova city area of the auto-vehicles with weight over 3.5 tonnes and the second one applies in the central area of the city and limits the vehicle access during the night.

## D.2.3 Activities

### Preparation phase

No activities have been performed.

### Implementation phase

- **Planning** - Raising or attempting to raise additional 'time budget' for the measure , (re)conduct the economic and technical planning as well as analysis to determine requirements of measure implementation, (re)conduct market analysis to determine requirements for measure implementation, thoroughly analysing user needs analysis to better understand the user requirements. Implementation team has requested for a reconsideration of working plan

### Operation phase

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- **Political / strategic** - Speed up the decisional procedure of the municipality and adoption of a simplified scheme based on charging for accessing the city centre.
- **Planning** - Implementation team has requested for a rescheduling of the timetable according to the currently progress in the work.
- **Organizational** - Good cooperation and partnership with University from Craiova in understanding the freight distribution models

## D.3 Participation

### D.3.1. Measure Partners

- **Measure partner 1 – IPA** – IPA SA is a 47 years old Romanian industrial R & D company and is the Romanian national institute for research and development, engineering in energy, automation and IT, with a large experience in European projects in technology transfer and in information dissemination.

IPA was responsible for the dissemination activities and carrying out the research activity and technical studies in the MODERN project of Craiova. Since 2011 IPA took over the evaluation activity.

- **Measure partner 2 – LCM** – The Local Council of Craiova Municipality (Primaria Municipiului Craiova) was organized and functions according to Law No. 215/2001 regarding Local Public Administration with the subsequent modification and completion.

LCM was the coordinator of the project and since 2009 and assumed the responsibility for the management and administration activity in the MODERN project. Between 2009-2011, LCM made the evaluation activity. More than that, LCM was the coordinator of the measure “Access restriction policies in Craiova” and made decisions on closed streets in the demonstration area.

### D.3.2 Stakeholders

- **Stakeholder 1 – South West Oltenia- Environment Agency** – providing data regarding the pollutant emissions in city centre and supported the University to elaborate the study referring to the impact of the measure on the city centre. The study is called: “Pollutant dispersion modelling”
- **Stakeholder 2 – Community Police** – Operating barriers with bollards around the pedestrian central area.
- **Stakeholder 3 – Retailers and shops owners in the central area** – They were surveyed on benefits or not benefits of the access restriction in central area.
- **Stakeholder 4 - Emergency, Police and Fireman Department** - They have to have obligatory access inside the central zone to intervene promptly if necessary.

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## **D.4 Recommendations**

### **D.4.1 Recommendations: measure replication**

- **Apply a better and improved freight distribution scheme:**
  - Make the distribution scheme based on car capacity, car weight and level of pollution
  - Before implementing a new good distribution systems make a survey with a target group the local distributors about how they see a new scheme and what are their wishes about this.
  - All new changes take time and are money consuming, depending on the acceptance of the population on the city hall
  - Integrate in every step you make the local distributors and work together with them in order to have a well understood and an operational distribution scheme.

### **D.4.2 Recommendations: process**

- **Organizational; City development strategy** - To analyse the urban development strategy of Municipality to avoid the barriers which could delay the measure implementation.