S.C. INSTITUTUL DE CERCETĂRI ÎN TRANSPORTURI - INCERTRANS S.A.
Str. Calea Griviţei Nr. 391-393, Sector 1, Bucureşti, Romania
Capital Social: 3.297.325 RON
Nr. Registrul Comerţului: J40/17093/1993 – Cod Înregistrare Fiscală: RO4282451
Cont: RO58 RNCB 0072 0488 7146 0001, BCR Sucursala Sector 1
Tel.: +40 (21) 316.23.37; Fax: +40 (21) 316.13.70; E-mail: incertrans@incertrans.ro; Web: http://www.incertrans.ro

STUDY AND IMPLEMENTATION OF SUSTAINABLE URBAN TRANSPORT PLAN FOR ORADEA CITY

in the project *SEE/B/0004/3.1/X "ATTRACTIVE URBAN PUBLIC TRANSPORT FOR ACCESIBLE CITIES" acronym ATTAC*, SOUTH EAST EUROPE TRANSNATIONAL COOPERATION PROGRAMM 2007-2013

PHASE 3: ELABORATING THE PLAN

BENEFICIARY: SC OTL SA
CONTRACT: no. 12044/2012

NOVEMBER 2013

Str. Calea Griviţei Nr. 391-393, Sector 1, Bucureşti, Romania
Capital Social: 3.297.325 RON
Nr. Registrul Comerţului: J40/17093/1993 – Cod Înregistrare Fiscală: RO4282451
Cont: RO58 RNCB 0072 0488 7146 0001, BCR Sucursala Sector 1
Tel.: +40 (21) 316.23.37; Fax: +40 (21) 316.13.70; E-mail: incertrans@incertrans.ro; Web: http://www.incertrans.ro

CONTRACT: no. 12044/2012 - „Study and implementation of sustainable urban transport plan for Oradea city"

BENEFICIARY: SC OTL SA

SIGNATURES

SC Research Transport Institute - INCERTRANS SA

SC INCERTRANS SA

CDI TECHNICAL MANAGER:

eng. Gheorghe DINU

CONTRACT RESPONSIBLES:

eng. Luigino SZECSY

prof. Pd. D. eng. Florian GHIONEA

Contents:

Chapter 7 – Agree on clear responsibilities and allocate funding

7.1 Assign responsibilities and resources

Before entering into the fund issues of phase 3, is needed a "permutation" of the elements that made up the general picture according to *Guidelines – developing and implementing a sustainable urban mobility plan*:

- Phase 1 submitted the state-of-art (social, demographic, economic and geographic) of the urban mobility in Oradea: THAT WAS THE DIAGNOSTIC PHASE
- Phase 2 submitted from technically and financially point of view the recommended measures sets to move sustainable mobility - in Oradea - from quantitative developing, to qualitative development, in order to change public attitudes of transport users, but also the behavior of the city planners from administrative institutions[1]: THAT WAS THE THERAPY PHASE.

Oradea municipality administration through its representatives, as well as SC OTL SA concluded that of the 95 targeted measures, but only 75 of the proposed measures taken into account:

- only for 12 the responsibility can be taken over by the City of Oradea, respectively
- only for 12 the responsibility can be taken over by the SC OTL SA.

The main explanation for this drastic reduction in the number of measures is reflected by the unwanted side effects they can have some of them on the financial, human or logistic resourses of the city in order to implement SUMP.

Next, phase 3, initially require:

- A final set of measures with clear responsabilities – this paper
- An action plan with an estimation for a budget

[1] From niche planning to the integrated planning, on the spatial dimension, as well as the temporal dimension.

- A monitoring plan for the implementation phase
- A working plan with a schedule

before the SUMP will be send to political factors: Mayor and City Council Oradea.

In anticipation of the above mentioned assembly created in the context of all activities carried out by the zero key at the present time is emphasized that proper conduct adopted INCERTRANS, opinions based on results of the two hierarchical levels:

- one represented by the committee appointed by the deputy mayor and composed of ZMO director and CFO of the City and remitted INCERTRANS an act representing the official views of the majority shareholder of SC OTL SA;

- the other represented by collective SC OTL SA who gave consent on the chart with 95 measures provided in the first phase of which were selected those considered sustainable and appropriate interests of citizens from the point of view of urban public transport operator.

In this context, INCERTRANS, although had directed efforts in explaining the list of measures supported by the two-stage hierarchical, wishes to emphasize that some of the remaining provisions outside the final list would have a significant impact on the transition from initial development to mobility development based on a sustainability plan. Examples:

- Measure I-9 = *creation of legal conditions and carrying out actions for popularization of the car-sharing and car-pooling systems*
- Measure I-14 = *improving some streets (planning and funding) and changing their classes into upper classes – possibly with one-way traffic – in order to increase the traffic capacity*
- Measure I-20 = *development of a traffic management system center in Oradea*

etc.

BEFORE MOVING TO SPECIFYING MEASURES ARE TO DO SOME INDICATIONS ABOUT THE EXPECTATIONS OF THE BENEFICIARY OF THIS PROJECT FROM PHASE 3:

- For almost all constructive or organizational achievement – on a large scale - the transfer from idea to materialization is done through a series of acts of physical, intellectual and even moral, in a sequence homologous series shown below:
    - Prefeasibility study
    - Strategic plan or tactical plans of the initiators
    - Feasibility study:
        - in which can be inserted - as needed - architectural studies, traffic studies, utility projects, etc.
        - respectively in which tests and simulations can be undertaken.
    - Analysis of competitive environment
    - Marketing Studies
    - Activity plans
    - Technological project
    - Study of economic circumstances
    - Financial or commercial plan
    - Impact study (demografic, social, environmental, etc.)
    - Operational plan
    - Execution project
    - Monitoring plan
    - Quality management plan
    - Gantt chart of tasks
    - Etc.

    all carried out in parallel:

    ✓ with consortia negotiations, identification of sources, the opening lines of funding, distribution of tasks, obtaining permits and approvals from various professional bodies,

- ✓ (or case) with conducting bidding procedure for works or projects, subcontracting, employment in areas where staff is lacking, etc.

- Being on top of series shown above, all the material in question is a DEVELOPMENT PLAN – namely an unified work whose structure must contain the necessary IDEAS **– necessarily feasible and desirable – to improve the mobility**, the implementation of the ideas will be made by some tools that are not part of a SUMP, since none of the SUMP development activities does not reach the level of detail that allows to identify topography, take into account economic issues or social structure, etc.,

which leads to the conclusion that **A SUMP IT CAN NOT BE USED IN PLACE OF ONE OR MORE STUDIES OR PROJECTS** (see PUG structure: it is accompanied by dozens of feasibility or implementation projects or materials that describe the status of implementation).

Back to the problem: list of measures chosen by local factor is shown below (with blue the measures for which SC OTL SA has the responsibility, with red the measures City Hall charged with, lowercase = details):

I-7 = set up bicycle parkings in boarding-unboarding stations of public transport vehicles (for the start, at least racks for 5-7 bicycles in the least half of the tram stations)
(to see also Chapter 5 = Objectives: the development of sustainable transport modes)

a) Causality

Alongside with the next measure, it is a high-impact initiative for sustainable development and also to increase the revenues of SC OTL SA.

b) Requirements

The proposal is to continue equipping stations with this type of facilities. It is recommended to elaborate a feasibility study and a technical project.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve safety and security;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Reduce traffic congestion;
- Development of sustanable transport modes: walking and biking;
- Reduce CO emissions;

- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

I-8 = creating the commercial and technical framework for bicycle carrying in vehicles owned by public transport operator;

(to see also Chapter 5 = SMART targets: number of public transport trips)

a) Causality

Taking into account the larger number of cyclists and irregular distribution of cycling tracks in the city, transport operator must provide bike transportation facilities on buses.

b) Requirements

It is technically feasible. From the commercial point of view it requires a promotional campaign (which to refer exactly to the part of the vehicles in which the bicycle can be put and also between what hours/days bikes are allowed in the public transport vehicles).

SC OTL SA has to make proposal to Oradea Municipality Administration in order to amend the regulation concerning public transport vehicles.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve safety and security;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Reduce traffic congestion;
- Development of sustainable transport modes: walking and biking;
- Reduce CO emissions;
- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

I-10 = SC OTL SA has to initiate cooperation actions with public transport passengers and regular meetings with amateur drivers;

a) Causality

SC OTL SA has to start periodic meetings with the public and the amateur drivers in order to provide information about its current activity and problems faced.

b) Requirements

A type of cooperation should be exercised regarding the set up “signaling” of the stations right on the carriageway; TO DISCIPLINE drivers is an objective for SC OTL SA.

Another type of cooperation can be unrolled by a public debate on the matters of “collision” between the two types of transport or between public transport and pedestrians.

c) Results

a) Ensure the accessibility offered by the transport system is available to all;

- Improve safety and security;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design.

For other benefits see also tables II.20 and III.10.

I-16 = taxation of cars passing through a „protected ring" in the city's center;

(to see also Chapter 5= Objectives: to reduce congestion)

a) Causality

The image of protected ring – as a measure of PUG (General Urban Plan) – is shown in below figure: network of streets consists of a central ring on the route Sucevei Street – Gh. Magheru Bvd. - Petőfi Sándor Street – Menumorut Street – Decebal Bvd….. (figure II.23).

In the "protected" area the passing/entering of private cars is done by high taxation, but at its outer limit the parking taxes are low.

Following the idea, it would allow the development of a "park and take a byke" system; also, the people who are interested could benefit of a free bike rental service for travel within the central perimeter.

b) Requirements

From the procedural point of view the implementation of such measure requires an impact study followed by a feasibility study which to underpin the execution of a project. The solutions that can be taken are: installing barriers on access roads in the area or installing cameras.

c) Results

- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Reduce traffic congestion;
- Reduce the need for travel;
- Reduce CO emissions;
- Improve traffic safety.

At an estimated traffic of 50000 veh/14 hours inside the "protected ring", the incomes can be as it follows: for 2,5 lei access fee = 9 mil. euro/year; for 10 lei access fee = 30,75 mil. euro/year.

For other benefits see also tables II.20 and III.8.

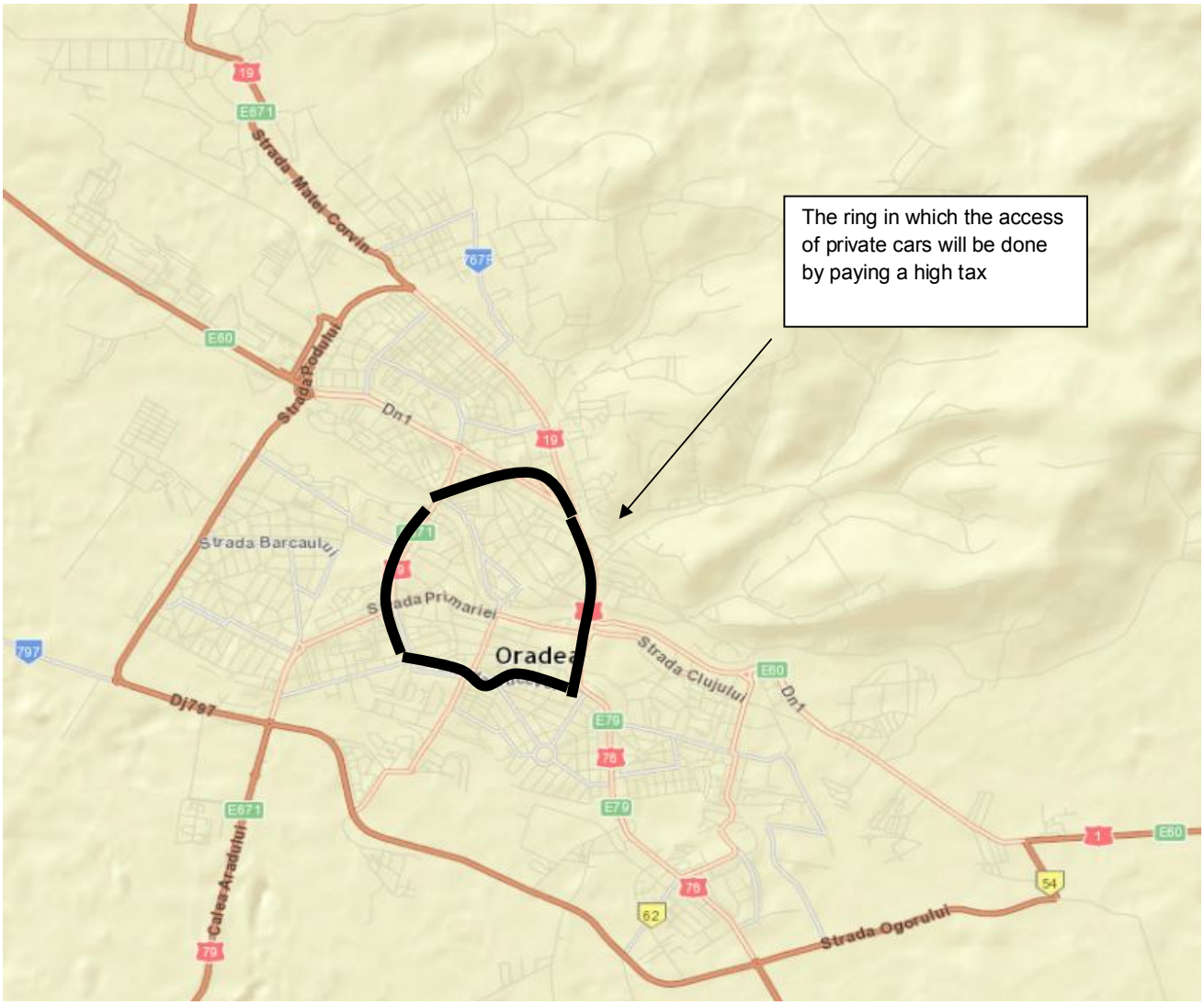

Fig. II.23 – The fixing of the "clean" area of the city's center

I-19 = tickets to concert and sports events which have to include the price of 2 tickets for travel by public transport – to offer the right to travel;

a) Causality

The measure is generic, versions of its increase the robustness of the results: it can be issued on the market a monthly pass which to include, besides the ticket travel on public transport also the permission to enter one or more performances, museum, swimming pools etc.

b) Requirements

The implementations of these actions depend on the agree of the instituions' management and on achieving commercial and financial context regarding the discounts between these firms involved in the actions (it is to note that the manager of the Regina Maria Theatre expressed his interest on this possibility to combine the ticket to the show with a two trips ticket).

In many cities of Europe there is implemented the concept of city-card which is based on financial arrangements concerning the discounts between the companies that participate to different recreational activities which also involve travel by public transport.

c) Results

- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Reduce traffic congestion;
- Reduce CO emissions;
- Development of local public transport system.

For other benefits see also tables II.20 and III.10.

I-21 = introduce a „no car day" (monthly);

(to see also Chapter 4 = The vision: guidance of public policy to awareness, …)

a) Causality

Worldwide brand cities have implemented this measures for years (it is well-known the image of volleyball players on the great boulevards of Rio de Janeiro in the *no car day*).

In addition it has to be added that will be chosen a Saturday or Sunday (possibly can apply progressively: in the first year twice a year, thereafter, every next year one more day up to 12 days per year)

And last but not least it is to revised the reluctance regarding the summer time, a measure that ultimately proven beneficial.

b) Requirements

For SC OTL SA: an active colaboration with citizens.

For municipality: passing through the local council of an appropriate resolution.

c) Results

- Improve safety and security;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Reduce traffic congestion;
- Development of sustanable transport modes: walking and biking;
- Reduce CO emissions.

For other benefits see also tables II.20 and III.10.

II-2 = to analyze the possibility of implementing of a system type „city-vignette" in a central area of the city;

(to see also Chapter 5 = Objectives: to eliminate the freight transport)

a) Causality

The measure restricts all freight vehicles which still are allowed to pass through the city (this measure modifies the limit of 7.5 tonnes currently restricted to 3.5 tonnes).

It is to emphasize that the central area is not identified with the protected ring mentioned in General Urban Plan; it is up to Oradea Municipality Administration to establish the area and time in which will be forbidden the circulation of freight vehicles with maximum weight more than 3.5 t. Below, like an example it is shown a

possible structure of the central area within every vehicles used to supply can enter but only between certain hours and based on vignette.

b) Requirements

For municipality: passing through the local council of an appropriate resolution.

c) Results

- Improve safety and security;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Reduce traffic congestion;
- Reduce CO emissions;
- Improve traffic safety.

For other benefits see also tables II.20 and III.8.

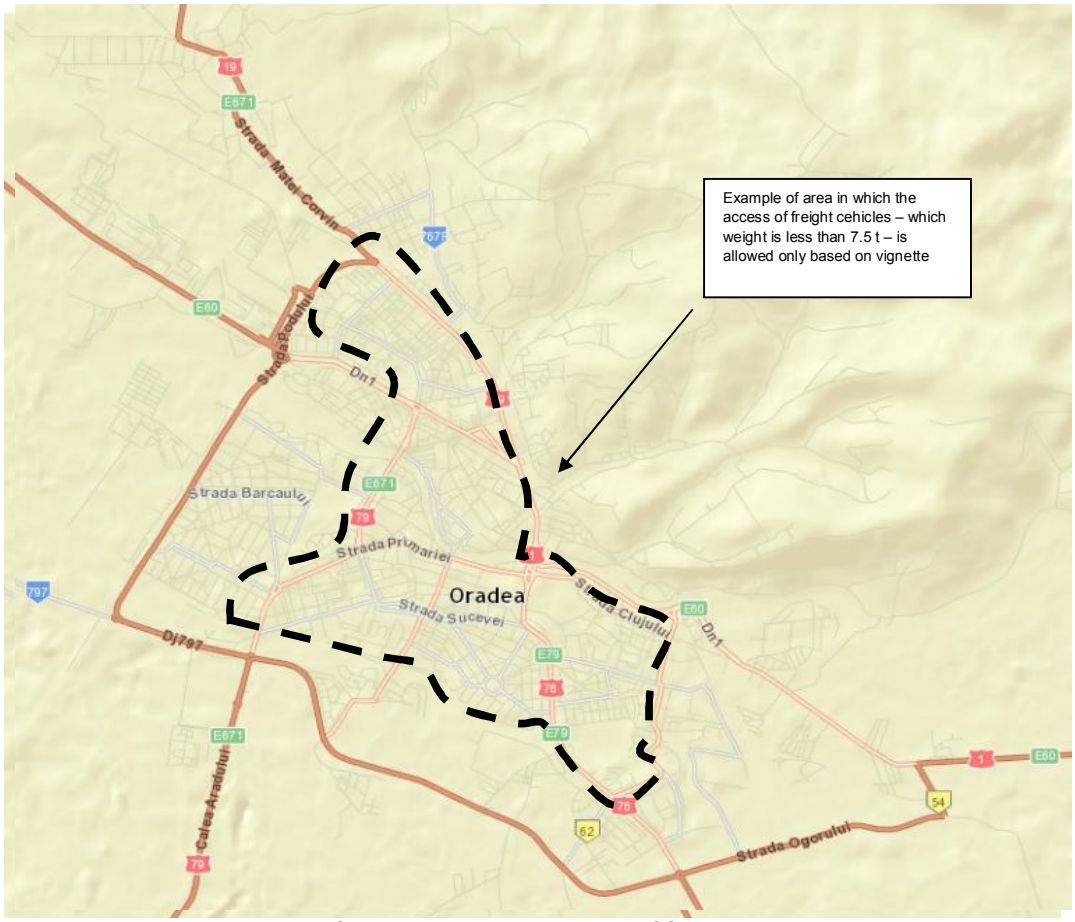

Fig. III.1 – The area in which is forbidden the circulation of freight vehicles with weight > 3.5 t

IV-1 = purchase a medium capacity vehicle – an electrical vehicle – initiating an ecumenical route inside the city;

(to see also Chapter 5 = Objective: carbon emissions reduction)

a) Causality

The idea contained in the measure regards quality more than quantity: obviously, it can be forwarded a proposal to purchase a fleet of such vehicles, but the main problem is the one of the sale market.

b) Requirements

It is necessary a survey among residents and especially among tourists, in order to identify the minimum financial return which justify the purchese of one or more of such vehicles.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Reduce CO emissions;
- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

The ecumenical circuit is shown in the below figure and encompasses:

(By walk)

- The Moon Church + Synagogue + Municipal Theatre + City Hall + The Greek Cayholic Palace

(By bus)

- Partium University
- Childrens' town
- Central Station
- Roman Catholic Diocese
- Crişul Store
- The Orthodox Monastery

(By walk)

- The Citadel + 1st December Park

(By bus)

- Lotus center
- SC OTL SA Depot
- Oradea University
- Military museum
- Zoo
- Commercial areas (at the end of Calea Aradului)
- Airport
- The Moon Church

therefore the touristic circuit would have the structure shown below:

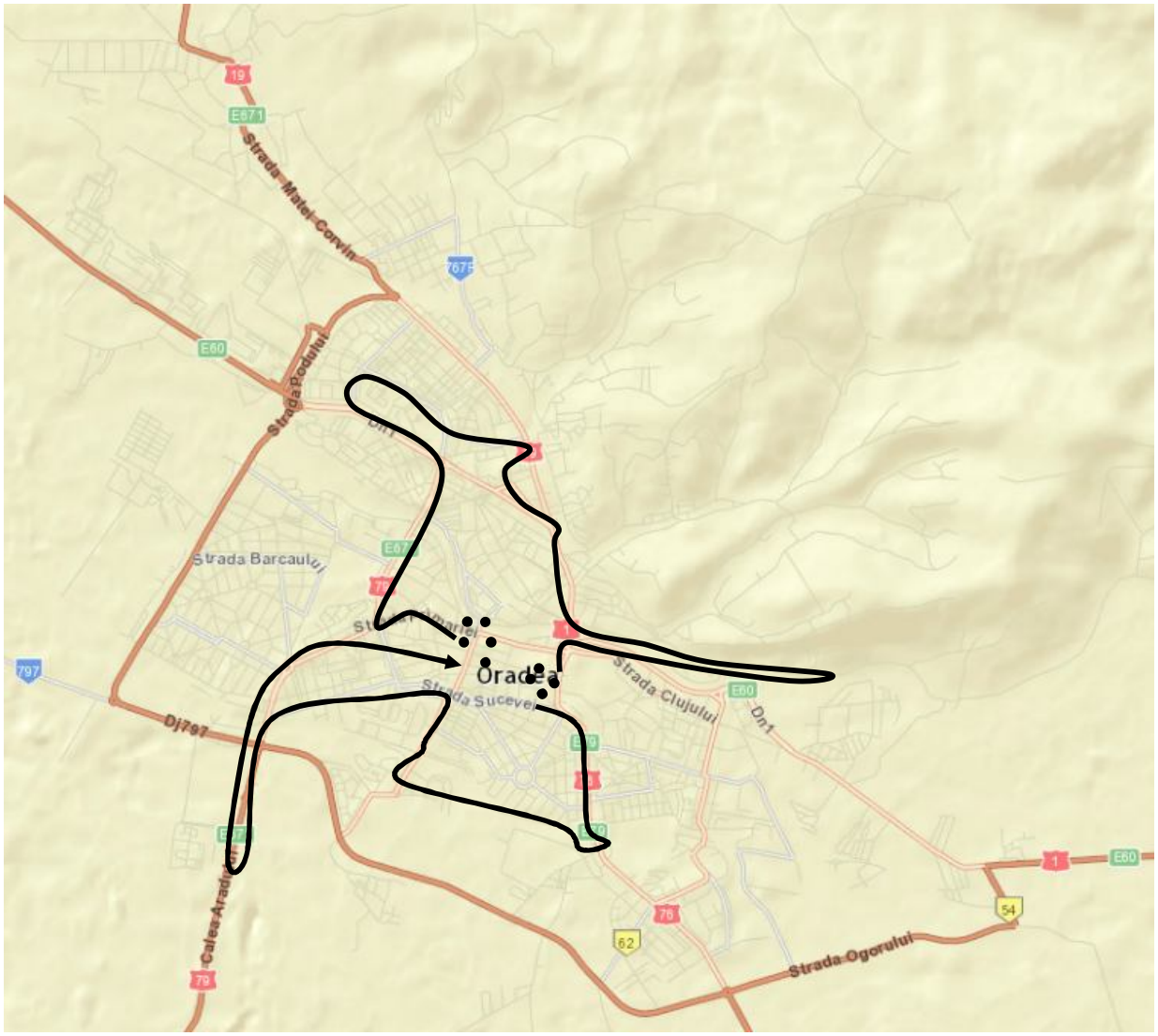

Fig. II.73 – The proposed touristic circuit

V-2 = rehabilitation of tram railways (in the same time with grassing of the embankment);

(to see also Chapter 5 = SMART targets: the development of areas for buildings versus green areas)

a) Causality

Local authorities face difficulties in meeting the requirements of air quality limits for particulate and nitrogen oxides in ambient air. They have a negative impact on public health.

b) Requirements

For rehabilitation and simultaneous introducing of grass surfaces it is necessary an action plan developed on areas. As prime areas in which to start the implementing of the measure can be considered: Independenței Street, 1st December Square, Coposu Street, Emmanuel intersection.

c) Results

- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Reduce CO emissions;
- Improve road infrastructure;
- Development of local public transport system.

Benefits due to this measure are multiple: for trams – higher commercial speed, for passengers – confortableness along the trip, for city – more oxygen etc.
For other benefits see also tables II.20 and III.10.

V-5 = it is necessary a strategy to renew the public transport fleet;

(to see also chapter 4 = Vision: public policy guidelines to……public passenger transport)

a) Causality

SC OTL SA needs to speed up the alignment of the fleet to the sustainable development requirements - 65 % of buses are older than 10 years and over 85 % of trams are older than 30 years.

b) Requirements

There are papers developed internally by SC OTL SA which represent a strategy to renew the fleet.
The approach depends on the availability of local political factor: it can be developed an action to gradually improve the fleet or it can be accepted a major change that requires simultaneous change of the entire fleet.
The first option is recommended for buses: to procure medium capacity vehicles – medium buses as was indicated by mathematical model already shown in 1st Phase – which consume less than 20 l / 100 km, purchased by leasing at a price no more than 5000 EUR/month.
The second option is recommended for trams: for whole fleet older than 5 years it is necesarry to obtain the acquisition in extensive series (for example, leasing for many years).
The renewal problem requires a technical and financial study; a similar proposal can be found in chapter 6.3 which treats the issues of resources.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve safety and security;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Reduce CO emissions;

- Development of local public transport system.

For other benefits see also tables II.20 and III.10.

VIII-1 = SC OTL SA has to make a plan for design, redesign and improve the infrastructure of trams;

(to see also Chapter 5 = SMART targets: commercial speed in public transport)

a) Causality

In the present project INCERTRANS proposes two directions of development: from Emanuel intersection to Salca Depot – simultaneously opening the second access, respectively Calea Aradului in 3 stages of extension (up to city's ring, up to big hypermarkets, up to airport).

b) Requirements

SC OTL SA has in plan a project to develop the tram network.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve safety and security;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Reduce CO emissions;
- Improve traffic safety;
- Improve road infrastructure;
- Development of local public transport system.

For other benefits see also tables II.20 and III.8.

VIII-3 = periodical analysis of „becoming black spots" from the SC OTL SA perspective;

(to see also Chapter 5 = Objectives: the improve of safety)

a) Causality

Although risk assessments are made anually, the survey conducted among drivers and motormen of SC OTL SA mentions a number of safety issues which drags for many years (in the study is attached an analysis of the responses to a survey conducted by INCERTRANS).

b) Requirements

For SC OTL SA: identification of the "becoming black spots".

For municipality: working plan and budget for improving road infrastructure.

c) Results

- Improve safety and security;
- Improve traffic safety;
- Improve road infrastructure.

For other benefits see also tables II.20 and III.9.

X-1 = elaborate a profitability plan for the trams railways section from Ioşia Sud Neighborhood – which due to neighborhood's specific not justify the trams transport operation – possibly, through the end of route reallocation beyond the fence which delimit north-south artery, in parallel with rail;

a) Causality

INCERTRANS considers – based on the survey on passengers traffic – that the lucrativeness of Line 2 is brought to the lowest level due to lack of transport need in that neighborhood – neighborhood with a very low population density.

b) Requirements

There are 2 alternatives: one is that the section shall be eliminated or, the other, to elaborate an impact study in order to extend that section toward East Railway Station.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Improve road infrastructure;
- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

X-3 = SC OTL SA has the obligation to provide the necessary documentation to Oradea Municipality Administration to recalculate periodically the compensation of public urban transport operator;

a) Causality

The data on which the tariff is offset by OTL PMO should be as close to reality. In this respect, e-ticketing system implemented by SC OTL provides information on the types of users of public transport. Thus, it is known at any time how many students, retirees and other categories of users benefiting from exemptions or reductions to pay travel are using public transport, and SC OTL may claim appropriate compensation based on these statistics.

b) Requirements

It has to comply with provisions of the Law 92/2007 on local public transport services.

Following the implementation of e-ticketing it will be detailed reports and also reports/records with a high degree of accuracy on categories of public transport users which will provide the basis for periodic recalculation of compensation. These reports will be submitted periodically to Oradea Municipality Administration.

c) Results

- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Development of local public transport system.

For other benefits see also tables II.20 and III.10.

X-5 = it has to enhance the efforts for increase transports regularity and even the public transport vehicles punctuality – according to schedules;

a) Causality
The measure must not be slighted: although there is a dispatching center owned by SC OTL SA, if it will be done an analysis of the delays, this will be followed at least by periodic changes of public transport schedules (or these seem to remain valid over long periods of time).
b) Requirements
From the technical point of view the increase of the regularity can be done by introducing the time reserves in public transport schedules.
c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

X-6 = it is necessary to ensure the second access to trams depot; in the same vein: it is to consider a “shed” for trams in order to reduce the travel distances for the withdrawn trams at the end of the peak hours;

(to see also Chapter 5 = Objectives: local transport system development)

a) Causality
The issue of the trams depot reliability is insufficient present in the concerns of city’s administration and the project and its financing are extensive and problematic.
It is necesarry a second exit from the depot in the context in which is analyzed the below graph in terms of reability – the probability that the critical points 1 or 2 (which in mathematics means sum of probabilities) to become insurmontable does exists, therefore transport operating to become impossible.
Corroborating this finding with topographic situation of the south area of the city, respectively with the tram tracks of the depot, results that an additional exit of the depot has one single location: to west in diametrical position from the current exist = the green arrow in the below figure.
b) Requirements
It is recommended elaboration of a feasibility study, a route plan and a technical project.
c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Improve road infrastructure;
- Development of local public transport system.

For other benefits see also tables II.20 and III.8.

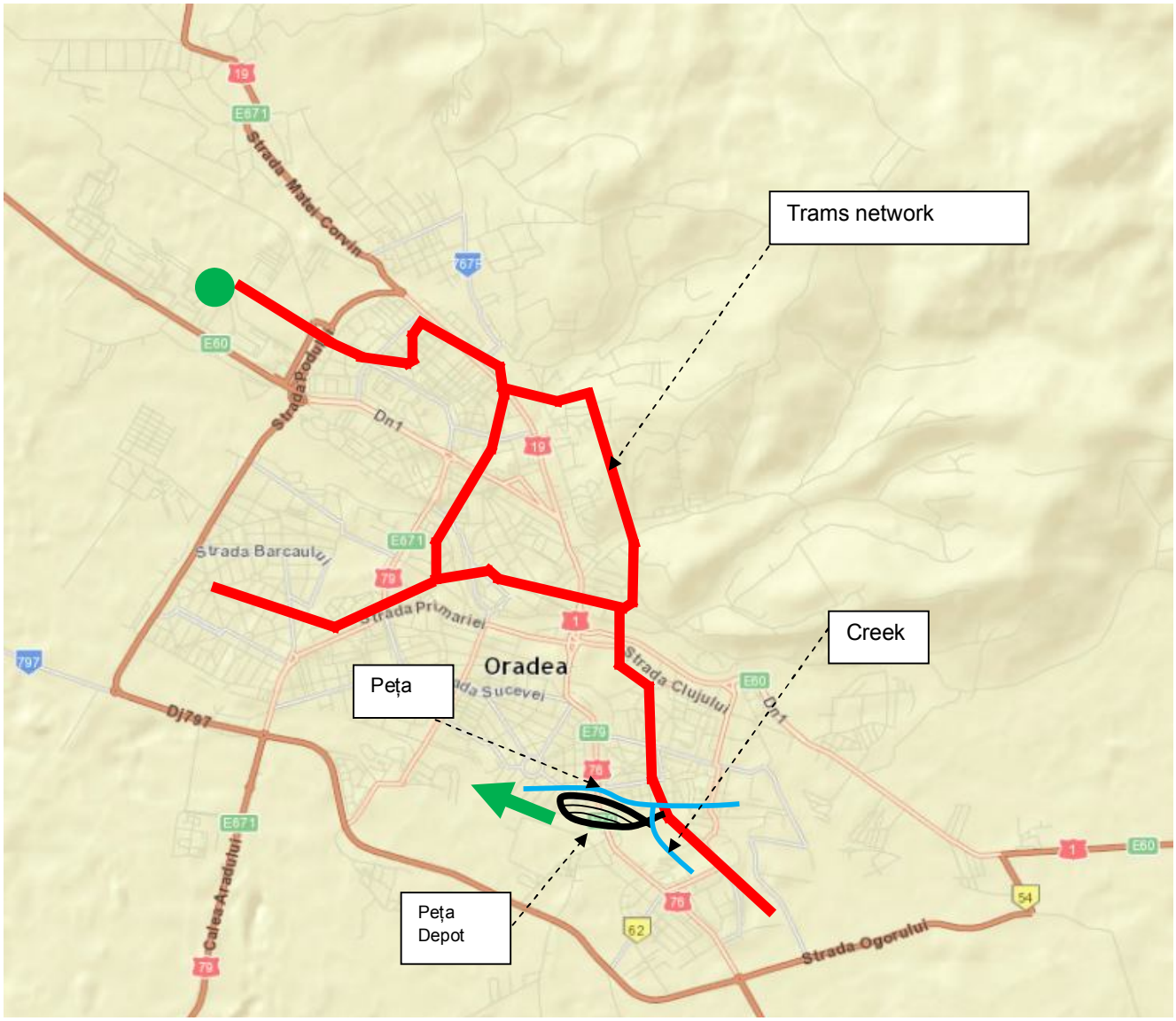

Fig. II.27

X-7 = it can be obtained a higher elasticity in public transport operation if it will be done the third “triangle” which to serve Line 2;

(to see also Chapter 4 = The vision: the neighborhoods’ accessibility)

a) Causality

The public transport system must provide equal opportunities to individuals in terms of spatial accessibility points that can satisfy their needs. The spatial accessibility can be treated as drivers of spatial

reorganization process and is defined as the process whereby individual locations adopt its functions (social, economic and political) in a spatially closely related to relative changes in connectivity and accessibility of the system as a whole.

b) Requirements

Given the "triangle history" in question it is required an intervention at the highest local level – Oradea Mayor, respectively Police Commander – to unblock the situation.

The figure below shows a possibility of extension of transport service along the materialization of the proposal: how to ensure a fast transport on tram network (reaching of any end of tram network will be done in the shortest times).

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Improve road infrastructure;
- Development of local public transport system.

For other benefits see also tables II.20 and III.8.

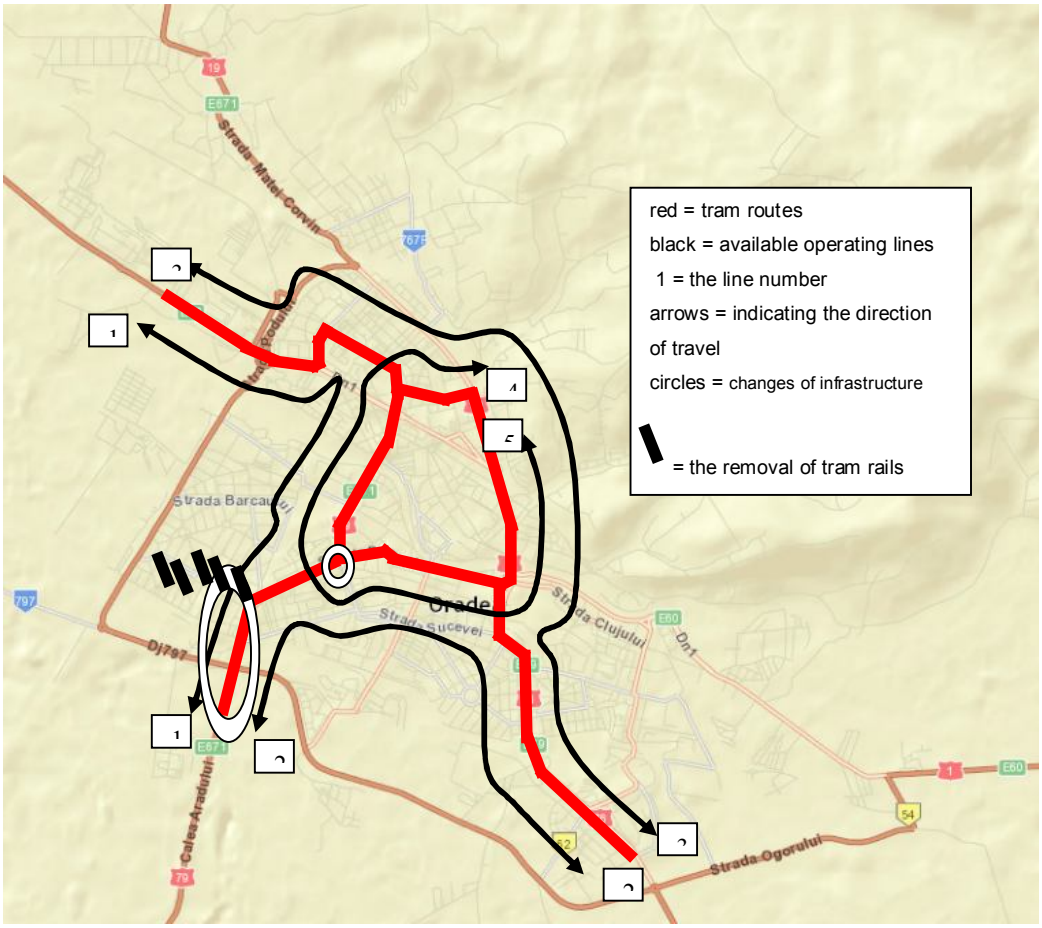

Fig. II.41 – How to ensure a fast transport on tram network

(reaching of any end of tram network will be done in the shortest times)

X-8 = from the point of view of efficiency, the main route which can be served by a tram line is between the point of intersection of tram line 2 with central ring and the second access of depot;

a) Causality

This measure is linked to measures X-6 and X-7, along completing the rail transport network in the city. In addition, the university area with high potential for attracting and generating travel it could be served by vehicles of higher capacity.

b) Requirements

It is recommended a feasibility study, a plan route and finally an execution project.

Note that the official map of the city does not seem to allow such a route, the reality checked by INCERTRANS indicates the possibility, respectively: Emanuel, Decebal, Stadium, University, Cemetery, Ceyrat Street, Atelierelor Street, Depot.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Improve road infrastructure;
- Development of local public transport system.

For other benefits see also tables II.20 and III.8.

X-9 = SC OTL SA has to redo the schedule for public vehicles so as the intervals at peak hour to reach 7-8 minutes between the vehicles of the same line/route;

a) Causality

The measure is organically linked to the issues of regularity regarding public transport services performed by SC OTL SA: the reserves in travel times can be achieved by introducing in the transport schedule of each route more vehicles and these vehicles are determined by stabilizing the time between the vehicles of the same line to 7-8 minutes – value which is determined based on a mathematically model which demonstrates that this value of waiting time in stations is normal.

b) Requirements

The measure should be anticipated by traffic analysis and by graphs of new structure, but SC OTL SA should be warned that can not claim that whole city to mobilize towards mobility, and SC OTL SA to remain within the “consacrated” parameters without to agree on making additional efforts.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

X-11= SC OTL SA has to aim the purchase of vehicles with enhanced access possibilities (of different capacities, with low floor etc.);

(to see also Chapter 4 = The vision: the mobility of all citizens)

a) Causality

Law 448/2006, republished provides that public authorities shall take the following specific measures to ensure public transport for people with disabilities:

a) to acquire the transport vehicles adapted;

b) to adapt the fleet in circulation in the possible technical limitations, according to the regulations in force;

c) to realize transportation programs for people with disabilities, in collaboration or partnership with legal persons, public or private.

Applying this law was postponed because of lack of funding.

b) Requirements

For SC OTL SA: purchasing of vehicles with different transport capacities.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve safety and security;
- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

X-12 = general interests of the citizens – not those specific to a part of the citizens – request to reassess the gratuity award system for retirees (the gratuity may be a right but using this for the time during students are traveling by public transport can not be tolerated);

a) Causality

In a city where 65% of the passengers are retirees who were granted the absolute right to travel freely, to achieve profitability is impossible (the profitability is not an aim by itself: it means money for sustainable development of public transport, in parameters which to ensure the perpetuation of life to an acceptable level – noise, poluttion, space used rationally etc.)

INCERTRANS does not propose to eliminate the gratuity, but only to limit this right in time: **only out of peak hours.**

For example, in Budapest the retirees have the right to purchase monthly pass with a discount of 65% and in Wien the retirees pay the entire cost of the monthly pass, afterwards the municipality discount a part of the cost; this can be a start also for Oradea.

b) Requirements

For SC OTL SA: developing a proposal.

For municipality: passing through the local council of an appropriate resolution.

c) Results

- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

X-14 = SC OTL SA has to make a project proposal for the first lanes dedicated to public transport;

(to see also Chapter 5 = SMART targets: dedicated lanes)

a) Causality

Perhaps the above formulation created troubles in understanding the contained idea: it is about city's streets where the movement of SC OTL SA vehicles is difficult.

It is the case of:

- Republic Boulevard on which trams are moving in the rhythm of general traffic - namely with 6-7 km/h and which can not lead to use mainly the public transport (the separation of tram rails of general traffic will double the speed of public transport vehicles and will create premises to renounce to travel by car)
- as well in the area of Independenței Street and its surroundings (on Cantemir Boulevard and Independenței Street) it can be implemented an action to delimitate the lane dedicated to public transport, with benefits for most citizens (but also disadvantages for private cars owners).

b) Requirements

For SC OTL SA: developing a proposal.

For municipality: passing through the local council of an appropriate resolution.

c) Results

- Improve safety and security;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Development of local public transport system.

For other benefits see also tables II.20 and III.8.

X-15 = it is recommended to initiate a project for modern boarding-unboarding stations (to standardize – to customize these contact points between the public transport operator and the public);

a) Causality

The measure concerns the station not from the perspective of boarding-unboarding but in terms of waiting time in station area.

b) Requirements

It is proposed to continue equipping stations with equipment of this type (it is to mentioned that it has already been equipped 85 stations).

It is auspicious to initiate a multi-year campaign which finally to bring an uniformity of the stations – which can be as"brand" of the firm.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve safety and security;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Improve traffic safety;
- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

X-17 = it is necessary a new pricing policy (which to envisage also rewarding the loyal passengers);

a) Causality

Value followed by the carrier must be the clients satisfaction. The studies have shown that is more difficult to recruite new clients instead of keeping the existing clients.

b) Requirements

For SC OTL SA: proposal for changing the transport regulation.

The pricing policy must fall within the parameters fixed by the target "THE COST OF ONE PARKING HOUR RELATED TO THE COST OF A 5 KM TRIP BY PUBLIC TRANSPORT". For the 2013 the cost of one parking hours is 2 lei. Subsequently to a survey conducted in February 2013, the average length of a trip was estimated to be 3.5 km; in 5 km should be included the price for two trips – if the tickets are paid separately, respectively one single trip if is paid the price for monthly pass. So: the price of a trip on 5 km distance can be considered as being maximum 6 lei or minimum 1 leu, with an average of 2,67 lei[2]. It can be seen that the ration between the two prices (approx. 0.75) is unfavorable to sustainable development because in a superficial approach of the situation, the travel by private car in the city's center seems to be equal – in financial terms – with round trip by public transport vehicles. In the same vein: even 1 (one), the ration is still unfavorable to sustainable devlopment, because, from the psychological point of view "the driver" will count the convenience of his trip as superior compared with the advantage of reducing the costs for fuel:

- the conclusion: the inversion of the ratio – from 2/2.27 = 0.75 – to 1.34 could be a target for SUMP.
- consequence: since for the 6 (six) years of SUMP monitoring it was proposed (the above indicator) a target for the price of a trip of 2 lei, that means in 6 (six) years the STANDARD hour for parking should vary between

3 lei * 1.34 = 4 lei and
2 lei * 1.34 = 2,70 lei

simultaneously with implementation of progressive taxation.

From other cities' experience regarding the reward for loyal passengers:

- The purchase of 11 consecutive monthly passes allows to get the 12th pass at half price.
- The owner of a private car benefits by a discount of 10% if he purchases a monthly pass on public transport vehicles.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

[2] The average was calculated taking into account also the proportions regarding the ticket sales and the subscription transport sales.

X-18 = it has to be introduced and then generalized express transport system (or maxi-taxi), in the same time with normal routes;

(to see also Chapter 5 = SMART targets: buses/trams routes)

a) Causality

The operation of the most loaded lines 14 and 12 can be organized so that – at least at the peak hours – to benefit of two different category of vehicles: the category "normal service" – the most largest and the category "express service" – for example with two vehicles that at the moment are used for transport on these two lines, which have two intermediary stops in the points of great interest for passengers.

b) Requirements

For SC OTL SA: restructuring of the transport network.

For municipality: budgetary effort for surplus vehicles.

The parameters of these express lines can be determined through some inexpensive tests (the ticket for these lines is determined due to increased commercial speed recorded in comparison with the speed of normal lines).

The (estimated by INCERTRANS assessment) success can lead to expansion of the service also for the points and streets which currently are not served by SC OTL SA.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Development of local public transport system.

For other benefits see also tables II.20 and III.10.

X-19 = it is necessary to redesign the bus routes so as to be excluded the parallelism of the two modes of transport;

(to see also Chapter 5 = SMART targets: accessibility to public transport vehicles)

a) Causality

In the second phase of Chapter 5.1 was presented a mathematical model which ONLY FROM TECHNICAL PERSPECTIVE indicates the number of trips to be made by a public transport line so that to justify the effort due to operation (ie: for 16 hours of operating, every direction of a line relatively weak in terms of traffic, should bring for 10 stations for example, a revenue of at least 96*3*10*3 = 8640 lei so that the transport service to be acceptable – given the subsidy).

b) Requirements

For SC OTL SA: transport network redesign.

For municipality: development of studies that correlate neighborhoods for servicing with transport routes.

The implementing of bus routes redesign should be preceded by a detailed analysis of the existing circumstances, respectively the entire context of transport public network.

In another study INCERTRANS submitted a proposal for a network which would be based on the tramways, on a few bus lines and on acceptance of the parallelism only where the topology does not allow another option – as Republicii Boulevard: the only link with the north of the city. In the next figure it is presented the proposal of the network.

It can be seen that some sections on which operate **competing buses and trams** have disappeared**.**

c) Results

- Ensure the accessibility offered by the transport system is available to all;

- Improve safety and security;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Development of local public transport system.

For other benefits see also tables II.20 and III.8.

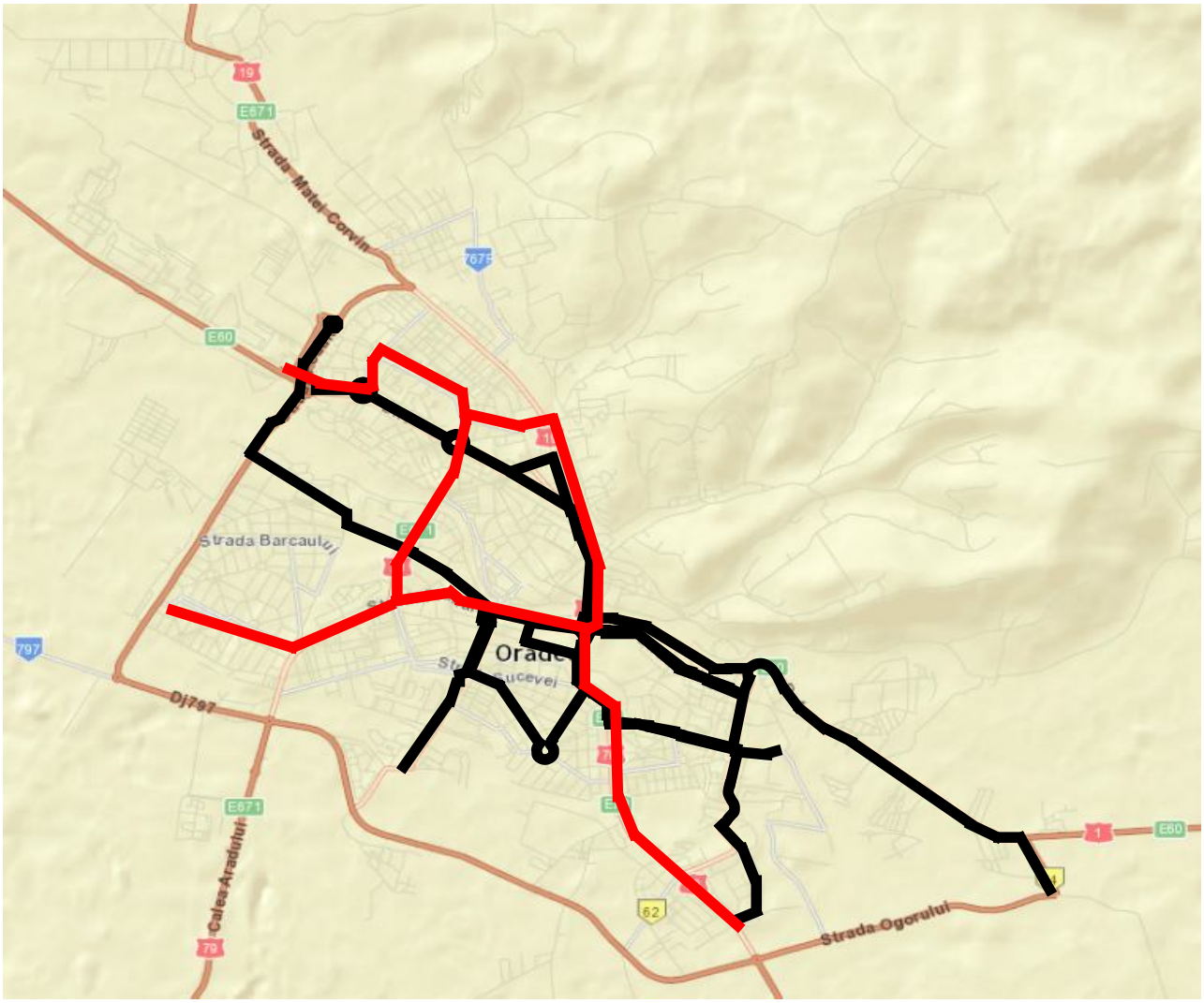

Fig. II.39 – The characteristic frame of major transport need in Oradea

X-20 = in line with the above objective: it is necessary to reconsider the set of public transport stations for boarding and unboarding;

a) Causality

The measure should be correctly understood: it does not claim the removal of the stations but only the analysis of the situation; the unwritten history shows that some of the current stations are due to sentimentalism or to pleas more or less amicable.

In the second phase of Chapter 5.1 was presented a mathematical model that indicates on objective basis that "if a point targeted as a possible unboarding station does not bring in the system at least 3 passengers at every 10 minutes, then it is not recommended a new boarding-unboarding station".

b) Requirements

Before removal it is necesarry the capitalization of the information provided by ticketing system – or through surveys among bus and tram drivers – and where the station determines only brakings and starts there to be implemented the measure of removal.

It is to note that the measure regarding the removal of three bus lines – in June 2013 – has improved the overall profitability of SC OTL SA: based on similarity in some cases not the removal of the line but only the removal of some boarding-unboarding points is sufficient to achieve profitability.

Also, it has be done actions to equip the vehicles so that some stations to be listed under "optional" stop.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

X-21= take into consideration the possibility to implement the transport system by trolley;

(to see also Chapter 5= SMART targets: electricity consumption versus fossil fuel consumption)

a) Causality

The measure is in the spirit of sustainable development. There is even a feasibility study.

b) Requirements

For SC OTL SA: preparing for activity diversification.

For municipality: appropiate budget.

Oradea Muncipality Administration should to access the financing sources as soon as possible.

c) Results

- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Reduce CO emissions;
- Development of local public transport system;
- Extending operational local transport market.

For other benefits see also tables II.20 and III.9.

X-22 = it is necessary that some of the trams lines to be transform in light rail lines;

a) Causality

While the measure X-14 refers to dedicated lanes, namely to simple delimitation of tram routes or bus route in general traffic, the measure X-22 involves only for tram routes the implementation of some infrastructure systems = separate route but also superstructure type = at least a soft that controls traffic light in favor of public transport.

b) Requirements

For SC OTL SA: preparing for activity diversification.

For municipality: appropiate budget.

c) Results

- Improve safety and security;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Improve traffic safety;
- Improve road infrastructure;
- Development of local public transport system.

For other benefits see also tables II.20 and III.8.

X-23 = in order to make profitable the SC OTL SA activity, it should be defined the threshold between social transport and solitary transport;

a) Causality

In the chapter related to MONITORING there is detailed a mathematical model which inputs are the results of SC OTL SA activity after the removal of the three lines considered unprofitable in June 2013. These results indicate the relevant improving of the ration revenues / costs.

b) Requirements

For SC OTL SA: restoring of circulation schedules..

In the same spirit, there is introduced in the municipality practice a rule regarding the maintenance or non-maintenance of a line: the periodically analysis of each line profitability should be a mandatory practice, the profitability being compulsory excepting the case in which the institution that requires not to consider the profitability ensures the difference of revenues, especially the e-ticketing system can provide effective solutions.

c) Results

- Improve the efficiency and cost-effectiveness of the transportation of persons and goods.

For other benefits see also tables II.20 and III.9.

XI-2 = in collaboration with OMA (Oradea Metropolitan Area) it is recommended to prepare a program of transport service for peri-urban area (particularly to Băile Felix and Băile 1 Mai resorts but also to Borş – link with European Western);

(to see also Chapter 4 = The vision: geographic expansion)

a) Causality

One of the objectives of the local transport operator is to establish the expansion policy of Oradea Transport Local in Oradea Metropolitan Area as a regional operator, with all the attachments of the decision (purchasing vehicles, hiring staff, equipments etc.).

SC OTL SA has done the first steps in this direction by setting up the transborder line Oradea – Borş – Biharkeresztes with two round trips routes on this link.

b) Requirements

Once established TRANSREGIO as an authority for transport activity in the Oradea Metropolitan Area there were created conditions for new routes at periurban level which will be operated by local transport operator.

For SC OTL SA: preparing of circulation schedules for metropolitan area.

For municipality: legal arrangements for extending transport activity beyond its boundaries.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Development of local public transport system;
- Extending operational local transport market.

For other benefits see also tables II.20 and III.9.

XI-5 = analyze the possibilities to standardize the payment into a single pass for urban trips in combination with peri-urban trips.

a) Causality

Integrated ticketing systems can contribute to the quality of the process of intermodal transport. Considering the OTL objective to extend to the metropolitan area, this measure should attract new users for the public transport.

b) Requirements

The electronic ticketing system developed under ATTAC Project has possibilities for passes combined in a wide range form which the measure is just an option.

There are although necessary the information campaigns which to be the “cause” of transport need emergence.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Development of local public transport system;
- Extending operational local transport market;
- Ensure superior service for intermodal transport.

For other benefits see also tables II.20 and III.9.

XI-6 = it should be necessary to be rethought the granting systems of transport licences for peri-urban area and even county area – in order to have the obligation to use as arrival and departure in/from oradea only the bus - stations – to strictly forbid the public transport of passengers within the city;

a) Causality

The number of commuters traveling daily to Oradea is about 25.000 plus 7.000 students. Until the intermodal points appear, it is necessary to regulate the number and the location of the stops used by the other transport operators.

b) Requirements

By a common action Oradea Municipality Administration and SC OTL SA should to empower at least the TRANSREGION administration in order to be in a legal framework – regarding the obligation to use for extra-urban transport only the official stations in the city.

Also it is necessary the County Council to become part of the action of transition to sustainable mobility by disciplining the intercity transport operators[3].

c) Results

- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Improve safety and security;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Development of local public transport system;
- Extending operational local transport market;
- Ensure superior service for intermodal transport.

For other benefits see also tables II.20 and III.9.

XI-8 = should be introduce a tax / fee – contribution of the non-local transport operators in order to cover the costs of maintenance the boarding-unboarding stations used by them;

a) Causality

As long as the others transport operators are using the OTL stops, it is natural to contribute financialy to the maintenance of these stops.

b) Requirements

The measure is complementary to the previous one and should be implemented by Oradea Estate Administration within Oradea Municipality Administration.

At the moment there is a schedule which assume that taxation measure will be applied starting with 01/01/2014.

The list of stations used by transport operators is shown in tab. II.34 within Chapter 3.1 – Prepare an analysis of problems and opportunities, and the list of stations used by county transport operators is shown in Annex 14.

c) Results

[3] Trying an expression as gentle as possible: as most o county transport operators are disturb by the "unauthorized pirates" phenomenon, so they have to understand that taking the urban trips by interurban transport means/vehicles is an act of piracy.

- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Improve traffic safety;
- Improve road infrastructure;
- Development of local public transport system.

For other benefits see also tables II.20 and III.9.

XII-1 = central railway station modernization so as the transition from railways system to roads system to represent an action of establishing a intermodal hub of maximum importance; same for Nufărul node;

(to see also Chapter 5 = Objectives: intermodality)

a) Causality

The most important goal of the intermodality is to offer to passengers the possibility to travel "door-to-door". Intermodality can contribute to the development of an integrated and efficient transport system, which is enable to offer more options to the travelers.

b) Requirements

For SC OTL SA: organization of transport schedules according to the other transport modes.
For municipality: project planning intermodal points.
The project does exist. It's just necessary to follow the deadlines.

c) Results

- Ensure the accessibility offered by the transport system is available to all;
- Improve safety and security;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design;
- Improve road infrastructure;
- Development of local public transport system;
- Extending operational local transport market;
- Ensure superior service for intermodal transport.

For other benefits see also tables II.20 and III.9.

XII-3 = organize the public transport program performed by public transport operator in accordance with the rail and air transport program;

a) Causality

With the appearance of the intermodal node from Gara Centrala, urban transport operator has to adapt his schedules to those of trains. In the similar way, for the Nufarul intermodal node or Oradea Airport.

b) Requirements

There are to do two actions:
- One regarding the transports chedules modification according to timetable for arrivals-departures from Rail Stations, respectively from the Airport;
- The second of written information – through posters with penetrating message - thet SC OTL SA is ready to take the passengers arriving by rail an air to local destinations and even periurban destinations within Oradea Metropolitan Area: quickly and with minimal costs.

c) Results

- Ensure the accessibility offered by the transport system is available to all;

- Development of local public transport system;
- Extending operational local transport market;
- Ensure superior service for intermodal transport.

For other benefits see also tables II.20 and III.9.

The above list contains informations regarding the responsabilities undertaken by local institutions of the city:

- Oradea Municipality Adminsitration as main “conductor” on city’s scene – and as administrative and politic factor – **but also as main shareholder of TRANSREGION**;
- **SC OTL SA as main “performer” on urban mobility market.**

Obviously the public and city’s population dat also a part of the residents of metropolitan area are “first-class actors” but:

- ✓ On the one hand, it can’t be given tasks to such actors
- ✓ On the other hand it can not be neglected the citizens' reactions (regarding changes, not always pleasant); this ultimate aspect will be remedied in the activity which includes the MONITORING within it will be testing actions – by which it will be possible to enhance, diminish or correct some of the effects of implemented measures.

Measures packages were created separately from two points of view:

- **a perspective detail in Chapter 6.3 = the best mix of measures (that supports the financial flow from some of the measures, directed to others)**
- **a perspective detail in Chapter 6.4 = the best mix of measures (acting in conjunction to improve mobility "with highest speed").**

FROM THE PERSPECTIVE OF AUTO FINANCIAL SUPPORT the measures packages are:

Tab. III.1 – Measures packages – financial flow based version

Measures packages	Measures requiring financial effort	Financially neutral measures	Measures contributing to financial resources
a) Supporting measures			
Package 1		X-14	I-16, II-2, X-12, XI-8
Package 2	IV-1, X-15		
Package 3			
Package 4	X-6, X-7, X-8	X-17	
b) Consolidation measures			
Package 1	I-7, X-22	I-8	X-18, X-19, XI-2
Package 2			
Package 3	X-21	X-3	
Package 4	V-5, VIII-1	I-10	
c) Reinforcement measures			
Package 1	XII-1		I-21, X-23, XI-6, XII-3
Package 2	V-2, X-1	VIII-3, X-20, XI-5	
Package 3	X-11	I-19, X-5, X-9	
Package 4			

A brief analysis reveals:

- 14 measures require money
- 11 measures bring money
- 11 measures are neutral, but no less relevant to improve mobility – for sustainable development.

FROM THE PERSPECTIVE OF SYNERGY the measures packages are:

Tab. III.2 - Measures packages – synergy based version

	Measures undertaken by the municipality			Measures undertaken by SC OTL SA		
	Supporting measures	Consolidation measures	Reinforcement measures	Supporting measures	Consolidation measures	Reinforcement measures
package of measures to reduce congestion (reducing traffic)	II-2, X-14					
package to achieve higher operating conditions of the public transport system	X-6, X-7	X-21	X-1	IV-1, X-8, X-15, X-17	V-5, VIII-1, X-3, X-18, X-19, X-22,	V-2, X-5, X-9, X-11, X-20, X-23
package of measures to ensure sustainable development in mobility	I-16		I-21		I-10	I-19
alternative transport package				I-7	I-8	
package of measures to increase the safety of pedestrians (through traffic fluidization)						VIII-3
package of measures to reduce the need to travel for citizens	X-12					
package of measures to reduce pollution	-	-	-	-	-	-
package of measures to achieve intermodality	XI-8		XI-6, XII-1		XI-2	XI-5, XII-3

SWOT analysis of SUMP packages of measures endorsed by local factors Oradea reveals:

strenghts

- Covers 19 of 46 measures envisaged by Konsult (Annex 31)
- Percentage of effectiveness of measures - over 138% - almost identical to the percentage recorded of all 75 measures proposed by INCERTRANS (Annex 25)

weaknesses

- Oradea Muncipality Administration is disinterested by 2 of 8 packages of measures developed by INCERTRANS from the perspective of synergy
- SC OTL SA is disinterested by 3 of 8 packages of measures developed by INCERTRANS fom the perspective of synergy
- Oradea Muncipality Administration is involved in less activities than public transport operator

opportunities

- SUMP can pe improved “on the fly” – especially with measures which not involve financial resources

threats

- The isolated existence of some measure that are not supported each other in depth[4] (measures were classified as supporting, strengthening and reinforcement).

The above points of view were brought to a common point, based on the comments received from working groups[5] ONCE THE DISCUSSIONS IN THREE WERE COMPLETED: ORADEA MUNICIPALITY ADMINISTRATION, SC OTL SA AND INCERTRANS. I was concluded that the final packages of measures will look like this (specified rank will be helpful in developing the action plan):

[4] The measures packages consistes of measures which have to be simultaneously applied to reach the threshold of effectiveness.

[5] Including the points of views of the press regarding the development of Oradea SUMP.

Tab. III.3 - The package of measures **Public transport system development**

Measures requiring financial effort	Financially neutral measures	Measures contributing to financial resources
Rank 2 = X-21 take into consideration the possibility to implement the transport system by trolley Rank 3 = X-1 elaborate a profitability plan for the trams railways section from Ioşia Sud Neighborhood – which due to neighborhood's specific not justify the trams transport operation – possibly, through the end of route reallocation beyond the fence which delimit north-south artery, in parallel with rail Rank 3 = IV-1 purchase a medium capacity vehicle – an electrical vehicle – initiating an ecumenical route inside the city Rank 4 = X-5 it is recommended to initiate a project for modern boarding-unboarding stations (to standardize – to customize these contact points between the public transport operator and the public) Rank 4 = I-7 set up bicycle parkings in boarding-unboarding stations of public transport vehicles (for the start, at least racks for 5-7 bicycles in the least half of the tram stations)	Rank 1 = X-17 it is necessary a new pricing policy (which to envisage also rewarding the loyal passengers) Rank 2 = I-8 creating the commercial and technical framework for bicycle carrying in vehicles owned by public transport operator Rank 3 = X-5 it has to enhance the efforts for increase transports regularity and even the public transport vehicles punctuality – according to schedules Rank 3 = X-9 SC OTL SA has to redo the schedule for public vehicles so as the intervals at peak hour to reach 7-8 minutes between the vehicles of the same line/route Rank 4 = X-20 it is necessary to reconsider the set of public transport stations for boarding and unboarding	Rank 1 = X-12 general interests of the citizens – not those specific to a part of the citizens – request to reassess the gratuity award system for retirees (the gratuity may be a right but using this for the time during students are traveling by public transport can not be tolerated) Rank 1 = X-23 in order to make profitable the SC OTL SA activity, it should be defined the threshold between social transport and solitary transport Rank 2 = XI-8 should be introduce a tax / fee – contribution of the non-local transport operators in order to cover the costs of maintenance the boarding-unboarding stations used by them Rank 3 = XI-2 in collaboration with OMA (Oradea Metropolitan Area) it is recommended to prepare a program of transport service for peri-urban area (particularly to Băile Felix and Băile 1 Mai resorts but also to Borş – link with European Western)

Tab. III.4 - The package of measures **Transport infrastructure improvement**

Measures requiring financial effort	Financially neutral measures	Measures contributing to financial resources
Rank 1 = X-6 it is necessary to ensure the second access to trams depot; in the same vein: it is to consider a "shed" for trams in order to reduce the travel distances for the withdrawn trams at the end of the peak hours Rank 1 = X-7 it can be obtained a higher elasticity in public transport operation if it will be done the third "triangle" which to serve Line 2 Rank 1 = X-8 from the point of view of efficiency, the main route which can be served by a tram line is between the point of intersection of tram line 2 with central ring and the second access of depot Rank 3 = VIII-1 SC OTL SA has to make a plan for design, redesign and improve the infrastructure of trams Rank 4 = X-22 it is necessary that some of the trams lines to be transform in light rail lines	Rank 4 = X-14 SC OTL SA has to make a project proposal for the first lanes dedicated to public transport	Rank 2 = I-16 taxation of cars passing through a „protected ring" in the city's center Rank 2 = II-2 to analyze the possibility of implementing of a system type „city-vignette" in a central area of the city Rank 4 = X-19 it is necessary to redesign the bus routes so as to be excluded the parallelism of the two modes of transport

Tab. III.5 - The package of measures for **Public transport service modernization**

Measures requiring financial effort	Financially neutral measures	Measures contributing to financial resources
Rank 3 = V-5 it is necessary a strategy to renew the public transport fleet Rank 4 = V-2 rehabilitation of tram railways (in the same time with grassing of the embankment)	Rank 1 = X-3 SC OTL SA has the obligation to provide the necessary documentation to Oradea Municipality Administration to recalculate periodically the compensation of public urban transport operator Rank 4 = I-10 SC OTL SA has to initiate cooperation actions with public transport passengers and regular meetings with amateur drivers Rank 4 = I-19 tickets to concert and sports events which have to include the price of 2 tickets for travel by public transport – to offer the right to travel	Rank 2 = X-18 it has to be introduced and then generalized express transport system (or maxi-taxi), in the same time with normal routes Rank 4 = I-21 introduce a „no car day” (monthly);

Tab. III.6 - The package of measures **Promote Intermodality**

Measures requiring financial effort	Financially neutral measures	Measures contributing to financial resources
Rank 3 = XII-1 central railway station modernization so as the transition from railways system to roads system to represent an action of establishing a intermodal hub of maximum importance; same for Nufărul node;	Rank 1 = XI-5 analyze the possibilities to standardize the payment into a single pass for urban trips in combination with peri-urban trips	Rank 3 = XII-3 organize the public transport program performed by public transport operator in accordance with the rail and air transport program

Tab. III.7 - The package of measures for **Increase traffic safety**

Measures requiring financial effort	Financially neutral measures	Measures contributing to financial resources
Rank 2 = X-11 SC OTL SA has to aim the purchase of vehicles with enhanced access possibilities (of different capacities, with low floor etc.);	Rank 4 = VIII-3 periodical analysis of „becoming black spots" from the SC OTL SA perspective;	Rank 1 = XI-6 it should be necessary to be rethought the granting systems of transport licences for peri-urban area and even county area – in order to have the obligation to use as arrival and departure in/from oradea only the bus - stations – to strictly forbid the public transport of passengers within the city

7.2 Prepare an action and budget plan

In general, the steps for solving the difficulties raised up by the development of the sustainable urban mobility can be summarized as follows:

a) to collect and analyze relevant information on identified problems;

b) to identify major obstacles in resolving the problems;

c) proposing an approach (defining the problems, setting goals to be responding to the resolution, identification of beneficiaries);

d) application of one or more mathematical or procedural models to solve major difficulties;

e) highlighting the rational means for application (specific measure and related lines);

f) impact analysis for pentru the obtained solution;

g) risk assessment to initiating institutions and institutions of self that will reflect the solutions;

h) horizontal evaluation of the results on the beneficiaries – on field, inside the system that includes the triggering problem of the action plan;

i) formulate requirements to the monitoring reports;

j) compendium document preparation;

k) wider consultation and approval of the document;

l) finalization and submission for approval of the final version;

m) approval of the final document;

n) decision on when to implement the solution;

o) structuring on the LOGISTIC-OPERATIONAL[6] point of view of the assembly that caused the problems (before and during application of the actions contained in the final document);

p) justification for releasing funds for the measures which follow to be implemented;

r) operativ rectification aplied to „not-framed" in the solution elements, ie changing solution to include any non compliance.

[6] Caution: not on operativ line.

ACTION PLAN IS **A COMPONENT OF THE SCHEDULE** which prepare the executive phase through that every approved planning is completed: action plan is developed according with the final document of the policy agreed by the decision group which supervised the above specified issue. In the contents of action plan there are established clear "missions" on long term[7] in a certain field. The action plan has to detail the activities from points e) and f). To emphasize differences:

- Monitoring is a complex procedure in which is accumulated informations about the implementation status in order to to monitor progress and to correct deficiencies. So, monitoring has to detail the activities from points g), h) and i).
- The working plan is a management tool which highlight (for a medium term) the ways that drives the actions toward the proposed objectives. So, working plan has to detail the activities from points n), o), p) and r).

(observation: action plans for relatively simple projects can be accompanied by a timetable and a budget proposal – and are not followed by a working plan, but the action plan for a SUMP is way to complex and therefore the budget and the timetable will not bi inserted here).

The series consists of the triad "action plan – monitoring – plan of measures" reserved by experience and permanent exercise the following structure of an action plan:

- Specify the fields within actions will be developed;
- Establish the trajectory which leads to measures[8] and actions[9];
- Establish the responsibles for implementation;
- Estimate the action effects.

The internal organization of the action plan will be based on the guidelines of a program

[7] In the conditions of increasing the planning period, the ability to control the events and to predict the changes of substance decreases dramatically: the plans on long terms can not be accomplished accurately, their purpose is only to indicate the general direction of intervention.
[8] The measures which it was agreed on.
[9] Action: the act undertaken to achieve the objective on which measure follows.

considered suitable for Oradea SUMP by INCERTRANS: Mobility Action plan – developed for Western Region of Romania". This plan covers three fields of intervention:

- Develop and modernize the infrastructure
- Improve the transport systems
- Improve the transport in relation with the environment

In the following tables subdivision on ranks was used to point on hierarchical categories the importance that SC OTL SA should given to the actions undertaken in relation with local administration – especially – so that the impact of measures to be done especially in the fields in which currently are the worst conditions regarding MOBILITY. For example:

- Introducing the triangle from Emanuel Square will have an immediate perceptible contribution of public on measures efficacy
- While combining tickets to performances with tickets, although noticeable, will bring only a limited contribution on general mobility in the city.

Tab. III.8 - Action Plan for Oradea SUMP. Intervention field:
DEVELOP AND MODERNIZE THE INFRASTRUCTURE

Rank	Concrete measures and..... RELATED ACTIONS		Estimated effects
Rank 1	- it can be obtained a higher elasticity in public transport operation if it will be done the third "triangle" which to serve Line 2 - it is necessary to ensure the second access to trams depot; in the same vein: it is to consider a "shed" for trams in order to reduce the travel distances for the withdrawn trams at the end of the peak hours - from the point of view of efficiency, the main route which can be served by a tram line is between the point of intersection of tram line 2 with central ring and the second access of depot	Rethink the proposal regarding the completion of the third side of the triangle of Emanuel Square. Prepare two pre-feasibility studies which to detail at the level of working draft the topometry context within the number of accesses in/out Salca Depot could be doubled, respectively the spatial and technological possibility de construct and utilize the expected shed in Sinteza area.	The decrease of trips time between origins and destinations favorably placed toward of improved trams network. The increase of reability in transport operation of the main transport system of Oradea – the tram. More than 80% of trips made by vehicles using fossil fuel change to trips made by electric vehicles. The appearance of tram shed will significantly reduce (estimation: 25%) the travel distances for the withdrawn trams at the end of peak hours.

Rank	Concrete measures and..... RELATED ACTIONS		Estimated effects
Rank 2	- taxation of cars passing through a „protected ring" in the city's center - to analyze the possibility of implementing of a system type „city-vignette" in a central area of the city	Prepare an extensive paper in which – taking in consideration the proposal of Urban General Plan – it will be marked the points of junction between access ways and the inside of the protected ring. Develop an analysis of opportunity of "closing" the city's ring with barriers or installing cameras to monitor the cars entering in the ring and to watch the bad payers. Propose to Oradea Municipality Administration and the police management to reduce the tonnage of freight vehicles restricted from 7.5 tonnes to 3.5 tonnes possible by restriction of free access at a period of time out of light day (18.00-6.00)	A quasi-pedestrian areas in which the level of pollution will significantly decrease in comparison with exterior periphery of protected ring. It is to report that the barriers could create local delays in general traffic but could lead to traffic calmimng with positive effects on congestion and traffic safety. It will get additional revenues for mobility improvement and possibly to implement another measures in current list accepted by Oradea decision makers. At an estimated (by specialized studies) traffic of 50,000 vehicules/14 h inside the protected ring it might say that a tax of 2 up to 10 lei will reduce the traffic by 10-25% (according to other cities' practice that applied this measure). The traffic increase will be slowed by the exclusion of a number of freight vehicles from the tonnage limitation area.

Rank	Concrete measures and..... RELATED ACTIONS		Estimated effects
Rank 3	- SC OTL SA has to make a plan for design, redesign and improve the infrastructure of trams	Prepare the proposal according to what the Sinteza tram line to cross the national road so as to be possible transport services to be done within growing industrial platform in west of the city.	The efficient use of a part of trams fleet. Improving of travel conditions in electric public transport vehicles.
Rank 4	- SC OTL SA has to make a project proposal for the first lanes dedicated to public transport - it is necessary that some of the trams lines to be transform in light rail lines - it is necessary to redesign the bus routes so as to be excluded the parallelism of the two modes of transport	It is necessary to delineate in more areas the tramway in general traffic by fences or curb-stone; it will be submitted proposal for bus and tram routes which to be advantaged in general traffic. Develop a documentation which to highlight the first tram routes which is suitable to a such approach (most likely from Central Station to Nufărul). Develop variants of routes on which not to be present both tram routes and bus routes (the equivalent being the extension of bus network to the neighborhoods which currently are low served).	It is expected that commercial speed to exceed the speed of private vehicles and so public transport be on the first plan for all city's residents. The trips by light rail can get to dependence (as Line 41 in Bucharest is highly indispensable for two sectors of the capital). Accessibility to the transport system will be improved, significantly.

Tab. III.9 - Action Plan for Oradea SUMP. Field of intervention:

IMPROVING TRANSPORT SYSTEMS

Rank	**Concrete measures and..... RELATED ACTIONS**		Estimated effects
Rank 1	- it is necessary a new pricing policy (which to envisage also rewarding the loyal passengers) - general interests of the citizens – not those specific to a part of the citizens – request to reassess the gratuity award system for retirees (the gratuity may be a right but using this for the time during students are traveling by public transport can not be tolerated) - in order to make profitable the SC OTL SA activity, it should be defined the threshold between social transport and solitary transport - analyze the possibilities to standardize the payment into a single pass for urban trips in combination with peri-urban trips; - it should be necessary to be rethought the granting systems of transport licences for peri-urban area and even county area – in order to have the obligation to use as arrival and departure in/from oradea only the bus - stations – to strictly forbid the public transport of passengers within the city	Restructure the entire pricing system of public passengers transport – but also the one that covers parking of private vehicles (with special reference to cars). Penetrating campaign to achieve the population's agreement regarding the reducing the range and volume of gratuity (of type existing in Vienna or Budapest). Prepare profitability studies for each line separately. Institute a regulation which to allow to cumulate an urban pass with a periurban pass (obviously at a lower price than the sum of the two prices). Note that e-ticketing system that is currently implemented by SC OTL SA allows a multitude of pricing options for urban, periurban and combined trips. Initiate and then permanently perpetuate working groups between SC OTL SA and transport operators in the county in order to eliminate the unfair competition within the county.	There are created new possibilities for modernization of public passengers transport operator in many sectors which can lead to the change of forces' ratio on transport market. The increase of passengers' number in public transport to the detriment of the transport by private car. The improvement of revenues-costs relation with favorable repercurssions on quality of the service. The development of public transport market by new passengers from Oradea Metropolitan Area and tourists.

Rank	Concrete measures and..... RELATED ACTIONS		Estimated effects
Rank 2	- take into consideration the possibility to implement the transport system by trolley; - creating the commercial and technical framework for bicycle carrying in vehicles owned by public transport operator; - should be introduce a tax / fee – contribution of the non-local transport operators in order to cover the costs of maintenance the boarding-unboarding stations used by them; - SC OTL SA has to aim the purchase of vehicles with enhanced access possibilities (of different capacities, with low floor etc.);	Reconsider the proposal regarding the implementing of public transport by trolley (proposal which can be also found in Urban General Plan). Modification of public transport regulations in order to facilitate the access of bikes in the public transport vehicles. **(if there are still accepted the nonlocal transport operators in the city):** Negotiations with transport operators in order to establish the amount of the fee for stations maintanance. To include in short-term program of SC OTL SA the necessity to purchase vehicles from differentiated categories in order to increase the flexibility of operation on routes on which the demand for transport is irregular in relation with day time and length (also it is proper an analysis concerning the optimum between one single type of vehicle with easy maintenance and flexibility in operation but complex maintenance for more type of vehicles).	The decrease of polluters' number in urban area. Consider the cyclists among the users of public transport services. The increase of revenues followed by the improving of public transport services. Passing from efficacy to efficiency in operation of low demanded transport lines or with an irregular demand for transport.

Rank	**Concrete measures and..... RELATED ACTIONS**		Estimated effects
Rank 3	- elaborate a profitability plan for the trams railways section from Ioşia Sud Neighborhood – which due to neighborhood's specific not justify the trams transport operation – possibly, through the end of route reallocation beyond the fence which delimit north-south artery, in parallel with rail; - it has to enhance the efforts for increase transports regularity and even the public transport vehicles punctuality – according to schedules; - SC OTL SA has to redo the schedule for public vehicles so as the intervals at peak hour to reach 7-8 minutes between the vehicles of the same line/route; - in collaboration with OMA (Oradea Metropolitan Area) it is recommended to prepare a program of transport service for peri-urban area (particularly to Băile Felix and Băile 1 Mai resorts but also to Borş – link with European Western); - purchase a medium capacity vehicle – an electrical vehicle – initiating an ecumenical route inside the city; - central railway station modernization so as the transition from railways system to roads system to represent an action of establishing a intermodal hub of maximum importance; same for Nufărul node; - organize the public transport program performed	Develop for Oradea Municipality Administration a SWOT analysis regarding the section of tramway of Ioşia Sud Neighborhood considering the need to maintain the transport by tram in this neighborhood. Reallocate the fleet on routes in order to improve the rational "equipping" of the routes depending on their transport demands. Reestablish all the transport schedules following two objectives: (1) regularity (2) rational succession between the vehicles of the same line. Prepare a detailed information which will bring arguments to Oradea Municipality Administration and Oradea Metropolitan Area regarding the implementing at least of a touristic route in the city's area. Determined action to diversify the range of services of SC OTL SA towards close resorts and border. The modification of current transport schedules assuring that arrival and departure times of the public transport vehicles to be relatively simultaneous with transport schedules for trains and plains.	The removal of Ioşia Sud section or penetration toward the west of the city will bring benefits – different – but obvious: the reduction of the operation costs, respectively a new served area. Increased confidence in public transport system. Taking the flow of tourists for the city or even to resorts from intermodal points – rail station and airport – will increase the consistency of the mobility. Increased integration between distinct transport systems.

	by public transport operator in accordance with the rail and air transport program		

Rank	**Concrete measures and..... RELATED ACTIONS**		Estimated effects
Rank 4	- it is recommended to initiate a project for modern boarding-unboarding stations (to standardize – to customize these contact points between the public transport operator and the public); - it is necessary to reconsider the set of public transport stations for boarding and unboarding; - set up bicycle parkings in boarding-unboarding stations of public transport vehicles (for the start, at least racks for 5-7 bicycles in the least half of the tram stations); - periodical analysis of „becoming black spots" from the SC OTL SA perspective.	Identify the sources to continue financing of the actions to standardize the boarding-unboarding stations. Achieve accurate surveys which to identify stations that exist only due the reason of complacency. Finance and execution of a simple "bike rack" – which can be only a metal frame with spaced for bikes wheels. Make known to Oradea Municipality Administration the conclusions and findings resulted from analysis of incidents in which bus drivers and motormen are involved – due to limitations of transport infrastructure or the conditions caused by buildings and urban facilities.	Create a "brand" of public urban passengers transport operator. Reduce energy consumption (less startings and brakings of the vehicle). The increase of commercial speed of public transport vehicles. Ensure a limited type of intermodality: public transport vehicles and bicycles. Improve the traffic safety and passengers' safety.

Tab. III.10 - Action Plan for Oradea SUMP. Field of intervention:

IMPROVE THE PUBLIC TRANSPORT IN RELATION WITH THE ENVIRONMENT

Rank	**Concrete measures and..... RELATED ACTIONS**		Estimated effects
Rank 1	- SC OTL SA has the obligation to provide the necessary documentation to Oradea Municipality Administration to recalculate periodically the compensation of public urban transport operator;	Following the implementation of e-ticketing it will be detailed reports and also reports/records with a high degree of accuracy on categories of public transport users which will provide the basis for periodic recalculation of compensation. These reports will be submitted periodically to Oradea Municipality Administration.	The systematic compensation of tickets prices differences, compensation made on correct bases and in accordance with category of public transport users will increase the SC OTL SA revenues.
Rank 2	- it has to be introduced and then generalized express transport system (or maxi-taxi), in the same time with normal routes;	Is is necessary to submit to Oradea Muncipality Administration a project regarding conjugate lines for the same route (for example line 14): develop a high speed route using a part of currents vehicles of this line.	Higher revenues – according with increase of commercial speed on express lines. Lower CO_2 emissions due to lower number of stops in intermediary stations.
Rank 3	- it is necessary a strategy to renew the public transport fleet	Develop a strategy for several years which to provide to local administration the opportunity to choose between the two options already presented in the chapter regarding probable measures to renew the fleet.	A new fleet helps to “friendship” with the environment in several ways: easier maintenance leads to less waste, less breakdowns, less interventions etc.

Rank	**Concrete measures and..... RELATED ACTIONS**		Estimated effects
Rank 4	- introduce a „no car day" (monthly); - rehabilitation of tram railways (in the same time with grassing of the embankment); - SC OTL SA has to initiate cooperation actions with public transport passengers and regular meetings with amateur drivers; - tickets to concert and sports events which have to include the price of 2 tickets for travel by public transport – to offer the right to travel;	To facilitate the making decision in order to set the "no car day", SC OTL SA should submit to Oradea Municipality Administration a paper which to indicate the less congested 2-3 days of Saturday or Sunday – as a result of the statistics held by public transport operator. Public campaign in order to get the consent of the population regarding this day. To provide in SC OTL SA budget the costs of maintenance and seeding actions. To set an "open gates day" by SC OTL SA – at least once a month – in which to take place meetings between public/passengers and employees from all hierarchical levels of SC OTL SA.. Negotiations with management of some institutions (like Theater, Zoo, Swimming Pool) in order to establish a common pass that to allow the access to a cultural performance or recreational activity and also the access in public transport vehicles (obviously including mutual discounts between the members of this consortia).	The educational effect is essential for the future of the children. "It's easy to keep clean what is already clean" effect becomes important for people and environment. The mutual exchanges of experience between SC OTL SA employees will have positive effects on the general "feel" of public transport market. The social feeling will become stronger.

Tab. III.11 – The budgeting of proposed measures

Code	Measure name	2014		2015		2016		2017		2018		2019		Cost	Financing source
		Per.1	Per.2	Per.3	Per.4	Per.5	Per.6	Per.7	Per.8	Per.9	Per.10	Per.11	Per.12		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
I-7	set up bicycle parkings in boarding-unboarding stations of public transport vehicles (for the start, at least racks for 5-7 bicycles in the least half of the tram stations)			12.000 euro	13.000 euro									25.000 euro	European Funds Own Sources PPP
I.8	creating the commercial and technical framework for bicycle carrying in vehicles owned by public transport operator														
I.10	SC OTL SA has to initiate cooperation actions with public transport passengers and regular meetings with amateur drivers														
I.16	taxation of cars passing through a „protected ring" in the city's center			2.100.000 euro	2.100.000 euro	2.100.000 euro	2.100.000 euro							8.400.000 euro	European Funds Own Sources PPP

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
I.19	tickets to concert and sports events which have to include the price of 2 tickets for travel by public transport – to offer the right to travel														
I.21	introduce a „no car day” (monthly)														
II.2	to analyze the possibility of implementing of a system type „city-vignette” in a central area of the city														
IV.1	purchase a medium capacity vehicle – an electrical vehicle – initiating an ecumenical route inside the city													400.000 euro	Own sources Loan/leasing
						200.000 euro	200.000 euro								
V.2	rehabilitation of tram railways (in the same time with grassing of the embankment)													1.500.000 euro	Own sources
				750.000 euro	750.000 euro										

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V.5	it is necessary a strategy to renew the public transport fleet													30.450.000 euro	European Funds Own sources
			2.910.000 euro	4.590.000 euro	4.590.000 euro	4.590.000 euro	4.590.000 euro	4.590.000 euro	4.590.000 euro						
VIII.1	SC OTL SA has to make a plan for design, redesign and improve the infrastructure of trams													3.200.000 euro	European Funds Own sources
				356.000 euro	356.000 euro	356.000 euro	356.000 euro	356.000 euro	356.000 euro	356.000 euro	356.000 euro	352.000 euro			
VIII.3	periodical analysis of „becoming black spots" from the SC OTL SA perspective													1.000.000 euro	Own sources
			100.000 euro	100.000 euro	100.000 euro	100.000 euro	100.000 euro	100.000 euro	100.000 euro	100.000 euro	100.000 euro	100.000 euro			
X.I	elaborate a profitability plan for the trams railways section from Ioşia Sud Neighborhood – which due to neighborhood's specific not justify the trams transport operation – possibly, through the end of route reallocation beyond the fence which delimit north-south artery, in parallel with rail.													100.000 euro	Own sources
			50.000 euro	50.000 euro											

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X.3	SC OTL SA has the obligation to provide the necessary documentation to Oradea Municipality Administration to recalculate periodically the compensation of public urban transport operator														
X.5	it has to enhance the efforts for increase transports regularity and even the public transport vehicles punctuality – according to schedules														
X.6	it is necessary to ensure the second access to trams depot; in the same vein: it is to consider a “shed” for trams in order to reduce the travel distances for the withdrawn trams at the end of the peak hours					880.000 euro	880.000 euro	880.000 euro	880.000 euro					3.520.000 euro	European Funds Own sources
X.7	it can be obtained a higher elasticity in public transport operation if it will be done the third “triangle” which to serve Line 2			30.000 euro	30.000 euro									60.000 euro	European Funds Own sources

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X.8	from the point of view of efficiency, the main route which can be served by a tram line is between the point of intersection of tram line 2 with central ring and the second access of depot													2.000.000 euro	European Funds
						400.000 euro	400.000 euro	300.000 euro	300.000 euro	150.000 euro	150.000 euro	150.000 euro	150.000 euro		
X.9	SC OTL SA has to redo the schedule for public vehicles so as the intervals at peak hour to reach 7-8 minutes between the vehicles of the same line/route														
X.11	SC OTL SA has to aim the purchase of vehicles with enhanced access possibilities (of different capacities, with low floor etc.)													3.450.000 euro	European Funds Own sources
					862.500 euro	862.500 euro	862.500 euro	862.500 euro							
X.12	general interests of the citizens – not those specific to a part of the citizens – request to reassess the gratuity award system for retirees (the gratuity may be a right but using this for the time during students are traveling by public transport can not be tolerated)														

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X.14	SC OTL SA has to make a project proposal for the first lanes dedicated to public transport														
X.15	it is recommended to initiate a project for modern boarding-unboarding stations (to standardize – to customize these contact points between the public transport operator and the public)													3.420.000 euro	European Funds Own sources
			855.000 euro	855.000 euro	855.000 euro	855.000 euro									
X.17	it is necessary a new pricing policy (which to envisage also rewarding the loyal passengers)														
X.18	it has to be introduced and then generalized express transport system (or maxi-taxi), in the same time with normal routes														
X.19	it is necessary to redesign the bus routes so as to be excluded the parallelism of the two modes of transport														

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X.20	in line with the above objective: it is necessary to reconsider the set of public transport stations for boarding and unboarding;														
X.21	take into consideration the possibility to implement the transport system by trolley													7.000.000 euro	European Funds
				1.000.000 euro	1.000.000 euro	1.200.000 euro	1.200.000 euro	1.300.000 euro	1.300.000 euro						
X.22	it is necessary that some of the trams lines to be transform in light rail lines													3.937.500 euro	European Funds
						500.000 euro	491.500 euro	491.000 euro	491.000 euro	491.000 euro	491.000 euro	491.000 euro	491.000 euro		
X.23	in order to make profitable the SC OTL SA activity, it should be defined the threshold between social transport and solitary transport														
XI.2	in collaboration with OMA (Oradea Metropolitan Area) it is recommended to prepare a program of transport service for peri-urban area (particularly to Băile Felix and Băile 1 Mai resorts but also to Borş – link with European Western)														

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
XI.5	analyze the possibilities to standardize the payment into a single pass for urban trips in combination with peri-urban trips														
XI.6	it should be necessary to be rethought the granting systems of transport licences for peri-urban area and even county area – in order to have the obligation to use as arrival and departure in/from Oradea only the bus - stations – to strictly forbid the public transport of passengers within the city														
XI.8	should be introduce a tax / fee – contribution of the non-local transport operators in order to cover the costs of maintenance the boarding-unboarding stations used by them														
XII.1	central railway station modernization so as the transition from railways system to roads system to represent an action of establishing a intermodal hub of maximum importance; same for Nufărul node							500.000 euro	500.000 euro	650.000 euro	650.000 euro	700.000 euro		3.000.000 euro	European Funds Own sources

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
XII.3	organize the public transport program performed by public transport operator in accordance with the rail and air transport program														
														72 luni	
TOTAL		3.915.000 euro		20.499.500 euro		23.223.500 euro		17.896.500 euro		3.494.000 euro		2.434.000 euro		71.462.500 euro	
from which:															
Oradea Municipality		1.505.000 euro		10.900.000 euro		12.950.000 euro		9.950.000 euro		1.300.000 euro		700.000 euro		37.305.000 euro	
SC OTL SA		2.410.000 euro		9.599.500 euro		10.273.500 euro		7.946.500 euro		2.194.000 euro		1.734.000 euro		34.157.500 euro	

Cap. 8 - Build monitoring and assessment into the plan

8.1 The selection of proper indicators[10]

The material presented below is intended to provide technical support on the monitoring process interpreted as an overlay over the stages of developing and implementing measures SUMP (and not just as an independent bridge between developing measures and implementation). This material propose to the team that will participate in the implementation of SUMP a bivalent approach:

- ✓ general regarding the monitoring process, respectively
- ✓ specific regarding the indicators to monitor,

so that the two approaches will provide methodological support for the coherent development of the activities of the administrative institutions of Oradea (although the focus is on specific aspects of monitoring, indicators measuring and extracting the necessary information for formulating the conclusions will also be under scrutiny of INCERTRANS).

Material purpose is to explain the role and necessity of monitoring and evaluating the progress necessary to improve mobility. First is highlighted that monitoring activity is not an audit or control process**;** audit and control activities generally undertaken by the municipality of any city are focused mainly on how financial resources are used, in accordance with regulations or official procedures of municipal institutions. In contrast to audit and control, monitoring activity is to:

- continuous collection of information about the state of policy implementation (in order to correct deficiencies);
- interim assessment of progress and provide information about the evolution of performance indicators.

[10] After the selection of some indicators as being highest relevant, they will be named “indices”.

One of the main goals of the monitoring process is to identify possible deviations from the goals initially set, through urban mobility policy improvement.

Evaluation means estimation of quantity, quality and value of a "thing". Evaluation of a project is a complex, repetitive, tedious and resource-intensive process – **but it is an inevitable process, absolutely necessary**, because it is the only effective methode to measure the success of implementation of a project. Methods of evaluating the success of a project will be determined prior to implementation (with even in the planning stage). First, it has to be described the assessment procedures, which determines if the objectives were met or not. Evaluation stages of a project are:

- identify objectives;
- identify the level of gross results (benefits);
- separation "inertial mass" (of the effects which would proove anyway) and the effects of displacement and multiplier to achieve net benefits appended;
- analysis of indirect effects.

Monitoring and evaluation of sustainable urban mobility plan has to ensure the collection of statistical data which to provide the level of relevant indicators and obvious measurable for the policy of analized municipality and by which to be possible to monitor the SUMP measures implementation. By monitoring process it can be obtain information regarding:

- how the change of provided services has achieved its goal;
- any technical, social, economic or other changes resulted following the implementation of a public policy,
- The consistency of actions made to implement the policies, standards and existing regulations.

Monitoring and evaluation processes are in close relation with the planning process. Thus, if there are not established achievable goals, applicable measures and actions

whose effects to be measurable, the monitoring can not be accomplished, and the correction of SUMP implementation will not be possible; as a result:

- the objectives have to be in the responsibility of the departments that guarantee their opportunity in financial term and/or social term at least;
- the measures have to be certified on mathematical ways or based on practice on sustainability of another urban institutions;
- actions have to be attached indices enabled to notify the background changes that occur after the implementation of measures.

In addition, the monitoring and evaluation activities depend on the frequency by which are modified the objectives and targets envisaged in the package of measures to implement. In most cases, changing them will change the indicators used in monitoring (monitoring indicators repeated changes may cause difficulties in developing the monitoring reports, the misinterpretation of data and erroneous analysis of the results of a policy: reference data are changed, it can not be performed comparisons between different values for certain periods of time etc.).

Monitoring of SUMP implementation results (considered public policy at the moment of implementation) consists in measuring and reporting of relevant indicators. In the process of establishing indicators which are used in monitoring and evaluation processes, the municipality has to be sure that are selected those being in accordance with the objectives and results. Other cities experience shows that **the monitoring of too many indicators is not always the solution for a coherent process in order to adjust the implementation** of public policy (the data collecting for the selected indicators could be quite costly, thus wasting resources in order to collect data that are not necessarily relevant)**.**

Returning to pragmatism: indicators can be defined as quantitative or qualitative variables providing simple and reliable means to measure policy outcomes, to reflect a change made after policy implementation or to assist in evaluating an organization's

performance relative to its initial state before intervention. In order to monitor the implementation of a policy and to analyze performance against goals set it is needed to develop a set of indicators. Indicators must be established before or at an early stage of policy implementation so that it is possible collection of relevant and necessary data for monitoring. Monitoring system does not necessarily develop a set of indicators other than already established, but can only assume identify existing indicators and their use in order to obtain an image of the policy results as coherent as possible.

INCERTRANS drastically reduced the number of indicators to monitor[11] from 25 to 7 (9), without loosing the consistency of the original ensemble. It was concluded as follows:

- **indicators regarding the public or touristic passengers transport**

A. the total number of trips by public transport;
B. accessibility to public transport;
C. bus/tram routes (number, length, density, coverage);
D. electricity consumption in relation with fossil fuels consumption – in public transport;
E. length of lanes dedicated to public transport in relation with the entire network of streets;
F. the ration between total population and active fleet of public transport vehicles;
G. commercial speed of public transport vehicles at the time of peak hours;
H. the daily ending time for public transport;
I. cost on km in public transport;
J. the number of employees in the public transport company;

they can be substituted by one: GENERICALLY, THE MONITORING OF EVOLUTION OF THIS INDICATORS ASSEMBLY IT IS ANTICIPATED TO BE DONE BY THE ANALYSIS OF SC OTL SA REVENUES EVOLUTION – indice 1.

[11] 7 indices results from the proper grouping of the indicators taken in consideration in targets establishing, the last two being orgacally linked by monitoring process (the necessary money for implementation and the benefits for the public/passengers after the implementation).

- **indicators regarding sustainable development**

K. the rate of motorization in the city;

L. the number of parking places (inclusive the residential spaces);

they can be substituted by one: GENERICALLY, THE MONITORING OF EVOLUTION OF THIS INDICATORS ASSEMBLY IT IS ANTICIPATED TO BE DONE BY THE ANALYSIS OF RATE OF MOTORIZATION OF CITY'S POPULATION – indice 2.

- **indicators regarding alternative transport**

M. Routes for bicycle (length, density, percentage in the total network of streets) — separately for isolated (independent, which are not connected with other) bikes tracks, respectively for the entire network of bikes tracks;

N. The number of bikes rental points;

they can be substituted by one: GENERICALLY, THE MONITORING OF EVOLUTION OF THIS INDICATORS ASSEMBLY IT IS ANTICIPATED TO BE DONE BY THE ANALYSIS OF BIKES TRACKS KILOMETERS EVOLUTION – indice 3.

- **indicators regarding sustainability for urban area**

O. kilometers of new built or rehabilitated streets;

P. square kilometers of city's borders extension (time horizon: 20-30 years);

Q. development of built areas versus green areas (square metters/square meters);

they can be substituted by one: GENERICALLY, THE MONITORING OF EVOLUTION OF THIS INDICATORS ASSEMBLY IT IS ANTICIPATED TO BE DONE BY THE ANALYSIS OF NEW BUILT OR REHABILITED STREETS KILOMETERS EVOLUTION – indice 4.

- **indicators regarding to congestion – general traffic and pollution**

R. the hourly traffic on the street with the highest level of traffic flows;

S. the level of noise at the time of peak hours for the street with the highest level of traffic flows;

T. the level of emissions and dust at the peak hours on he street with the highest level of traffic flows;

they can be substituted by one: GENERICALLY, THE MONITORING OF EVOLUTION OF THIS INDICATORS ASSEMBLY IT IS ANTICIPATED TO BE DONE BY THE ANALYSIS OF HOURLY TRAFFIC EVOLUTION ON THE STREET WITH THE HIGHEST LEVEL OF TRAFFIC FLOWS– indice 5.

- **indicators related to direct progress**

U. the ration between the medium salary and the price of trip (separately for the trip made based on ticket, respectively based on pass);

V. VW. the price of a parking hour in relation with the price of a 5 km trip made by public transport;

W. WX. The necessary time for a trip by public transport vehicles in relation with average time to travel the same distance by private car;

they can be substituted by one: GENERICALLY, THE MONITORING OF EVOLUTION OF THIS INDICATORS ASSEMBLY IT IS ANTICIPATED TO BE DONE BY THE ANALYSIS OF EVOLUTION OF ONE PARKING HOUR PRICE IN RELATION WITH THE PRICE OF A 5 KM TRIP BY PUBLIC TRANSPORT - indice 6.

- **indicators related to indirect progress**

Y. the delinquency level of the city;

Z. the freight traffic in the city's area (from the perspective of: number of transport authorizations and estimation regarding tonnes*km/day);

they can be substituted by one: GENERICALLY, THE MONITORING OF EVOLUTION OF THIS INDICATORS ASSEMBLY IT IS ANTICIPATED TO BE DONE BY THE ANALYSIS OF EVOLUTION OF TONNES*KM TRANSPORTED GOODS PER DAY IN CITY'S AREA – indice 7.

AND ALSO TWO INDICATORS:

- ✓ **ONE IS INTRINSIC TO ANY PROJECT: FINANCIAL RESOURCES**

INTRODUCED IN ACTIVITY OF IMPROVING THE SUSTAINABLE MOBILITY IN ORADEA CITY – indice 8**.**

- ✓ **ANOTHER EXTRINSICAL TO A PROJECT WHICH HAS AS TARGET THE PUBLIC: THE LEVEL OF CITIZENS' SATISFACTION REGARDING THE IMPROVEMENT OF MOBILITY IN THE CITY –** indice 9.

Circumstances envisaged in the reduction action of the number of indicators are described below. Regarding the presentation of data, distinction between qualitative and quantitative approach is not always clear. So, although the methods used are qualitative (surveys, interviews, various tests, brainstorming etc.), data can be presented in quantitative form (degree of improvement in the perception of a particular public service provision). Both approaches, qualitative and quantitative, has a number of limitations that should be considered when selecting assessment methods and indicators that will be used in monitoring the implementation of a public policy. In this respect, a quantitative approach may present a restrictive view, **is less flexible and may omit some important social issues**. Qualitative approach and the use of the qualitative indicators not allow multiplication of results and it is difficult to quantify. For a complete analysis of a particular sector it is recommended the combined use of qualitative and quantitative research. Qualitative indicators has a major drawback because they are more difficult to verify because it involves subjective judgments about the realities that must be analyzed. Such indicators are difficult to track and review. **In these situations it can appeal to the proximity indicators: the 7 (9) indices are actually indicators of proximity.**

When establishing indicators, we took into account the clarity of links between indicators and goals, objectives, outcomes or public policy guidelines. Also, when we established the "short list list" we took into account the specificity of selected indicators (they should fit the purpose for which they were developed), representativeness of the indicators relative to the policy to be monitored and concordance of the indicator system with priorities. In order to be used in monitoring and evaluating processes, indicators should be relevant, useful, durable and verifiable.

The relevance of the indicators is related to their ability to measure the results already obtained; utility is related to the opportunity to be provided at regular intervals to be used by ministries. Sustainability is the existence of the possibility of using long-term indicators, and verifiability depends on the possibility of measuring indicators. The below table details the 7 (9) chosen indicators for SUMP Oradea.

The table shows that monitoring approach can be empirically, but the recommendation is to do scientifical. Practical statistics in monitoring domain offers undeniable ways when the 2 results are putted face to face: ex-ante and ex-post.

Mathematical explanation of this paragraph presents useful techniques of monitoring and evaluation, assuming that mere collection of information is an ordinary type operation and can be made by anyone with medium/superior education – of those involved in implementing the SUMP.

Tab. III.12 - Organization of performance indicators

Category	Contain	Example for SUMP	Number
Indicators regarding the resources and the activities (in order to express more simple, it can be said that they are "what is hold: the public money and staff skills")	Financial resources, human resources, material resources, organizational resources or regulation resources are mobilized in the process of policy implementation.	Financial resources introduced in the action of improving the Oradea sustainable mobility	Indice 8
Indicators regarding accumulation (in order to express more simple, it can be said that they are "what was bought with money and by staff skills"	Goods and services supplied under the responsibility of public policy managers.	the revenues evolution kilometers of bikes tracks // kilometers of new built or rehabilitated streets //	Indice 1 Indice 3 Indice 4
Result indicators	The immediate effects of the policy for target public (an effect which is immediate if the operator observes it easily when is in contact with parget public; because they are easily identifiable by the operators, that's why the result indicators are easy to monitor)	The price of one hour parking in relation with the price a 5 km trip by public transport//	Indice 6
Impact indicators	Indirect and long-term consequences of public policy (an effect is indirect the operator could determine it only after a professional monitoring based on mathematical models; because they are difficult to identify by operators, the result indicators should be systematically monitored)	the rate of motorization of the city // the hourly traffic on the street with the highest level of traffic flows // volume of tonnes*km of goods transported per day in the city's area // the level of citizens' satisfaction //	Indice 2 Indice 5 Indice 7 Indice 9

8.2 Instruments for monitoring and evaluation

"Interactiv" progress is a characteristic of the monitoring and evaluation process, because:

- can not be supported by only one organization or institution (because the sources of data and information are distributed on horizontal - in space and on vertical - on different hierarchical levels);
- it can be correctly declared only after entering into possession of data not stored normally (eg: who follows statistically public satisfaction, who highlights the volume of freights - tons* km - conducted on city streets, etc.);
- can not progress until after a permanent exchange of data between institutions **and following a disemination of information to the public** (which, if is not involved, it will be not able to contribute to the success of the measures specified in SUMP).

As a guidance diagram for the monitoring process, below are presented two operational flows who logically leads from initialization of the improving the mobility process to the stages at which are puted the foundations of the activities that will "oversee" the overlap (as well) of measures by over reality on the ground. From the diagram it can be find that only the activities of monitoring and establishing ex-post situation are common to planning and implementation, which confers to this paragraph a vitally importance for the whole project. To emphasize: as more the vision and the script will be more clearly defined, so it is easier to identify relevant indicators for monitoring implementation and results evaluation. Thereby, in defining the problem and deciding on the alternative to be chosen, necessary to achieve an ex-ante situation for establishing the distance separating the actuality of results expected from proposed public policy. BUT MOST OF THE TIME IT IS NOTICED THAT THE ACTORS INVOLVED IN IMPLEMENTATION PHASE GENERALLY THOUGHT THAT "THE INITIAL STATE-OF-THE-ART" IS WELL KNOWN AND ELUDES THE ESTABLISHING OF THE EX-ANTE SITUATION: later, without this, the progress can't be evaluated.

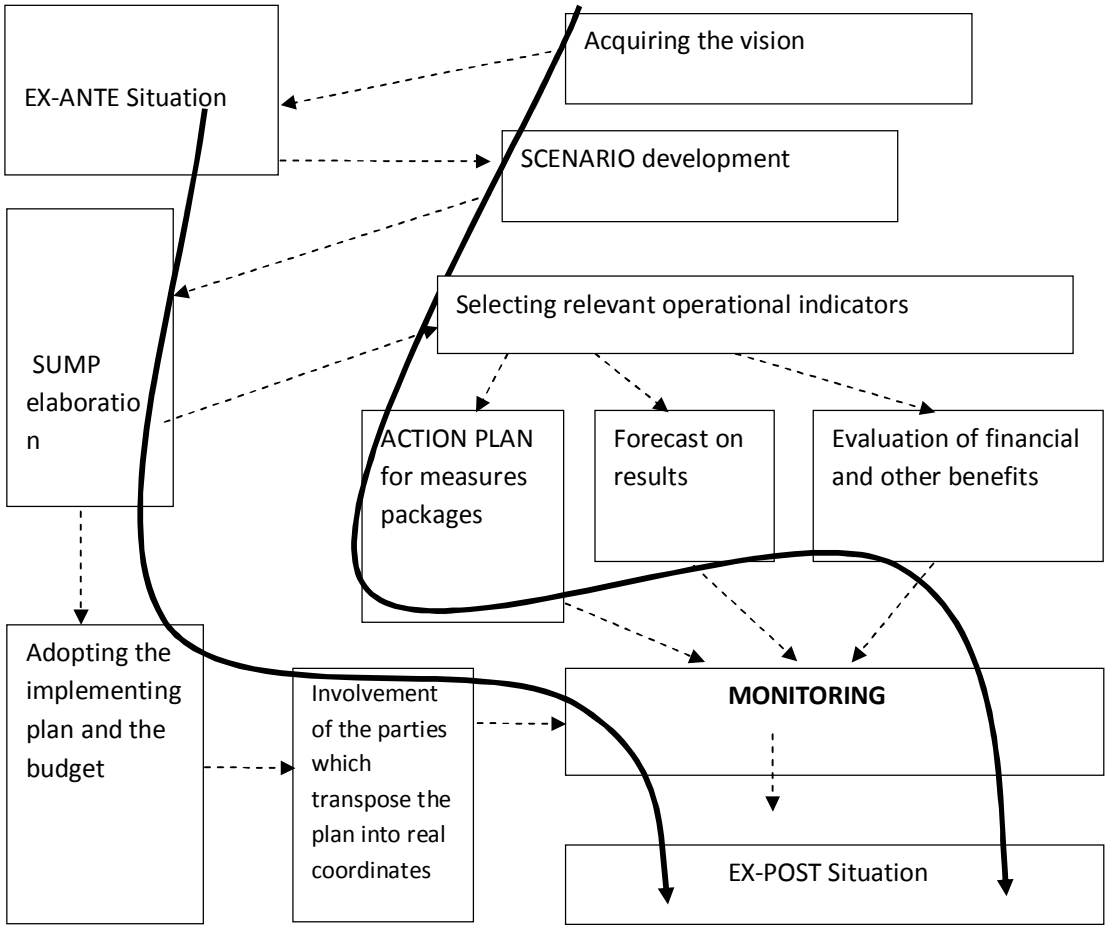

Fig. III.2 - Highlighting the place and role of monitorization diagram (the continuous arrow from left indicates the trajectory followed by those who are planning SUMP – design succession, the continuous arrow from right indicates the trajectory followed by those who are implementing SUMP – execution succession)

DESIGN SUCCESSION

Especially in the start-up phase of the action plan should be considered an accurate definition of the areas covered by the proposed public policy, as well as the objectives, activities and results.

Clearly define areas of intervention of public policy is required for establishing the indicators to be followed in monitoring and evaluation process. If the influenced area, intervention alternatives and system indicators are not clearly defined there is the possibility of distortion in the evaluation process.

EXECUTION SUCCESSION

Monitoring and evaluation are interrelated and interdependent processes. Monitoring is the regular collection and analyzing information in order to substantiate the decision-making process by those entitled, ensuring transparency in decision-making and providing a basis for future evaluation actions. The relevant information collected from monitoring activity are the raw material for assessment. For the accuracy of the data from the monitoring process it's required a systematic and careful collection. Method of data collection and their accuracy are important given that the monitor acts as an early warning system and often highlights the problems or areas that require evaluation. For this succession, the following monitoring and evaluation problems are reported:

- first problem, which occurs when we have a significant number of actors, is of information asymmetry in relations between actors, due to the lack of tradition in terms of consultation and public communication. Information asymmetry between different spheres of public administration consists in the claiming the exclusivity for that information and non-dissemination of complete information to other interested partners;
- the second emerging issue arises in the process of transmitting and collecting information, when distortion may occur presenting a false picture of the facts of a particular field. The distortion can be caused by the pressure felt in the monitoring

and evaluation outcome, the time pressure that requires gathering a large amount of accurate information in a relatively short time horizon and consideration of monitoring and evaluation as just an extra task imposed by the upper level, task scrolled in a few specific circumstances:

- ✓ evaluation of the results must take into account the information provided by each of the institutions involved[12], separate assessment of any data issues lead to distortion of the findings.
- ✓ even if the result of assessment is positive, only with difficulty can find out what type of policy caused this result.
- ✓ the measures can and even had to interact with each other and it is difficult to separate the effects of a new set of measures, from the long-term effects of the old set - partially - replaced.

Furthermore, in the monitoring and evaluation activities can be identified lack of political and administrative support (the above statement is generally valid for the entire institutional system and all administrative type organizations across the country). Creating a performance-based monitoring and evaluation system to bring more transparency, accountability and visibility into the implemented public policies is seen as a threat of the administrative status quo. Therefore, currently there is little support for such activities from an administration resistant to change. Manifestations found in the experiences of other cities:

Lack of resources. In most cases there aren't financial and human resources allocated for monitoring and evaluation activities, lack of financial resources making it difficult to outsource those. There are few opportunities in terms of technical assistance programs and training for monitoring and evaluation activities.

[12] PMO, OTL, but also others institutions related to the city or county administration.

Structural problems of monitoring and evaluation processes. There are issues regarding the use of results of the evaluation actions and ensure public transparency of the outcome reports. There is a database problem in institutions, in most cases they not exist or are poorly organized in terms of management or scattered in various departments. and there is the problem of wrongly granting primacy to a particular audit and control in relation to the monitoring and evaluation.

Placing constantly focus on the quantitative / numerical indicators: most of the monitoring and assessment processes carried out in public institutions resume to quantitative analysis of the results, without taking into account the need for qualitative analyzes. By focusing on quantitative indicators can lose sight of certain aspects that need to be taken into account in evaluating the results of a public policy. No account is taken only of statistical figures and the relationship between costs and benefits of intervention, and not the perceptions of beneficiaries = traveling public or not involved public in public transport on the results obtained.

The monitoring and assessment activities are perceived rather simple form of calendar activities, regular, monitoring of implementation (like 6 months / one year ... or start / end ...). In this perception, monitoring and evaluation are seen as activities to be undertaken at pre-established intervals, becoming routine activities that monitoring is just a way for reporting and not a permanent collection of information.

The poor quality of monitoring and evaluation reports is due to the problems related to difficulty of collecting data and their accuracy. In many institutions it is found the absence of databases that contain information resulting from monitoring reports, and when these databases exists, there are poorly organized in terms of management, information is outdated or data are disparate in different departments, which do not have a full picture of reality.

The preponderance of control activities in the detriment of monitoring and evaluation is due to the fears of budget and legal and procedural nature of the public policy process. The traditional way of budgeting makes emphasis should be placed on controlling costs and not on the evaluation of the results **(should not take it to an administration management in the detriment of management focused on results),** existing a very strict control of resources and almost absent assessment of expected results.

8.3 Logistics elements for data collection

Generally, when you repeat a measurement, the results differ slightly. Even when measuring a single object, is actually a "sole" element extraction, from a lot of items likened. The purpose of such actions could be to determine the quantity or quality, representative for an entire class of elements. A process used for this purpose (sometimes the only one) consists in choosing a subclass of the respective set (or population) and measuring every member of this subclass, therefore be considered conducting a survey (the alternative would be the measurement of the entire population, which implies higher consumption of time and mobilizing a large amount of people). The survey results form a selection from the set of results that can be obtained by measuring the subclass members. It must be emphasized that it is the possible, the property that interests could vary with time, therefore, the measurement result is compared with a selection of possible values of the various time points. It follows that, before anything, in a survey, is necessary to specify:

- The class of objects that would determine collective property (in the example has been chosen “statistical population”, **consisting of potential travelers**).
- The moment in whichit is rational to execute observations **(For example, on in which day of the week will take place the survey, respectivelly, the hour for seeking travelers traffic intensity**).
- The values that have other characteristics of the phenomenon and can be expected to infuence the properties (such as weather or the area**, in terms of space, in which is initiated the survey**).

Since to probe imply select, to organize a survey is necessary to determine the required number of elements to be selected and what special observations are carried out. The accuracy and precision of the estimates results from observations, depend on the amount and the method of selection. Also, the cost of observations depend on these factors.

The objective of the researcher is in the organizing a selection for which the sum of the cost of observations and average cost of selection and observation errors, is as small as possible. To fulfill these two conditions, chiar şi aproximativ, the researcher must have some knowledge of the theory of selection. When considering conducting a survey, there are two issues that stand out as is vitally important:

- **the choice of selection method for statistical population** (specifically, what part of the whole public will be subject to testing – not only numerical but also structural);
- **proper organization of the action** (in the flow chart of FIG. III.3 are specified, almost chronologically, the necessary actions for carrying out tasks related to the sounding).

Regarding the selection, there are shown some of the methods of selection, along with their advantages and disadvantages.

Simple selection (or unrestricted). Is made the assumption that all benefit claimants should bear a serial number choosing k random numbers (using, for example, a table of random numbers); there are selected the members of the population are numbered with the chosen “k” numbers. In this type of selection, there is the same probability of being selected for each person. **Advantages**: knowledge about population, necessary before the selection is minimal; missing classification errors; data analysis and calculation errors are easily carried out. **Disadvantages**: not being used the knowledge about the population that the researcher may have.

Systematic random selection. Basically, shall be determined what fraction of the population is selected (for example, *1/k*) and then select each of the k-th member, as an

instant count. To enter a random factor, randomly choose a number between 1 and k noted with j and are elected as representatives of the population those who have numbers *j, j + k, j + 2k,* …. (before choosing the *j* , each member of the traveling public has the same probability of being chosen). **Advantages:** if the population is ordered with respect to a certain property examined, there is provided a layering effect and therefore there is an lower variability than the previous method. **Disadvantages:** variability may increase if selection range corresponds to a regular order.

When the population is (or can be) divided into subgroups, this division can be used to organize selection.

Stratified random selection. To obtain a representative selection, from each subgroup is chosen a sample of determined size: for example, the volume of each sample can be proportional to the number of elements in the relative subgroup. **Advantages:** ensure representativeness in relation to the property on which the classification is made in units (subgroups); decreases the chance of overlooking some members of the population due the classification process. **Disadvantages:** accurate information about the proportion of each start are required, otherwise errors grow; if the list of stratifications is not available, its composition could be costly.

In some cases, the researcher may designate a subgroup as representative, on the basis that he believes that subgroup as "typical" for the entire population. This selection, called reasonable selection, it may be useful, if making a probabilistic selection isn't possible.

Reasonable selection should be used rather in heuristic research, than to estimate the values of model parameters (we can say that human intuition turns out pretty good when it comes to estimating an average, but not when we have to estimate a range of variation or scatter). **Advantages:** reduce the cost of preparing selection and travel expenses, as spatially close elements can be chosen. **Disadvantages:** it is necessary a good

Str. Calea Griviţei Nr. 391-393, Sector 1, Bucureşti, Romania
Capital Social: 3.297.325 RON
Nr. Registrul Comerţului: J40/17093/1993 – Cod Înregistrare Fiscală: RO4282451
Cont: RO58 RNCB 0072 0488 7146 0001, BCR Sucursala Sector 1
Tel.: +40 (21) 316.23.37; Fax: +40 (21) 316.13.70; E-mail: incertrans@incertrans.ro; Web: http://www.incertrans.ro

knowledge of the population and the selected group; deviation and dispersion of the estimates can not be controlled or measured.

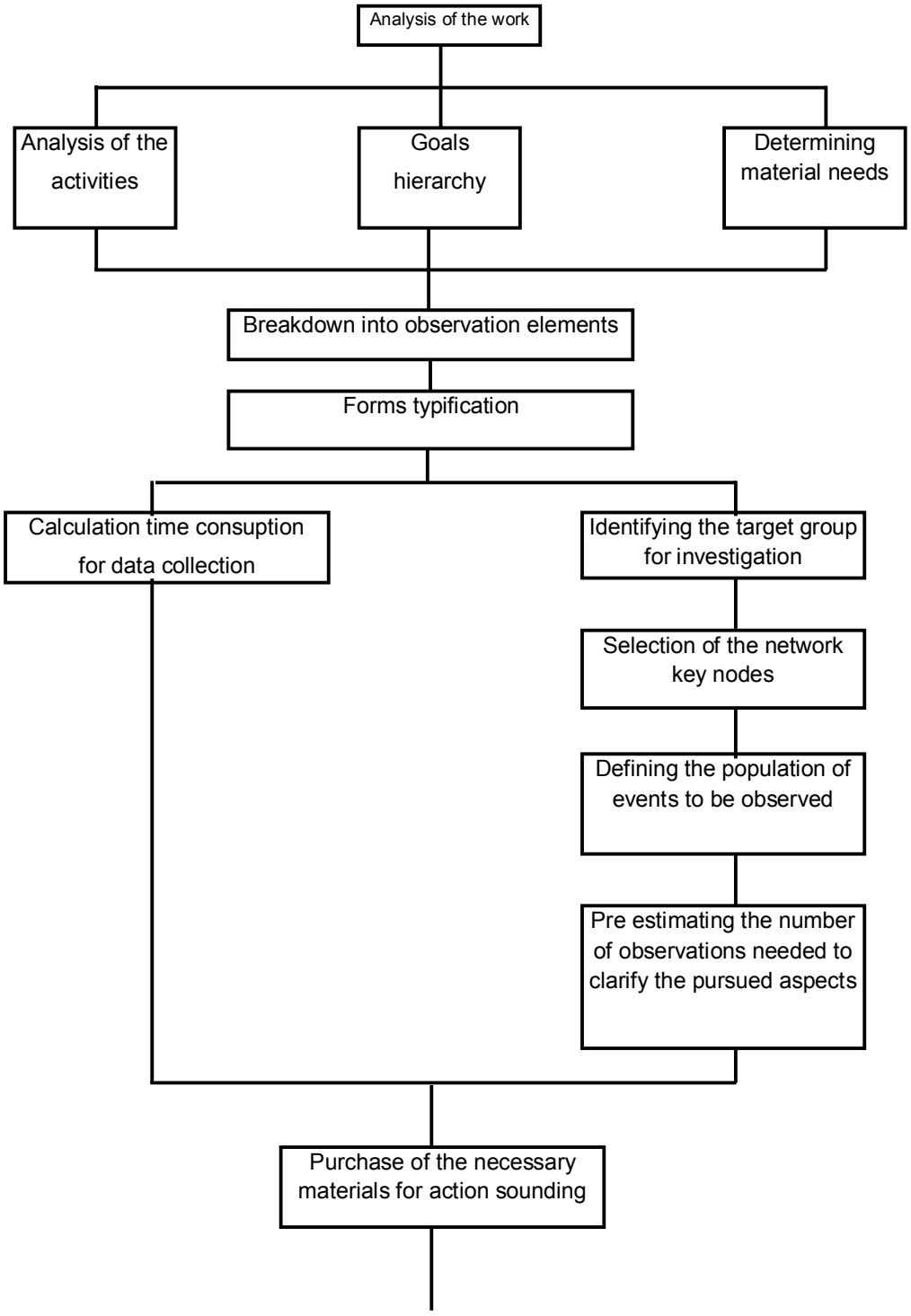

Fig. III.3 - Organizational Chart for a sounding operation

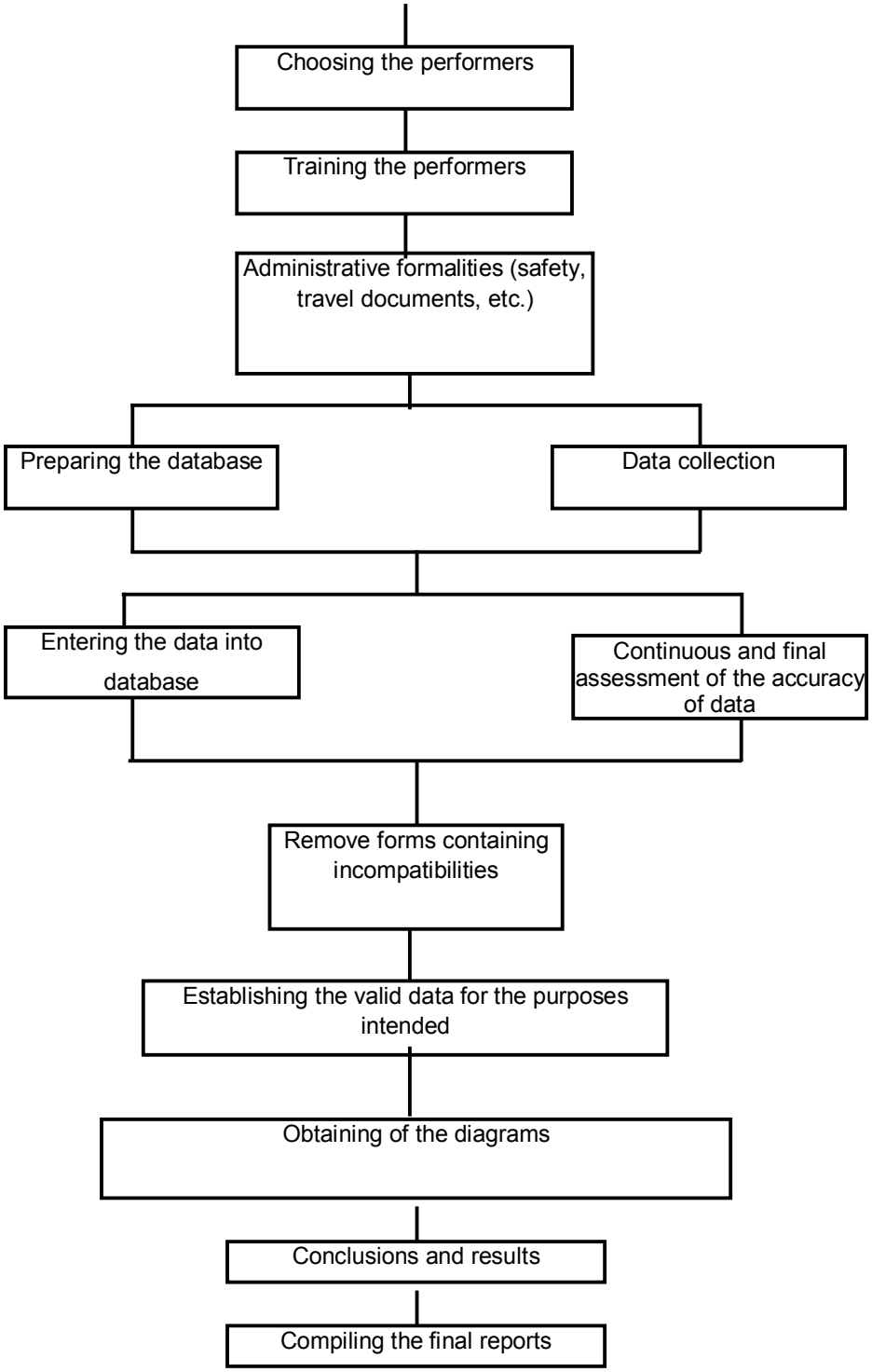

Fig. III.3 - Organizational Chart for a sounding operation - end

Specialized literature records that ''current selection theory does not give us the means to choose the optimal method for the selection, neither for small type surveys (when the total amount of resources is fixed), neither for extensive, general surveys (when the volume of selection and quantity of allocated resources is varying independently), so only the experience can determine the values corresponding to reality''.

A vitally important problem represents the systematization of the concepts that allow the human factor to decide when to conduct a survey and how many such actions are necessary to obtain the structure of demand in urban passenger transport. A critical analysis of the basic technology of public passenger transport across an urban area, is the alternative that would allow exit from empiricism and rigor mixture currently existing in this area. This statement can be supported by a series of arguments, two of which stands out as important:

- cohabitation of the analytical and synthetic methods for determining the transport demand with the sounding methods of varying degrees of accuracy (from the "visual" to the surveys);
- lack of theoretical distributions able to cover the situation of the empirical distribution of daily transport demand (with special reference to its bimodal representation along the time axis).

To clarify one aspect of the current urban transport system operation, namely, determining the number of rational shares for sounding applied to the demand, it's prove to be useful some working hypotheses:

- transport demand is the value of the number of registered passengers traveling, in all vehicles from operational transport fleet,
- main difficulties that do not allow a relatively simple exploitation are created by demand variation from key periods of the day - fig. III.4,
- a sounding activity ends in about 0.5 hours.

Some consequences of these assumptions are:

- only one type of incremented representation can have consistency in assessing the current situation, because any instant capture also stationary transport vehicles, exchanging travelers, and summation would not be relevant;
- it can be defined 40 half-hours intervals (ISH) during the day in the transport activity (4.00 - 24.00);
- the most important information for exploitation is the maximum demand on some ISH and only in the alternative the daily variation structure.

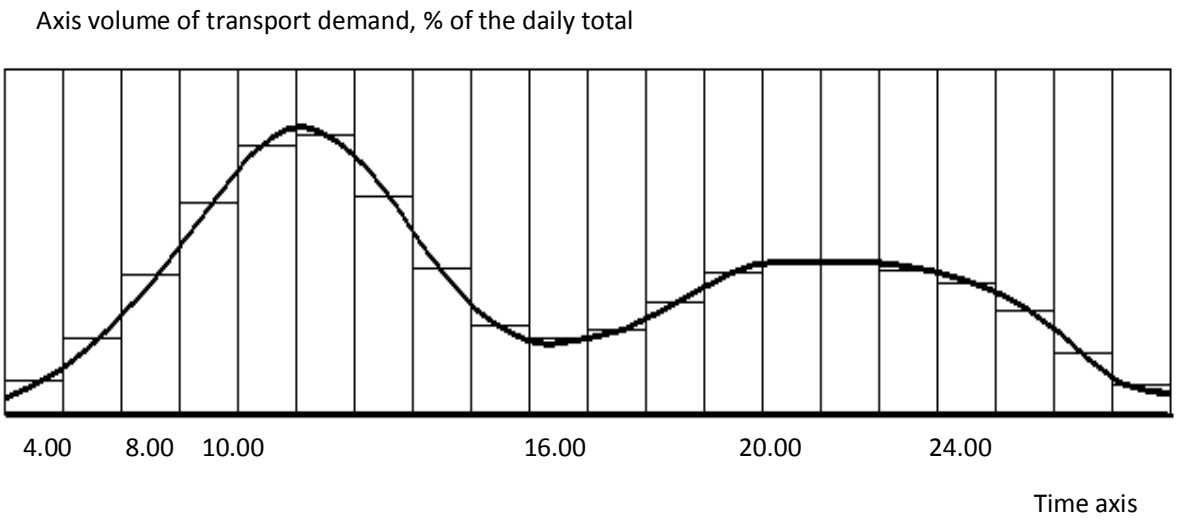

Fig. III.4 - The structure of the demand over the operating day

Determining the optimal number of polls can be made from probabilistic or deterministic positions (the connection between these two positions is the attitude exhaustive – currently applied, but obviously non-profit).

Let *r* be the probability for "Maximum request ISH" event; denoted by *R* is the probability that this event occurs at least once in a series of *N* samples. For the value *N* (the number of sounding actions to be carried out so as not to "escape" ISH for maximum demand), statistics provided the relation:

$$N = \ln(1-R)/\ln(1-r)$$

But r =1/40, and R=0,95 (or α =0,05), so **N=118**, a disarming figure regarding the costs involved. As maximum number ISH, in a perfect ordering, is much lower, the specialty literature mentioned as necessary and sufficient to perform N = 40 surveys, to obtaine maximum of information. Is beyond doubt that the number stated is sufficient; but is questionable that it is necessary. Therefore, probability theory solved the sample size problem by providing the relation (for a deviation σ):

$$N=(\sigma \times Z_{\alpha/2}/\ell)^2$$

where:

σ - the deviation of average sample values (deviation);

$Z_{\alpha/2}$ - chosen value of the normal curve, which ensures a high degree of confidence of 95% (1 - α);

ℓ - the range which is estimated to contain the mean value, found on both sides of the mean.

Thereby, for the ratio σ / ℓ with a value between 2 and 3 (σ as six ISH = half-hour range, and ℓ as two-three ISH, $Z_{\alpha/2}$ being 1,96), rezults that ***N* is between 16 and 36** (an important reduction), but, even without taking into account the fact that the determination of deviation means further sampling, the daily variation of demand has specific features that distinguish categorical from premises calculation just completed (especially by the presence of two peaks – fig. III.4).

It defines the probability $p(t_j)$ that the level of demand in an ISH to differ slightly compared to the average level of demand (about 2,5%); if:

$V_{\dots}$ are demand values: mean, maximum, minimum and current (*j*);

t_j is the variable individualizing each ISH, than:

$$p(t_j)= 1-(\square V_{med} - V_j \square)/(V_{\max} - V_{med})$$

when: $V_{\max} - V_{med} \geq V_{med} - V_{\min}$

alternative hypothesis putting no problem to a similar treatment.

Because the model is discretized, during the day the value of $p(t_j)$ vary in leaps, when changing ISH the decision maker is credited with establishing the possibility of the variant: the level of demand it will change or not? (the action for making a decision lasts insignificant compared to other durations); if the average level of demand is maintained, then the survey is not necessary; if not, then immediately begin a survey (lasting s ~ 0,5h); the next sounding action will occur after a time *t* from the end of the last survey.

Model construction takes place as follows: situation within the range of the average value at time *t* with probability $p(t)$ and can keep unaltered the characteristics and the time *t* + Δ; if the characteristics don't remain unchanged, then the period of time after a decision is required is *t* + Δ + *s*. In these circumstances, real time interval, after which the situation is ready for a new iteration, becomes:

$$(t + \Delta)\, p(t) + (t + \Delta + s)(1 - p(t)) = t + \Delta + s[(1- p(t))] \sim t + s[(1 - p(t))]$$

In the whole of this period, the demand has remained close to the average value limits for ISH, duration calculated as the sum of probability values, namely: $\sum_{x=0}^{t-1} p(x)$.

Consequently, proportion of time the demand is being run over as many ISH according to the parameters set is:

$$B(t)= \sum_{x=0}^{t-1} p(x)/(t+s[1- p(t)])$$

To determine the maximum for $B(t)$ is necessary to create a table of values (a numerical example can be found in tab. III.13).

Tab. III.13 - Graphic-analytic method of determining the period for conducting surveys

Half-hourly intervals starting with ISH no. 1: 4.00 – 4.30 , etc. during the day												
$p(t)$	V	1	2	3	4	5	**6**	7	8	9	10	…
0	7,5%											
0,5	5%											
1	2,5%											…
0,5	0 %											
$p(x)$		0,5	0,5	0,5	1	0,5	0,5	0	0,5	0,5	1	…
$\sum p(x)$		0	0,5	1	1,5	2,5	3	3,5	3,5	4	4,5	…
$1 - p(t)$		0,5	0,5	0,5	0	0,5	0,5	1	0,5	0,5	0	…
$B(t)$		0	0,40	0,57	0,75	0,90	**0,92**	0,87	0,82	0,84	0,90	…

According to initial data (chosen for exemplification) and processed according to the above relations, a period equal to 6 ISH provides the highest proportion of time the demand is carried out according to the established parameters, that is envisaged a periodicity of approx. 3 hours in performing a survey. Consequently, for 20 h daily activity, a number N = 9 sounding activities can be credited with maximum plausibility (7 arising from the values ratio and 2 more for the moments of initiation and closing daily operation). The model shall enjoy stability, since the results prove to be independent of changing the value of ISH (eg, by growing from 1/2 h to 1 h, $B(t)$ maxim becomes 0,51 instead of 0,92 for the same periodicity of 3 h).

It can be provide a model for numerical analysis: according to Chebyshev quadrature, a special numerical procedure (in which the value of a integral may be calculated using information about the integral only in some points), needs very few values, rationally selected along the definition field, to clarify the situation of the entire existing area:

$$\int_{\beta}^{\gamma} f(x)\,dx = \frac{\gamma-\beta}{9}\sum_{j=1}^{9} f(X_j) = 1$$

where:

$$X_j = \frac{\gamma+\beta}{2} + \frac{\gamma-\beta}{2}x_j$$

abscises x_j being given in tab.III.14 (for this particular case, limits of integration are: $\beta = 4$ and $\gamma = 24$).

Unlike Gaussian or Simpson quadrature which do not have a criterion for stopping the calculation, Chebyshev quadrature is inoperative for more than 9 points; however is considered one of the most accurate methods.

The procedure for calculating these abscissae, included after the change of advantageous chosen variable, only between –1 and +1, present no practical interest in the present context, only the results being important (first row from tab. III.14), extrapolated in the range 4.00 - 24.00 prove to be most representative moments to the structure of demand.

Tab. III.14 - Chebyshev abscissae offering ranges in which the surveys must be carried

Abscissae x_j	- 0,911	- 0,601	- 0,528	- 0,167	0	0,167	0,528	0,601	0,911
Calculation point values	**4.53**	**8.00**	**8.42**	**12.19**	**14.00**	**15.51**	**19.18**	**20.00**	**23.07**
Sounding period	4.38 - 5.08	7.45 - 8.15	8.27 - 8.57	12.04 - 12.34	13.45 -14.15	15.36 -15.56	19.03 -19.33	19.45 –20.15	22.52 - 23.22

The conclusion can be only one: both probabilistic and determinist point of view, converge to the same conclusion, namely **N = 9** represents the standard sounding number of actions necessary and sufficient for edification demand structure in urban transport.

8.4 Assessment techniques

For starters the position of the mean and deviation of the data collected in the field must be clarified: are useful in themselves (knowledge of the deviation and mean of statistical colectivities generated by transport in cities, analyzed through mobility, is absolutely NECESSARY to control the implementation of SUMP), but are also useful for statistical hypothesis testing = tools necessary and sufficient to prove of true or untrue content of a statement regarding the behavior of a system governed by probabilistic phenomena. Statistical hypotheses are made on a parameter of a distribution:

- the hypotheses to be tested it-s called the null hypotheses $\mathbf{H_0}$: it always consist of random admission of differences (idea: there are no important differences between … and …);
- rejection of the null hypothesis leads to the acceptance of the alternative hypothesis $\mathbf{H_1}$: it had to cover all possibilities left over after identifying assumption domain $\mathbf{H_0}$.

Testing a hypothesis cosist of:

- identifying $\mathbf{H_0}$ – is determined by an unequivocal statement the baseline – about a statistical population parameter investigated (parameter credited with only one "value"): the claim is accepted until the test agrees otherwise;
- establishing $\mathbf{H_1}$ which contradicts $\mathbf{H_0}$; alternative hypothesis forms are:
    - the parameter has a value different from that specified in the null hypotheses – bilateral test;
    - the parameter has a value smaller (larger) from that specified in the null hypotheses – sided test;

- estimating the statistical indicators from sample, with respect to the issues that led to the credit of the parameter at the center of attention with a certain characteristic;
- establishing the critically region, the numeric values set for which the null hypothesis will be rejected; critically region is dimensioned (and placed) so as to the probability to the statistical test to be included in this region when the null hypothesis is true, will be α
- if the statistical test leads to a value outside the critical region, then $\mathbf{H_0}$ it can't be rejected; if the statistical test leads to a value within critical region, the the null hypothesis will be rejected: the subsequent decisions the statistic test will be taken only when the initial established statement regarding the investigated parameter is considered wrong, therefore the actions will be included in the specified context of hypothesis $\mathbf{H_1}$.

Leaning on these considerations, monitoring engineer must be familiar with the operation, processes, systems, elements, quality and quantity performance by analyzing historical data, results of current operations or estimating some future activities. Mostly, data collection for subsequent analysis must be carried in a different way than fully examination of all possible conditions and direct recording of the values of all variables of interest. A comprehensive examination is often impossible or undesirable particularly since:

- comprehensive selection of information is an expensive operation;
- processing data requires a light of higher mathematical level than the average.

For these reasons, deduction of knowledge about system behavior is prefered, by sampling processes. Usual sampling method is called simple random sampling (other methods of sampling are stratified sampling, grouped sampling, etc.).

Statistics - the quantities measured in the sample - will form the basis for drawing conclusions regarding the process or crowd. Sampling offers material for data processing and building an image of the whole investigated. Then follows the testing of hypotheses

derived from data processing (in hypothesis testing, decisions are made based on the results of a sample of the process, not from the whole community). Therefore, decision-maker to test a hypothesis must achieve a compromise between the level of safety provided by a sample and the sample cost. Examples of hypotheses to be tested are: (1) if the change of a method considerably change the results from the carrying out of an activity and (2) if a new organization of the activity on a transport relation will considerably change the number of travelers or actual duration of the journey. Either way, the null hypothesis is: **the results of the sample processing summarizes the sets from which the sample has been made.**

Other types of hypotheses that can be tested are: (3) if there is a significant difference between measures and observed changes (or the changes are random), (4) if the service method ***I*** leads to a greater variability of the products or processes than method ***II***. In these cases also the testing is made for the null hypothesis: **the values from the the two samples are from the same lot or process.**

In the tests, null hypothesis is either accepted, either rejected on the basis of the test results. If the tests lead to rejection of the null hypothesis, then that the results are statistically significant. If the tests do not reject the null hypothesis, it says that the results are not statistically significant and therefore there are not enough arguments for replacing the null hypothesis. If the tests indicate that the null hypothesis can not be rejected, **it can not automatically be regarded as true**. The tests indicate only that “these results do not provide enough arguments to reject the hypothesis”. Thereby**, the tests can not be used to demonstrate the null hypothesis.** They can be used, however, to guide actions as if the hypothesis were true.

In the reasoning of testing a hypothesis occurs a problem for retaining the assessment of acceptance or rejection of the hypothesis. Following, in testing of a hypothesis can occur one of two errors. The hypothesis might be correct, but sampling error may cause rejection, as false. The type of error, called (alfa) error, can be controlled. In all the tests,

among the first operations, is found fixing the value of (alfa), that in most cases, is chosen as 0.05. This means that, if statistical tests should be performed repeatedly and if the hypothesis were true, then these tests would have continued to reject hypothesis 5 times from the 100 cases; in some cases, it is important not to reject many true hypotheses and therefore it is fixed a small value for (alfa). The other type of error that occurs in testing a hypothesis is called (beta) error. This type of error occurs when a null hypothesis, though false, is accepted by test.

Often in practice, this type of error is difficult to control, **because the chance of accepting a false hypothesis depends on how false it is**, and this is difficult to measure. As a reasonable rule it can be said that (beta) errors can be controlled by using large samples. Practical:

Exemplification no. 1 – applicable to the index 5

After introducing in the current exploitation of a measure by which influences the vehicle traffic on one of the main arteries of the city, it is analyzes the new established values toward witness values (collected before the introduction of the measure). The witness values (10) have a variation placed between 1000 and 1250, with a mean of 1150 **vehicles per direction and hour** and a deviation of 74,5. The new values (5) have a variation placed between 1050 and 1200, with a mean of 1120 vehicles per direction and hour and a deviation of 75,8 – annex 32 sheet 1.

The hypothesis: the averages of the two situations are relatively equal ($\overline{x_1} = \overline{x_2}$)

When $N_1 = 10$ and $N_2 = 5$, it is calculate the below estimator:

$$z_{concret} = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}}} = \frac{1150 - 1050}{\sqrt{\frac{74,5^2}{10} + \frac{75,8^2}{5}}} = 0,72$$

From Laplace table it will find for $\alpha = 0,05$ the decision value (but because the test is one-sided it's looks in the table just for the figure that corroborates with $\alpha/2$):

$$z_{teoretic} = 1,96$$

Theoretical, statisticians have established that if:

$$z_{teoretic} \geq z_{concret}$$

then accepts the hypothesis: the measure has not changed substantially conducted traffic on that road, and variations found are random – as is the analyzed case.

If the above data series would have been different, in the sense that after measure implementation, the (5) new values have a deviation between 950 and 1100, with a mean of 1020 vehicles per direction and hour and a deviation of 75,8 – annex 32 sheet 3, then the hypothesis is rejected because the averages for the two situations can not be considered equal, the measure SIGNIFICANTLY changing the traffic (the observed variations are systematic):

$$z_{teoretic} = 1,96 \leq 3,14 = z_{concret}$$

Exemplification no. 2 – applicable to the index 9

Before taking a measure specified in SUMP, measure that influences the quality of the public urban transport system operation, the activity of SC OTL SA were checked by applying questionnaires on a number of citizens (not only travelers) with the question "what is your perception of public transport from Oradea".

The answers were collected before and after the start of actions and were quantified on three levels, and the statistics data "before-after" were placed in a matrix of incidence – tab. III.15:

- those who appreciate the quality of service as nesatisfăcătoare = negative
- those who have a neutral attitude (ambiguous, can not say or do not know)
- those who appreciate the quality of service as found appropriate = positive.

Tab. III.15 - Empirical data applied on a curriculum of 460 people

	The number of respondents			
	Negative answers	Neutral answers	Positive answers	Total
Before applying the measure	30	164	36	230
After applying the measure	11	184	35	230
Total	41	348	71	460

If the measures hadn't have any effect on the improvement of perception on urban public transport phenomena, then we might expect a breakdown by category of the interviewees as in the following matrix:

Tab. III.16 - Equidistant data

	The number of respondents			
	Negative answers	Neutral answers	Positive answers	Total
Before applying the measure	20,5	174	35,5	230
After applying the measure	20,5	174	35,5	230
Total	41	348	71	460

The figures in the last matrix are obtained on the assumption that the two factors – "before-after" category – are independent between them. Mathematically this assumption imply the probabilistic relation:

$$P_{ij}(AB) = P_i(A) \cdot P_j(B)$$

Considering that *i* represents the category "before" and *j* category "negative answer" results that:

$$P_i(A) = 41/460$$

$$P_j(B) = 230/460$$

Therefore, for $P_{ij}(AB)$ it should obtain exactly:

$$P_{ij}(AB) = (41/460)\square(230/460) = 20,5$$

Because the results obtained by mathematical relations are not identical with the results obtained from the field data collection, you have to investigated differences statistically: the differences are significant or not?

The hypothesis: the two factors are independent, when it's given:

r = 2 = the number of investigated cases,

c = 3 = the number of quantification levels of personal appreciation

for all positions in the matrix calculate the estimator:

$$\Delta^2 = \sum_{i=1}^{2}\sum_{j=1}^{3}\frac{(Y_{ij} - Z_{ij})^2}{Y_{ij}}$$

$$\Delta^2 = \frac{(20,5-30)^2}{20,5} + \frac{(20,5-11)^2}{20,5} + \ldots + \frac{(35,5-35)^2}{35,5} = 9,97$$

From the table χ^2 is inferred for α = 0,05 decision value:

$$\chi^{2_{0,05}} = 5,99$$

for the number of the degrees of freedom given by the following:

$$n = (r-1)(c-1) = 2$$

Theoretical, statisticians have established that if:

$$\Delta^2 \geq \chi^2_{o,o5}$$

then the independent hypothesis is dismissed.

In this case, the above relation is satisfied, so the hypothesis can not be accepted: can be argumented that these two categories are related (there is an significant statistical relationship between the introduction of SUMP measures and the modification of the traveling public perception on the quality of public urban transport).

Exemplification no. 3 – applicable to the index 1

SC OTL SA activity in 2012 was characterized by variations in income and expenditure from month to month as according to seasonal unevenness:

- income June = 958.587 lei, July = 907.711 lei.

- expenditure June = 1.892.204 lei, July = 1.753.428 lei.
- The balance between income and expenditure recorded with positive variation from 0,5063 to 0,5173.

Similarly in 2013 the situation was:

- ncome June = 1.045.444 lei, July = 948.237 lei.
- expenditure June = 1.730.348 lei, July = 1.437.015 lei.
- The balance between income and expenditure recorded with positive variation from 0,5937 to 0,6597.

The question is the following: since from 1 July 2013 three unprofitable bus lines were eliminated, the positive variation from 2013 is the natural consequence of seasonality or is due also to the modification of the level of service (with three operating lines less)?

Calculations initiates from the growth index 2012 = 0,5173/0,5063 = 1,0217
respectively growth index 2013 = 0,6397/0,5937 = 1,1111

The hypothesis: there are no statistical differences between the two factors (the change of the operational lines did not affect growth indicator income / expenses). It is decided in favor of a statistical model type “testing of two samples proportions”.
Is selected the value of decision $\alpha = 0,05$
It is generally thought that the value of the index was perpetuated throughout the month analyzed:
$N_1 = N_2 = 30$
It calculates the average proportion:

$$= \frac{1,1111+1,0217}{60} = 0,0355$$

It calculates the average deviation:

$$\sigma_{1,2} = \sqrt{(0,0355)(0,9645)(\frac{1}{30}+\frac{1}{30})} = 0,0477$$

It calculates the Gauss variable argument:

$$z = \frac{1,1111 - 1,0217}{0,0477} = 1,874$$

From the Laplace table calculates – $z_{0,05} = 1,645$

because we are interested if the results of 2013 are better than 2012, within the period of two months in analysis.

Theoretical, statisticians have established that if:

$$z \geq - z_{\alpha}$$

numerically

$$1,874 \geq 1,645$$

the hypothesis can be rejected: the two periods have significantly different indices, reducing the number of unprofitable lines improved activity of SC OTL SA**.**

Finally is detailed a type of evaluation procedure of one of the indicators, **in order to illustrate the method of make a decision** regarding the good (or bad) progress of implementation:

- The analyst is in possession of the following information relating to population motorization:

Year	2010	2011	2012	2013
The degree of motorization (number of vehicles per 1000 inhabitants)	420	430	440	450

- The mathematical model that replaces the empirical data leads to relation:

  Y = 420 + (N – 2010)*10

- On this basis it can be estimated that for 2014 there will be a degree of motorization of 460.
- After one year from the starting point for the implementation of SUMP it is registered a degree of motorization of 500 (with quite 10% more than expected).
- Since the measure for mobility in motorization area were of "degressively" type (sustainable mobility requirements demanded decrease of the degree of

motorization of the population) it may conclude that the index 2 of SUMP Oradea has worsened, therefor the measures taken proved to be inconsistent or incorrectly applied.

- Synthesis operation highlights that the că major influence factor on the mobility is the economic power of the inhabitants. This factor had the following evolution:

Year	2010	2011	2012	2013
Welfare index (values relative to the reference year 2010)	1	0,9	1	1,3

- The mathematical model that replaces the empirical data leads to relation:

$$Z = 0.1(N - 2010)^2 - 0.2(N - 2010) + 1$$

- On this basis it can be estimated that for 2014 the economic power of city residents will reach 1,8.
- After one year from the starting point for the implementation of SUMP it is registered a value for economic power of city residents only of 1,5 toward reference year 2010 (almost 20% less than expected).
- In the new context – in which the results given by the monitoring values aren't analised separately, but in conjunction – it can be concluded:
  - **although the economic power of residents increased by nearly 15% as the ratio of significant changes seen between 2013 and 2014 (1,5/1,3 = 115%);**
  - **only two-thirds of this increase occurred in the index "degree of motorization" structure (500/450 = 110%);**
  - **so there was a restriction in the city's pace of introduction of new vehicles for private transport;**
  - **that means that the considered measures for the mobility improvement have brought the expected result.**

8.5 Work plan

Independent of context, a work plan is written to distribute rationally (a number of) tasks for a period of time, first to convince the decision makers for the acceptance of it, then as a guidance document for activities implemented by a manager. A work plan should be like a demonstration: a rational order of linked statements, in which each statement continues and logical complement to the one before it.

Integrated in context, a work plan is the result of a "reverse" planning type aiming to establish a management tool, with which the structure of elements-problems and how to solve them is detailed. A work plan looks like a bi-univocal proposal:

- or the general budget of the activities is already approved (and the schedule needs to be clarified – and linked to the schedule, the moments of release / engagement of financial and / or material and / or human resources)
- or the general budget of the activities will be conditioned by the work plan (what is to be clarified is the amount of rhe involved resources, which in their turn will force the schedule to display their defining moments depending on the availability of the applicant).

(INCERTRANS will develop this chapter in this second variant, because until the date for development the work plan there isn't any decision on the ownership by the guardianship authority of the budget for SUMP Oradea).

It is important to note that the work plans contain a schedules and a budget only as annexes.

The period between the start and end of carrying out one of the tasks[13] (which aims to apply a measure, entirely or only for a fraction of the measure), respectively the financial amount necessary to materialize the task are certainly important elements of a work plan,

[13] In other words: the moment for launching of a "work" and its estimated duration.

but THE TRUE CONTENT OF THE WORK PLAN IS THE "TEXT" JUSTIFYING STAGGERED FUNDS RELEASE for the period in question. To emphasize: jjustification is not related to budget approval; justification refers to rationality unlocking the position from the budget covering from financial point of view taking actions in order to achieve a target (justification – if correct – shall indicate to the decision makers that they can afford money spending for the specific task and for the moment when the measure reached the situation to materialize).

As with any management activities, plan preparation is done according to the following technique:

(1) thinks back in time, from where it is desired to find the analyzed system at the end of the period and generates the necessary steps to get there, starting from the initial state

(2) is developed the favorable circumstances of the declared purpose of the "work" based on the four key management questions[14], used as a frame of the designer's thinking.

However, the elaboration of plans does not have a specific and unique character, and the advice contained in different communication channels can only be made useful by the manager who knows the system found in the analysis.

Furthermore, to assume that the schedule and the budget will be "point of law" is naive: no coordinator can not make an inflexible schedule and no economist can not make an exact budget, because a work plan is a likely trajectory – not unique and not sure – So a "working path" due regard of the unwanted predictable events or of the unlikely, but possible events. Instead of an inflexible schedule and a rigid budget, it is recommended that the work plan to have provided period of time in which it can be expected that they

[14] Who, when, how, whereby. But in this case:
- Who = PMO or OTL.
- When = according to the already advanced schedules.
- How = assuming and performing the tasks resulting from the acceptance of the action plan.
- Whereby = accepting estimated values (and financial resources) to measures already appropriated.

are achieved (for each inserted task, for any of the results or pursued objectives), which is an organic and adaptive approach.

There are many purposes of a work plan. However, its main purpose is often forgotten; it is an instrument or tool for planning and management providing a framework for work scheduling and is a guide for that period to achieve that thing or that work: it is used by donors and executive factors as a document to justify the release of the capital. It is also a useful document contributes to transparency, for that copies of the work plan may be distributed to those persons or organizations, who need it or are entitled to know what is being done and why, during that period of time.

According to many aspects, a work plan is very similar to a project proposal. The main difference is that a **work plan for SUMP is based on a project partially approved** and identifies a specific segment of time in this project. It identifies the problems to solve, makes them finite, relatively accurate and verifiable as objectives, indicated the necessary resources and the constraints to overcome, outlines a strategy and identify necessary actions to achieve the objectives and the targets. To obtain resources, including financial ones indicated in the budget, the work plan serves to the justification for release of funds. When approved, the work plan serves as a guide for the tasks to be assumed and subsequently to achieve the objectives. Work Plan related to a SUMP has to be written in such a way as to be transparent to anyone, either inside or outside the implementation group, in describing those objectives and outcomes and in applied actions motivation. Thereby, a work plan serves the needs of those involved in the implemention, of the managers, of those who plan, of the providing funds institutions and even of the target groups (beneficiaries). Steps to setting up the work plan can be briefly described as follows:

(a) there was a problem;

(b) there was obtained a solution (theoretical);

(c) practically leveling the solution (which is done by the work plan, which does not include the list of goals, objectives and actions – forming part of the strategy, but transpose the goals, objectives and actions at the task level).

"The philosophy" of action plan proposed by INCERTRANS is based on those issues to be solved and on those resources which are potential available, in order to be converted to solve the problems which are to overcome.

Note 1: Before going into the details of the work plan is necessary to review the action plan.
Note 2: the form in which will be presented the work plan is a continuation of the table that was set up for the action plan.

Tab. III.17 - Action Plan for Oradea SUMP. Field of intervention:

DEVELOP AND MODERNIZE THE INFRASTRUCTURE

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
evolution of revenues	2016 - 2017	Prepare two pre-feasibility studies which to detail at the level of working draft the topometry context within the number of accesses in/out Salca Depot could be doubled, respectively the spatial and technological possibility de construct and utilize the expected shed in Sinteza area. **I** **(general type action that contributes to achieve also other targets)**	Oradea Municipality Administration = To include in the first bugets for the 6 years of SUMP the necessary amounts in order to ensure the second access of depot.	It has to be allocated the amount of 900,000 EUR for construction of 1.5 kilometers of single track tram and the amount of 1,000,000 EUR the construction of the shed.	„Year by year" modification of the system taking into account a planning for future. Take into account the services dealing with emergency services and the possibility according to which the transport system could collapse due to fragmentation of tram network.
			OTL = Submit to Oradea Municipality the emergengy scenarios – in which public transport will be done if the only entry-exit of depot would be impractical. = prepare a paper regarding the „vision" on what means the second access of the depot for transport network and transport service. = develop further options for transport service so that the need for board staff, vehicles and maintenance staff not to take by surprise a possible execution of the second access.	–	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2015	Prepare a large paper in which – considering the proposal of Urban General Plan – will be established the point of junctions between ways of access inside the protected ring. II (general type action that contributes to achieve also other targets)	Oradea Municipality Administration = prepare studies and projects which to put in practice the idea of protected ring = determine and identify the resources and the level of year in which will be included in the budget the necessary amounts/costs = form a public intervention group to inform the public regarding the new ways of mobility in the city = estimate the level of additional cash-flow occured due to taxation of passing through the protected ring	The transformation of the city center in an area free from pollution and favorable repercussions on overall health.	The city's center is now free from pollution and this has favorable repercurssion on overall health. Public perception about current priorities for children is changed.
			OTL = develop a paper which to reconsider the requested fleet in order to take the new passengers who have changed their mode of transport (private cars replaced by bus or tram)	–	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2015	Develop an analysis of opportunity of "closing" the ring with barriers or just installing cameras to monitor the entrances and watch the bad payers. **III** **(general type action that contributes to achieve also other targets)**	ORADEA MUNICIPALITY ADMINISTRATION = prepare an analysis of adequacy of one of two options (not only in terms of investments, but also in term of citizens acceptability regarding the new framework).	–	
			OTL = the main collaborator of Oradea Municipality Administration	–	
	2016 - 2017	Prepare the proposal according to what the Sinteza tram line to cross the national road so as to be possible transport services to be done within growing industrial platform in west of the city. **IV** **(general type action that contributes to achieve also other targets)**	ORADEA MUNICIPALITY ADMINISTRATION =organize an architectural competition for a bridge or underground passage which to make the link between tramway and national road = identify the financing source for the passage = public procurement procedure for the construction	**Own funds should be enough to cover the prize.** **It should be allocated the amount of 1,560,000 EUR for construction of the passage and tramway for Western Industrial Area.**	The beginning of a transformation of the county capital city into a modern node (taking into account the development of express road, the project regarding city's bypass and the road which has to link the villages of Oradea Metropolitan Area without Oradea city to be affected). Long-distance urban trips by

			OTL = submit to Oradea Municipality Administration at least two different tram routes which to extend the public transport service up to West Industrial Area.	–	modern transport services and high speeds.

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2014 - 2015	It is necessary to delimit in several areas the tramway in general traffic by fences or curb-stone; it will be submitted proposal for bus and tram routes which to be advantaged in general traffic. **V** **(general type action that contributes to achieve also other targets)**	Oradea Municipality Administration = openness and availability for public transport operator proposals	–	The measure will change the relation between the costs with public transport and the costs of using private cars (due to occurence of higher travel times when private car is used in the traffic in the same time with the increase of public trasport vehicles)
			OTL = develop a traffic study which to demonstrate that there are options to set up the fences for separate the tramway without confuse the city's traffic. = submit to the Local Council the options to progressively implement the separation of general traffic of bus and tram routes		
	2016 - 2019	Develop a documentation which to highlight the first tram routes which is suitable to a such approach (most likely	Oradea Municipality Administration = establish the level of investment required to develop a light rail	The investment for 5.25 km on the route Central Station – Nufărul is of 3,937,500 EUR.	A well chosen route which to link the main neighborhoods of the city could reduce the traffic congestion with acceptable efforts.

		from Central Station to Nufărul). **VI** **(general type action that contributes to achieve also other targets)**	OTL = prepare a paper which to indicate which tram route is the most suitable to be light rail	–	

Indicii	Anul	Acțiuni necesare	Sarcini	**Justificarea eliberării fondurilor**	Rezultate livrate
	2014	It will be developed variants of routes on which not to be present both tram routes and bus routes (the equivalent being the extension of bus network to the neighborhoods which currently are low served). **VII** **(general type action that contributes to achieve also other targets)**	Oradea Municipality Administration = openness and availability for public transport operator proposals	–	The current isochronous of transport network doesn't cover more than 60% of city's area in the 30 minutes specified in Urban General Plan. The routes to suburbs could bring the above percentage to 70-75%. The separation of the activity between tram and bus will be the foundation of services „industrialization", with positive consequences for the city.
			OTL = develop alternatives in which – taking into account also the ongoing execution works as „express road" from the left side of railways – to eliminate self-competition between two or even three (if we consider also the trolley) public transport services = explain to the citizens the new routes variants and the general benefits for the city if the transport system by buses is transformed in a mean to	–	

			supply the basic system (the tram) = submit new variants of routes which could be covered by now available buses		

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
rate of motorization for city's population		Develop an analysis of opportunity of "closing" the ring with barriers or just installing cameras to monitor the entrances and watch the bad payers.	III	III	III
		It is necessary to delimit in several areas the tramway in general traffic by fences or curb-stone; it will be submitted proposal for bus and tram routes which to be advantaged in general traffic.	V	**V**	V
		It will be developed variants of routes on which not to be present both tram routes and bus routes (the equivalent being the extension of bus network to the neighborhoods which currently are low served).	VII	**VII**	VII
kilometers of bikes tracks		Prepare a large paper in which – considering the proposal of Urban General Plan – will be established the point of junctions between ways of access inside the protected ring.	II	**II**	II

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
kilometers of new built or rehabilitated streets	2015	Rethink the proposal regarding the completion of the third side of the triangle of Emanuel Square.	ORADEA MUNICIPALITY ADMINISTRATION = Determined intervention at all decisional levels on which depends the completion of Emanuel Square triangle	**In order to construct 100 meters of tramway it is required an amount of 60,000 EUR.**	A great flexibility of public transport system. Higher commercial speeds directly perceived by passengers (who will arrive at the destination with 10-15 minutes earlier). Energy savings for the same trips as in the past before to be developed the third side of the triangle.
			OTL = The improvement of the paper based on which was done the proposal to extend the tramway with the respective tens of meters of rail (a proposal is also in SUMP).	-	
		Prepare a pre-feasibility study which to detail at the level of working draft the topometry context within the number of accesses in/out Salca Depot could be doubled.	I	I	I

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
hourly traffic on the streets with the highest level of traffic flows		Prepare the proposal according to what the Sinteza tram line to cross the national road so as to be possible transport services to be done within growing industrial platform in west of the city.	IV	IV	IV
		It is necessary to delimit in several areas the tramway in general traffic by fences or curb-stone; it will be submitted proposal for bus and tram routes which to be advantaged in general traffic.	V	V	V
		It will be developed variants of routes on which not to be present both tram routes and bus routes (the equivalent being the extension of bus network to the neighborhoods which currently are low served).	VII	VII	VII
the price of one parking hour related to the price of 5 km trip by public transport		It is necessary to delimit in several areas the tramway in general traffic by fences or curb-stone; it will be submitted proposal for bus and tram routes which to be advantaged in general traffic.	V	V	V
		Develop a documentation which to highlight the first tram routes which is suitable to a such approach (most likely from Central Station to Nufărul).	VI	VI	VI

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
the tonnes*km volume of goods daily transported within the city's area	2014	Propose to Oradea Municipality Administration and the police management to reduce the tonnage of freight vehicles restricted from 7.5 tonnes to 3.5 tonnes possible by restriction of free access at a period of time out of light day (18.00-6.00)	Oradea Municipality Administration = prepare a traffic survey by which to be determined the number of freights vehicles that have between 3.5 and 7.5 tonnes and which affect the „extended" center of the city = prepare a topographical plan of current position of signs that forbid the passing of the vehicles of 7.5 tonnes, respectively a proposal to delimit the new perimeter which to protect the extended center of the city = submit to local council the proposal regarding to reduce the accepted tonnage of the vehicles in the city = include in the budget the costs of re-emplacement the traffic signs that forbid the access	**Funds – of relatively insignificant level – for develop surveys can be obtained based on project submission to one of national calls by one of Oradea universities.**	Low levels of pollution. Reduced congestion in the extended center of the city. Higher revenues in order to improve the city's infrastructure.
			OTL = the main collaborator of Oradea Muncipality Administration	–	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
financial resources included in the action of improving the Oradea sustainable mobility		Prepare a large paper in which – considering the proposal of Urban General Plan – will be established the point of junctions between ways of access inside the protected ring.	II	**II**	II
the level of citizens' satisfaction		Develop a documentation which to highlight the first tram routes which is suitable to a such approach (most likely from Central Station to Nufărul).	VI	**VI**	VI
		It will be developed variants of routes on which not to be present both tram routes and bus routes (the equivalent being the extension of bus network to the neighborhoods which currently are low served).	VII	**VII**	VII

Tab. III.18 Action Plan for Oradea SUMP. Field of intervention:

TRANSPORT SYSTEMS IMPROVEMENT

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
evolution of revenues	2014	Rethink the entire pricing system of public passengers transport and private vehicles parking (especially the cars). **I (general type action that contributes to achieve also other targets)**	ORADEA MUNICIPALITY ADMINISTRATION = openness and availability for public transport operator proposals	–	A new variant for public passengers transport regulation which to take in consideration the requirements of sustainable mobility is developed. The calculations for 1 km of bus driving respectively 1 km of tram driving are remade. Prepare scenarios which have to simulate different pricing policies (up to obtain parameters which provide the alternative that improve the performance). It can be done up to price differentiation between lines depending on profitability.
			OTL = Proposal based on SUMP content of making transport price which make attractive the public transport (lower levels, rewards for loyal passengers, rethinking of gratuities system, allow the bikes in public transport vehicles etc)	–	
		From the point of view of efficiency, the main route which can be served by a tram line is between the point of intersection of tram line 2 with central ring and the second access of depot	PMO = to include in the multiannual budget the necessary amounts/costs for the route construction OTL = the main collaborator of Oradea Muncipality Administration	**Allocation of 2,000,000 EUR for construction of 2 km double track.**	Urban transport service operation in the Southern area of the city, between Calea Aradului and Universității.

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2014	Penetrating campaign to achieve the population's agreement regarding the reducing the range and volume of gratuity.	ORADEA MUNICIPALITY ADMINISTRATION = Prepare an analysis of the legal framework which establish the volume and level of gratuities. = Actions to convince people that „there is no high quality in public transport unless any contribution in money" (as co-payments in the health care system)	**The citizens' resistance to change can be a cause of SUMP failure: the costs – relatively minor – for transparency campaigns regarding money ensuring for transport are motivated by the necessity that public have to comply to local administration policies. The source can be an internal one.**	Prepare a Local Council decision which to establish the level of gratuities for urban passengers transport to be supported by the general budget of Oradea Municipality Administration. Meetings schedule with traveling public having as purpose the explanation of measure which strengthen sustainable mobility in equal conditions for all citizens not only for retirees.
			OTL = the main collaborator of Oradea Municipality Administration	–	–

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2014	Prepare profitability studies for each line separately. **II** **(general type action that contributes to achieve also other targets)**	Oradea Municipality Administration = openness and availability for public transport operator proposals	–	The possibility to organize the public transport system on flexible programs in terms of profitability. Getting a right picture of revenues sources of different areas of the city (this could be the reason to transport diversification in certain neighborhoods).
			OTL = Form a working group to be able – using e-ticketing system – to synthetize all the information regarding level of profitability for every lines, inclusive for the relevant times of a day. = E-ticketing system should be used also to prioritize public transport lines: in this sense each line must have its own revenues/costs indicator in order to use the taxing flaxibility to differentiate the prices.	–	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2016-2017	Institute a regulation which to allow to cumulate an urban pass with a periurban pass (obviously at a lower price than the sum of the two prices). Note that e-ticketing sustem that is currently implemented by SC OTL SA allows a multitude of pricing options for urban, periurban and combined trips.	Oradea Municipality Administration = openness and availability for public transport operator proposals	–	The extension of city's public transport operator on the market of extra-urban transport market.
			OTL = propose a legal framework which to allow the application of commercial regulations between urban and periurban transport operators. This will enable in procedural terms and also in discount terms the sales of different types of passes – desired by public.	–	
	2015	Initiate and then permanently perpetuate working groups between SC OTL SA and transport operators in the county in order to eliminate the unfair competition within the county.	Oradea Municipality Administration = intervention at the level of county institutions (and local institutions) in order to separate the areas of influence of county operators of the Municipality and Oradea Metropolitan Area operators.	–	Getting a pre-integration between public passengers transport systems used in distinct areas on one hand and on the other hand for complementary areas.
			OTL = proposal of regulation and granting competences to common control entities in the field of exceeding the activity area for transport operators.	–	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2014	Modification of public transport regulations in order to facilitate the access of bikes in the public transport vehicles. **III** **(general type action that contributes to achieve also other targets)**	Oradea Municipality Administration = openness and availability for public transport operator proposals	–	The increase of passengers number. Indirect support for develop bicycle tracks.
			OTL = Develop solution for technical issues which are involved by all actions involved by bicycle transport in the public transport vehicles. = Establish the price for a bike transport as a luggage = Publicity campaign for „passenger with byke in the bus”	**The costs are relatively low and could be supported by SC OTL SA from the resources stipulated for marketing activities.**	
	2015-2016	Negotiations with operators to establish the amount of the fee to cover the costs of stations maintenance. **IV** **(general type action that contributes to achieve also other targets)**	Oradea Municipality Administration = Intervention on County Council to establish the contact with interurban transport operators.	–	Cooperation Protocol between Oradea Municipality – Oradea Metropolitan Area – Bihor County. Public transport service quality improved.
			OTL = Prepare a documentation in order to establish the amount of tax in conditions of financial and economic equity.	–	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2015-2017	To include in short-term program of SC OTL SA the necessity to purchase vehicles from differentiated categories in order to increase the flexibility of operation on routes on which the demand for transport is irregular in relation with day time and length (also it is proper an analysis concerning the optimum between one single type of vehicle with easy maintenance and flexibility in operation but complex maintenance for more type of vehicles).	ORADEA MUNICIPALITY ADMINISTRATION = openness and availability for public transport operator proposals	–	A higher internal organization of urban passengers transport operator. The conditions for extensive qualitative offer is achieved.
			OTL = Submit the development strategy of SC OTL SA – regarding the fleet modernization – in a meeting of Local Council	?	
	2014	Reestablish all the transport schedules following two objectives: (1) regularity (2) rational succession between the vehicles of the same line. **V** **(general type action that contributes to achieve also other targets)**	ORADEA MUNICIPALITY ADMINISTRATION = openness and availability for public transport operator proposals	–	High regularity and punctuality in transport service (ultimately savings in energy consumption and personnel payment).
			OTL = Determine points and areas which generate systematic delays. = Establish on sections the commercial speed and operating spedd (for transport vehicles for the same line) due to general traffic. = Remake transport schedules on the base of recalculation of travel times which to cover the systematic delays. = Prepare new transport schedules.	–	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2016	Prepare a detailed information which will bring arguments to Oradea Municipality Administration and Oradea Metropolitan Area regarding the implementing at least of a touristic route in the city's area. **VI** **(general type action that contributes to achieve also other targets)**	ORADEA MUNICIPALITY ADMINISTRATION = Assign the licenses for 1-2 routes which to include representatives historical buildings of Oradea.	**The acquisition of a electric vehicle of medium capacity which costs 250,000 EUR**	Open the Oradea local area for intermodality.
			OTL = Collaboration with Oradea Metropolitan Area in order to develop a proposal (or more) regarding a route with resonance in locals consciousness and attractiveness from the tourists point of view.	–	
	2016	Determined action to diversify the range of services of SC OTL SA towards close resorts and border. **VII** **(general type action that contributes to achieve also other targets)**	ORADEA MUNICIPALITY ADMINISTRATION = allow the changes of statut or other changes which to lead to conditions achievement so as the urban-periurban transport operator to be able to participate to interurban transport routes distribution and allocation.	–	Documentation which confer to urban-periurban operator the statut of county transport operator. Interurban transport license for the transport operator.
			OTL =(together with TRANSREGIO): technical project which to envisage the features of routes and vehicles for the lines to resorts.	–	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2015-2017	The modification of current transport schedules assuring that arrival and departure times of the public transport vehicles to be relatively simultaneous with transport schedules for trains and plains.	ORADEA MUNICIPALITY ADMINISTRATION = openness and availability for public transport operator proposals	–	The Oradea's prestige rises for the non-residents and that could have positive effects for tourism and even for financial-economic field. .
			OTL = Provide a prompt presence of public transport vehicles in the period of time corresponding to the time of departure of trains and airplanes and also to the time of arrival of the trains and airplanes at the rail stations and airport.	–	
	2014	Achieve accurate surveys which to identify stations that exist only due the reason of complacency.	ORADEA MUNICIPALITY ADMINISTRATION = openness and availability for public transport operator proposals	–	Scientific documentation regarding the consistency of the boarding-unboarding points organization.

			OTL = Systematically organize the surveys by manual counting of the passengers who are generated or attracted by the stations that according to empirical estimation do not make sufficient trips.	**Funds – of relatively insignificant level – for develop surveys can be obtained based on project submission to one of national calls by one of Oradea universities.**	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
rate of motorization of city's population		Reestablish all the transport schedules following two objectives: (1) regularity (2) rational succession between the vehicles of the same line.	V	**V**	V
	2015 - 2017	Reconsider the proposal regarding the implementing of public transport by trolley (proposal which can be also found in Urban General Plan). **VIII** **(general type action that contributes to achieve also other targets)**	ORADEA MUNICIPALITY ADMINISTRATION = Include in the general budget the investment for a new ecological transport system	**Provision in the budget the amount of 3,000,000 EUR for the purchase of 10 trolleys**	Investment accompanied by related projects: impact project, feasibility study, execution project. Authorization of SC OTL SA as a center of training for trolley drivers.
			OTL = Prepare the conditions for trolleys depot. = Staff training for the management and maintenance the transport system inclusive for the electric power supply. Introduce in the estimated budget for the period 2015-2017 the costs for transport system by trolleys (line and electric substations) and for trolleys aquisition.	**Allocation of 4,000,000 EUR for the development of transport system by trolleys on a lenght of 8 km (inclusive electric substations)**	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
kilometers of bikes tracks		Modification of public transport regulations in order to facilitate the access of bikes in the public transport vehicles.	III	**III**	III

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2017	Finance and execution of a simple "bike rack" – which can be only a metal frame with spaced for bikes wheels.	ORADEA MUNICIPALITY ADMINISTRATION = openness and availability for public transport operator proposals	–	Multimodality between systems considered for the future from the sustainable mobility perspective. The number of public transport passengers increases.
			OTL = Organize a local competition – in Oradea universities – in order to award a project for „bike rack" = Identify the stations that are suitable for implement a „bike rack" = Provision in the buget the costs necessary for materials aquisition and staff payment for installing in stations the bike rack.	**It should be allocated an amount of 25,000 EUR for implementing bikes racks in 25 tram stations.**	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
kilometers of new built or rehabilitated streets	2014	Submit to ORADEA MUNICIPALITY ADMINISTRATION a SWOT analysis of the tramway section from Iosia Sud Neighborhood from the necessity perspective to maintain the tramway in this neighborhood. **IX** **(general type action that contributes to achieve also other targets)**	ORADEA MUNICIPALITY ADMINISTRATION = Finding of external sources to finance infrastructure investments.	**Allocation of 1,000,000 EUR for tramway extension.**	Project for the Development Ministry or for European Funds. Detailed monography of a low populated area (with implications for other neighborhoods as less dense and proper for public passengers transport).
			OTL = Analysis of neighborhood's profitability database, census population, jobs and passengers in order to identify the degree of contribution of Iosia Sud Neighborhood in supporting the costs for operation and maintenance of that tramway section.	–	
	2014-2019	Submit to ORADEA MUNICIPALITY ADMINISTRATION the findings resulted from the analysis of incidents in which drivers and motormen are involved – due to limitation of transport infrastructure or the rest of the conditions caused by buildings and equipments from the urban area.	ORADEA MUNICIPALITY ADMINISTRATION = Urgent acceptance of necessary costs for rearranging those infrastructure elements that create problems for public transport vehicles.	**For the blackspots elimination from the public transport point of view, it is necessary the amount of 1,000,000 EUR for the entire SUMP period.**	Improvement of city's infrastructure. Increase of citizens mobility safety. Decrease the level of stress for SC OTL SA drivers.
			OTL = Concrete and technical justified proposals for those areas or transversal sections which prove to be unproper for buses and trams traffic.	–	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
hourly traffic on the street with the highest level of traffic flows	2017-2019	Rethink the entire pricing system of public passengers transport and private vehicles parking (especially the cars).	I	**I**	I
		Modification of public transport regulations in order to facilitate the access of bikes in the public transport vehicles.	III	**III**	III
		Reestablish all the transport schedules following two objectives: (1) regularity (2) rational succession between the vehicles of the same line.	V	**V**	V
		Central railway station modernization so as the transition from railways system to roads system to represent an action of establishing a intermodal hub of maximum importance; same for Nufărul node.	PMO = implement the project regarding the construction of a modern bus station in the adjacency of Central Station and Nufărul Station.	**Allocation of 3,000,000 EUR for the construction of 2 (two) intermodal points.**	Increase the number of movements of passengers changing the public transport vehicle (from the rail vehicle to periurban or local vehicle). Decrease the number of taxi vehicles which affect Ştefan cel Mare Bvd.
			OTL = the main collaborator of Oradea Municipality Administration		Increase the transport service quality provided by transport operators to public passengers waiting the urban transport vehicles.
		Determined action to diversify the range of services of SC OTL SA towards close resorts and border.	VIII	**VIII**	VIII

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
the price of one parking hour related to the price of 5 km trip by public transport		Prepare feasibility studies for every lines.	III	**III**	III

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
the tonnes*km volume of goods daily transported within the city's area		–	–	–	–
financial resources included in the action of improving the Oradea sustainable mobility		Rethink the entire pricing system of public passengers transport and private vehicles parking (especially the cars).	I	**I**	I
		Reconsider the proposal regarding the implementing of public transport by trolley (proposal which can be also found in Urban General Plan).	VIII	**VIII**	VIII
		Negotiations with operators to establish the amount of the fee to cover the costs of stations maintenance.	IV	**IV**	IV
		Submit to ORADEA MUNICIPALITY ADMINISTRATION a SWOT analysis of the tramway section from Ioșia Sud Neighborhood from the necessity perspective to maintain the tramway in this neighborhood.	IX	**IX**	IX

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2014 - 2016	Identify the sources to continue financing of the actions to standardize the boarding-unboarding stations. **X** **(general type action that contributes to achieve also other targets)**	ORADEA MUNICIPALITY ADMINISTRATION = Provision in general budget the investments necessary for the customized design for all boarding-unborading stations.	**It should be allocated an amount of 3,420,000 EUR for standardizing of 285 stations.**	Investment accompanied by related projects: (at least) architectural project for urban integration, execution project. The construction has to become a space where is made known the SC OTL SA offer and to obtain revenues from advertising; in addition, the actual construction could represent a brand.
			OTL = Prepare a phased program to set up the new constructions.	–	
the citizens' level of satisfaction		Rethink the entire pricing system of public passengers transport and private vehicles parking (especially the cars).	I	**I**	I
		Modification of public transport regulations in order to facilitate the access of bikes in the public transport vehicles.	III	**III**	III

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2014	Reallocate the fleet on routes in order to improve the rational "equipping" of the routes depending on their transport demands.	ORADEA MUNICIPALITY ADMINISTRATION = openness and availability for public transport operator proposals	–	Obtain a surplus of fleet from own resources to be used for new routes or already existing routes for express lines – these latter bring additional revenues and decrease the level of congestion on some streets.
			OTL = Analysis of mathematical model which leads to a „normal" succession interval – 7-8 minutes. = Prepare a feasibility study which has to answer to the question regarding the rationality of decrease the number of vehicles for current lines.	–	
		Reestablish all the transport schedules following two objectives: (1) regularity (2) rational succession between the vehicles of the same line.	V	**V**	V
		Prepare a detailed information which will bring arguments to Oradea Municipality Administration and Oradea Metropolitan Area regarding the implementing at least of a touristic route in the city's area.	VI	**VI**	VI
		Determined action to diversify the range of services of SC OTL SA towards close resorts and border.	VII	**VII**	VII
		Identify the sources to continue financing of the actions to standardize the boarding-unboarding stations.	X	**X**	X

Tab. III.19 Action Plan for Oradea SUMP. Field of intervention:

IMPROVE THE PUBLIC TRANSPORT IN RELATION WITH THE ENVIRONMENT

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
evolution of revenues	2014	Following the implementation of e-ticketing it will be detailed reports and also reports/records with a high degree of accuracy on categories of public transport users which will provide the basis for periodic recalculation of compensation. These reports will be submitted periodically to Oradea Municipality Administration.	ORADEA MUNICIPALITY ADMINISTRATION = Reconsider the procedure based on which is currently calculate the compensation.		Increase the percentage in the budget of Oradea Municipality Administration in order to support public transport operator actions concerning urban mobility
			OTL = Studies and/or historical analysis regarding the possibilities and opportunities of SC OTL SA in comparison with possibilities and opportunities of other urban transport operators from European cities of comparable size with Oradea city.		

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2014	Is is necessary to submit to Oradea Municipality Administration a project regarding conjugate lines for the same route (for example line 14): develop a high speed route using a part of currents vehicles of this line. **I** **(general type action that contributes to achieve also other targets)**	ORADEA MUNICIPALITY ADMINISTRATION = openness and availability for public transport operator proposals	–	Increase the level of revenues only based on service quality increasing. Subsequent possibility to generalize the system with express lines or even to implement new routes which to operate as express lines.
			OTL = „live" tests which are aimed to increase public openess for fast transport lines. = submit to Oradea Muncipality Administration a report which to include the test findings and the proposal to diversify the transport service on one and the same route (a higher price than it would be justified – the price in the case in which express line will be authorized being subsequently decrease to the level resulted from calculation) = Develop solutions for technical issues related to vehicles circulation in two different ways (normal and express) in the same stations.	–	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2014-2019	To facilitate the making decision in order to set the "no car day", SC OTL SA should submit to Oradea Municipality Administration a paper which to indicate the less congested 2-3 days of Saturday or Sunday – as a result of the statistics held by public transport operator.	ORADEA MUNICIPALITY ADMINISTRATION = establish the day – days without using cars in Oradea city.	–	Certain indicator that Oradea Municipality is on sustainable mobility direction. Reduced pollution.
			OTL = the analysis of trips number in Saturdays and Sundays throughout the year.	–	
	2014-2019	Campaign to obtain the population consent for this day.	ORADEA MUNICIPALITY ADMINISTRATION = prepare citizens for a such measures (insisting on the categorical difference between this kind of day and the odd and even days to use car in the communist regime) = media campaign so as those who pass Oradea not to face this fact without to be prepared.	–	Accepting of this day is a „lesson" for the children showing them how to coexist with the nature in urban environment.
			OTL = the main collaborator of Oradea Municipality Administration.	–	

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
	2014	Negotiations with management of some institutions (like Theater, Zoo, Swimming Pool) in order to establish a common pass that to allow the access to a cultural performance or recreational activity and also the access in public transport vehicles (obviously including mutual discounts between the members of this consortia).	ORADEA MUNICIPALITY ADMINISTRATION = organize meeting with the managers of cultural or recreational institution in order to analyze the proposal.	–	Decrease the number of trips by private cars in favor of the trips made by public transport vehicles. Decrease the general pressure on parking places in certain areas of the city.
			OTL = develop new work regulations which to represent the base for further discussions regarding the the sales and discount procedure of these trips.	–	
rate of motorization for city's population		Is is necessary to submit to Oradea Muncipality Administration a project regarding conjugate lines for the same route (for example line 14): develop a high speed route using a part of currents vehicles of this line.	I	I	I
kilometers of bikes tracks		–	–	–	–
kilometers of new built or rehabilitated streets		–	–	–	–

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
hourly traffic on the street with the highest level of traffic flows	2014-2017	Is is necessary to submit to Oradea Muncipality Administration a project regarding conjugate lines for the same route (for example line 14): develop a high speed route using a part of currents vehicles of this line.	I	**I**	I
		Develop a strategy for several years which to provide to local administration the opportunity to choose between the two options already presented in the chapter regarding probable measures to renew the fleet.	ORADEA MUNICIPALITY ADMINISTRATION = openness and availability for public transport operator proposals	**In the period 2014-2017 it should be allocated an amount of 30,450,000 EUR in order to purchase 10 trams and 18 buses of different capacities.**	Modernize the fleet. Decrease CO_2 emissions, dust and noise. Reduce the costs of fleet maintenance for SC OTL SA.
			OTL = Reopen discussion reffering to the SC OTL SA general manager strategy in the Local Council meetings (with the proposal to adopt the variant which best represents the transport operator way to get an upper level of development).	-	

the price of one parking hour related to the price of 5 km trip by public transport		–	–	–	–

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
the tonnes*km volume of goods daily transported within the city's area		–	–	–	–
financial resources included in the action of improving the Oradea sustainable mobility		–	–	–	–

Indices	Year	Required actions	Tasks	**The reason of funds releasing**	Delivered results
citizens' level of satisfaction	2014-2018	Is is necessary to submit to Oradea Muncipality Administration a project regarding conjugate lines for the same route (for example line 14): develop a high speed route using a part of currents vehicles of this line.	I	**I**	I
		To set an "open gates day" by SC OTL SA – at least once a month – in which to take place meetings between public/passengers and employees from all hierarchical levels of SC OTL SA.	ORADEA MUNICIPALITY ADMINISTRATION = openness and availability for public transport operator proposals		A more civilized atmosphere between public transport providers and customers. Decrease the level of stress for drivers and motormen.
			OTL = campaign in order to prepare the public = Organize thematic meetings which to familiarize the citizens with SC OTL SA problems		
		Include in the SC OTL SA budget the necessary costs for maintenance, respectively for the grassing of embarkment.	ORADEA MUNICIPALITY ADMINISTRATION = openness and availability for public transport operator proposals	-	Increase passengers comfort New possibilities of extension of greean areas Increase air quality
			OTL = to include in its own budget the suplimentary costs for maintenance improvement and grass seeding.	**Allocate 1,500,000 EUR for rehabilitation and grassig of 2.5 km doubled tracks.**	

The executive summary of the action plan is as follows[15]:

- ✓ Indice 1 = evolution of revenues
  - ✓ infrastructure development and modernization
    PMO (Oradea Municipality Administration) = 12 tasks
    OTL = 12 tasks
  - ✓ transport systems improvement
    PMO = 7 tasks
    OTL = 19 tasks
  - ✓ transport improvement in relation with the environment
    PMO = 5 tasks
    OTL = 6 tasks
- Indice 2 = the rate of motorization of city's population
  - ✓ infrastructure development and modernization
    PMO = 1 task
    OTL = 4 tasks
  - ✓ transport systems improvement
    PMO = 3 tasks
    OTL = 9 tasks
  - ✓ transport improvement in relation with the environment
    PMO = 1 task
    OTL = 4 tasks
- Indice 3 = kilometers of bikes tracks
  - ✓ infrastructure development and modernization
    PMO = 4 tasks
    OTL = 1 task
  - ✓ transport systems improvement
    PMO = 0 tasks
    OTL = 6 tasks
  - ✓ transport improvement in relation with the environment
    PMO = 0 task
    OTL = 0 task
- Indice 4 = kilometers of new built or rehabilitated streets
  - ✓ infrastructure development and modernization
    PMO = 3 tasks
    OTL = 6 tasks
  - ✓ transport systems improvement

[15] Attention!: The summing of tasks brings no information because some tasks have impact on several actions.

Str. Calea Griviţei Nr. 391-393, Sector 1, Bucureşti, Romania
Capital Social: 3.297.325 RON
Nr. Registrul Comerţului: J40/17093/1993 – Cod Înregistrare Fiscală: RO4282451
Cont: RO58 RNCB 0072 0488 7146 0001, BCR Sucursala Sector 1
Tel.: +40 (21) 316.23.37; Fax: +40 (21) 316.13.70; E-mail: incertrans@incertrans.ro; Web: http://www.incertrans.ro

PMO = 2 tasks
OTL = 2 tasks

✓ transport improvement in relation with the environment
PMO = 0 tasks
OTL = 0 tasks

- Indice 5 = hourly traffic on the street with the highest level of traffic flows in the city
  - ✓ infrastructure development and modernization
    PMO = 3 tasks
    OTL = 5 tasks
  - ✓ transport systems improvement
    PMO = 2 tasks
    OTL = 10 tasks
  - ✓ transport improvement in relation with the environment
    PMO = 1 tasks
    OTL = 4 tasks
- Indice 6 = price of a parking hour in relation with the price of a 5 km trip made by public transport
  - ✓ infrastructure development and modernization
    PMO = 1 tasks
    OTL = 3 tasks
  - ✓ transport systems improvement
    PMO = 0 tasks
    OTL = 2 tasks
  - ✓ transport improvement in relation with the environment
    PMO = 0 tasks
    OTL = 0 tasks
- Indice 7 = the volume of tonnes*km transported goods per day in city's area
  - ✓ infrastructure development and modernization
    PMO = 4 tasks
    OTL = 0 tasks
  - ✓ transport systems improvement
    PMO = 0 tasks
    OTL = 0 tasks
  - ✓ transport improvement in relation with the environment
    PMO = 0 tasks
    OTL = 0 tasks

Str. Calea Griviţei Nr. 391-393, Sector 1, Bucureşti, Romania
Capital Social: 3.297.325 RON
Nr. Registrul Comerţului: J40/17093/1993 – Cod Înregistrare Fiscală: RO4282451
Cont: RO58 RNCB 0072 0488 7146 0001, BCR Sucursala Sector 1
Tel.: +40 (21) 316.23.37; Fax: +40 (21) 316.13.70; E-mail: incertrans@incertrans.ro; Web: http://www.incertrans.ro

- Indice 8 = financial resources introduced in activity of improving the sustainable mobility in Oradea city
  - ✓ infrastructure development and modernization
    PMO = 4 task
    OTL = 1 task
  - ✓ transport systems improvement
    PMO = 2 tasks
    OTL = 6 tasks
  - ✓ transport improvement in relation with the environment
    PMO = 0 tasks
    OTL = 0 tasks
- Indice 9 = the level of citizens' satisfaction
  - ✓ infrastructure development and modernization
    PMO = 1 task
    OTL = 3 tasks
  - ✓ transport systems improvement
    PMO = 3 tasks
    OTL = 15 tasks
  - ✓ transport improvement in relation with the environment
    PMO = 0 task
    OTL = 6 tasks