



**XXIV<sup>th</sup> World  
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***Treatment of the traffic congestions  
Efficient use of financial resources  
CASE STUDY – NATIONAL ROAD no. 1***

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**Case study:**  
**National Road no. 1 – km 7+800 – km 16+200, between**  
**Bucharest – Otopeni**

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**Summary:**

- The content of the case is to present the mode in which was treated the traffic congestion from NR 1 and the solutions which were applied on the road.
- The solutions identified had to stick to a limited budget and to offer in the same time an optimum alternative to the initial created congestions.
- The content of the presentation will show a comparative view of the initial status and the solutions found and applied as objects of different contracts:
  - Initial status before new works started;
  - Identified problems;
  - Proposed remedial measures;
  - Problems during implementation;
  - Economic overview after implementation;
  - Actual status of NR 1





## ***Current status of the National Road no. 1***

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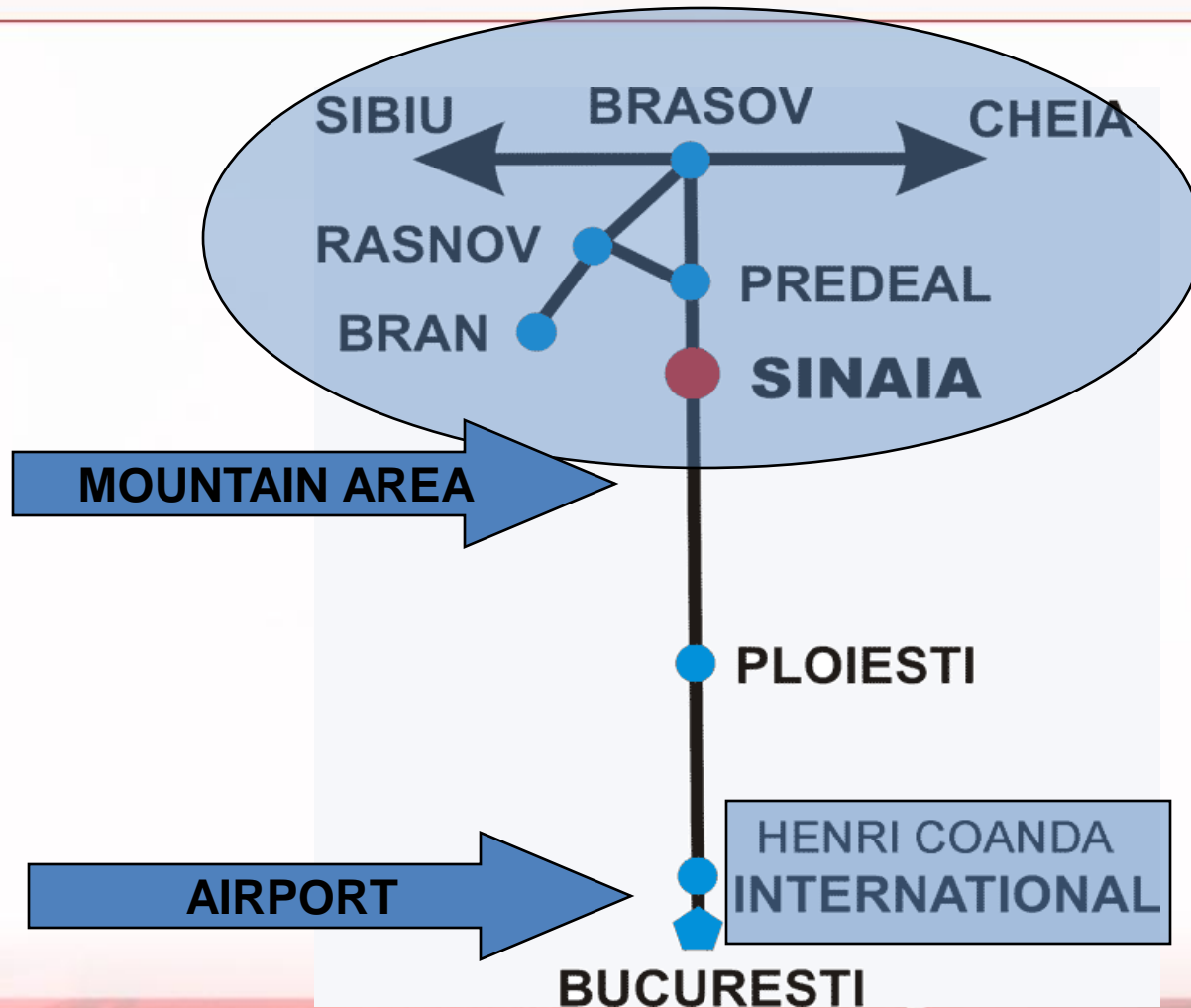
The main artery of access to the municipality of Bucharest is the national European road DN1 (E60) Bucharest – Brasov - Bors. The analysis of how the traffic develops has revealed the fact that the traffic runs with difficulty especially on the sector between the Airport Baneasa (km. 8+000) and the International Airport of Otopeni (km. 17+100).

Besides the transit traffic that runs on the route Bucharest - Ploiesti, this sector also receives the traffic generated by the residential areas in the North of the Capital, zones that are developing in an extremely fast rhythm.



- NR no. 1 is also framed as a link between a city with 2 million inhabitants and the international airport Otopeni.

The traffic census for this section is around 60 000 vehicles per day.



# Identified problems

- points of the bottlenecks,  
the necessity of dividing the traffic in local and transit traffic

NR no. 1  
OTOPENI UNDER  
PASSAGE  
GLOBAL VIEW



## The points of increased traffic are generated by:

- the commercial areas developed along the national road no. 1,
- the purpose of its intensive use: connects Bucharest, the capital, with the mountain area (Sinaia/ Brasov), 2 main cities (Sibiu, Cluj Napoca) and the Hungarian – Romanian Border

need of extra road safety measures



Commercial Area developed in the Northern part of the capital: IKEA, METRO, business centers, residential areas, etc

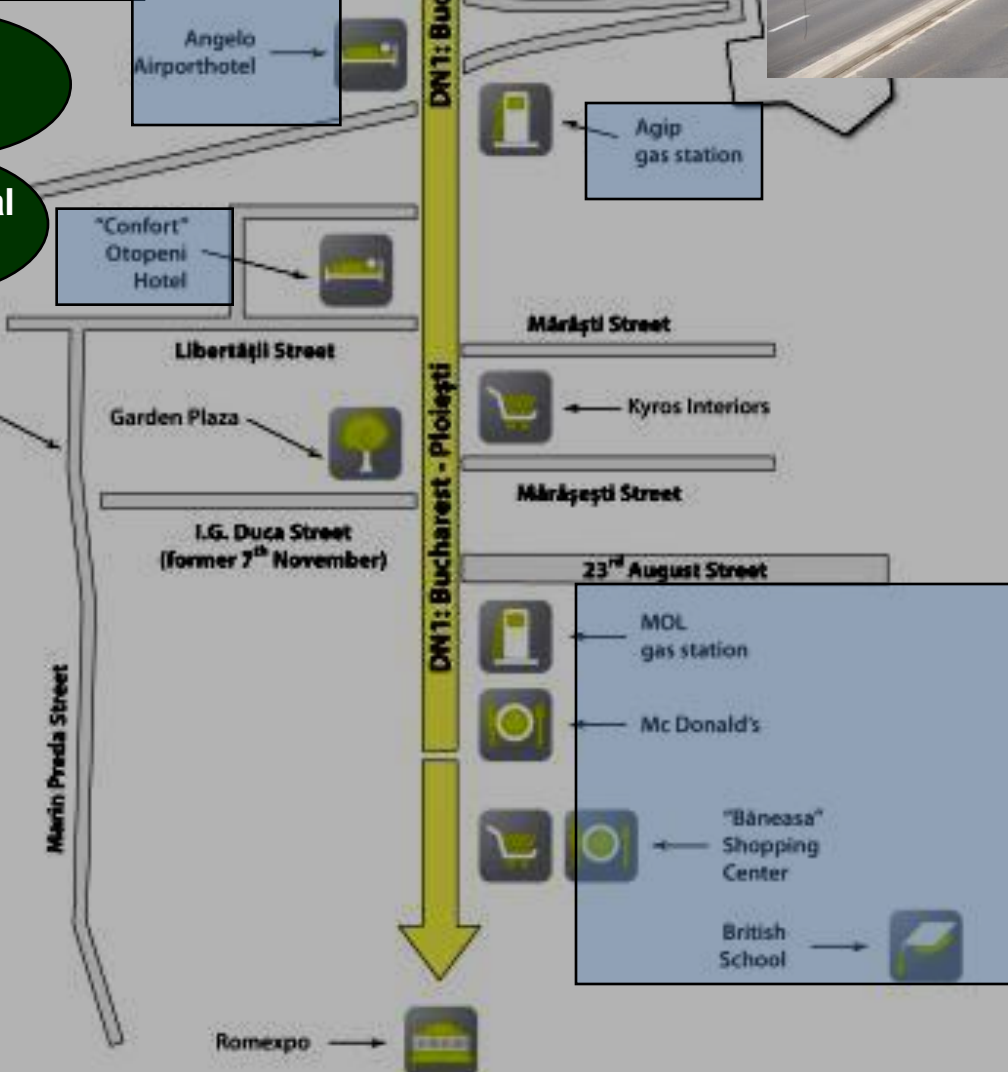
Due to its intensive use and high number of registered accidents, National Road no. 1 is included in the list of the most dangerous national roads



Due to the fact that a commercial area had developed along the national road no. 1, there is an increased need of road infrastructure in order to have an open access for the clients

Hotels

Residential areas



Shopping areas





# Approach of the problems

- the traffic was dimensioned for further development of the area;
- multiple actions in the frame of multiple contracts – the objectives of the contracts and the improvements was shown based on the current free flow of the traffic;
- multiple junctions with the urban streets – necessity to build overpasses & underpasses for traffic, pedestrians and traffic lights for the connections with the road access to the market areas (IKEA, METRO, etc);
- the widening of the existing road from 4 and 5 lanes to 6 lanes with a central reserve



**ANALYZING OF THE CURRENT STATUS CREATING  
PESIMISTIC AND OPTIMISTIC SCENARIOS IN ORDER TO COVER  
ALL POTENTIAL UNEXPECTED DEVELOPMENT OF THE AREA**



# AREA OF THE CASE STUDY



**CONNECTION WITH  
NATIONAL ROAD NO. 1  
(BUCURESTI - PLOIESTI -  
BLD. AEROGARII - BLD. ION  
IONESCU)**

1<sup>st</sup> step: The most important step - Getting the input for the traffic analysis software

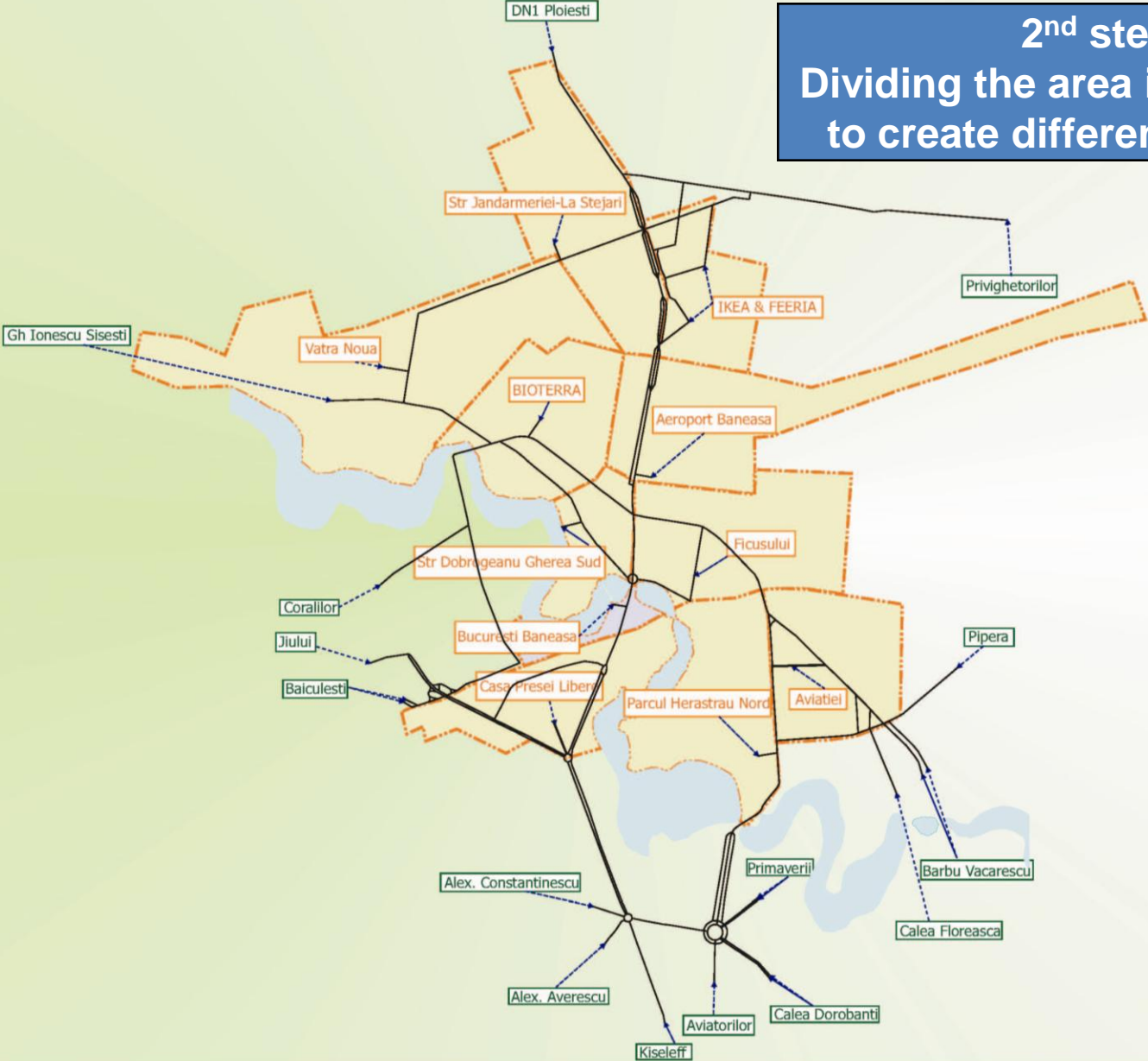


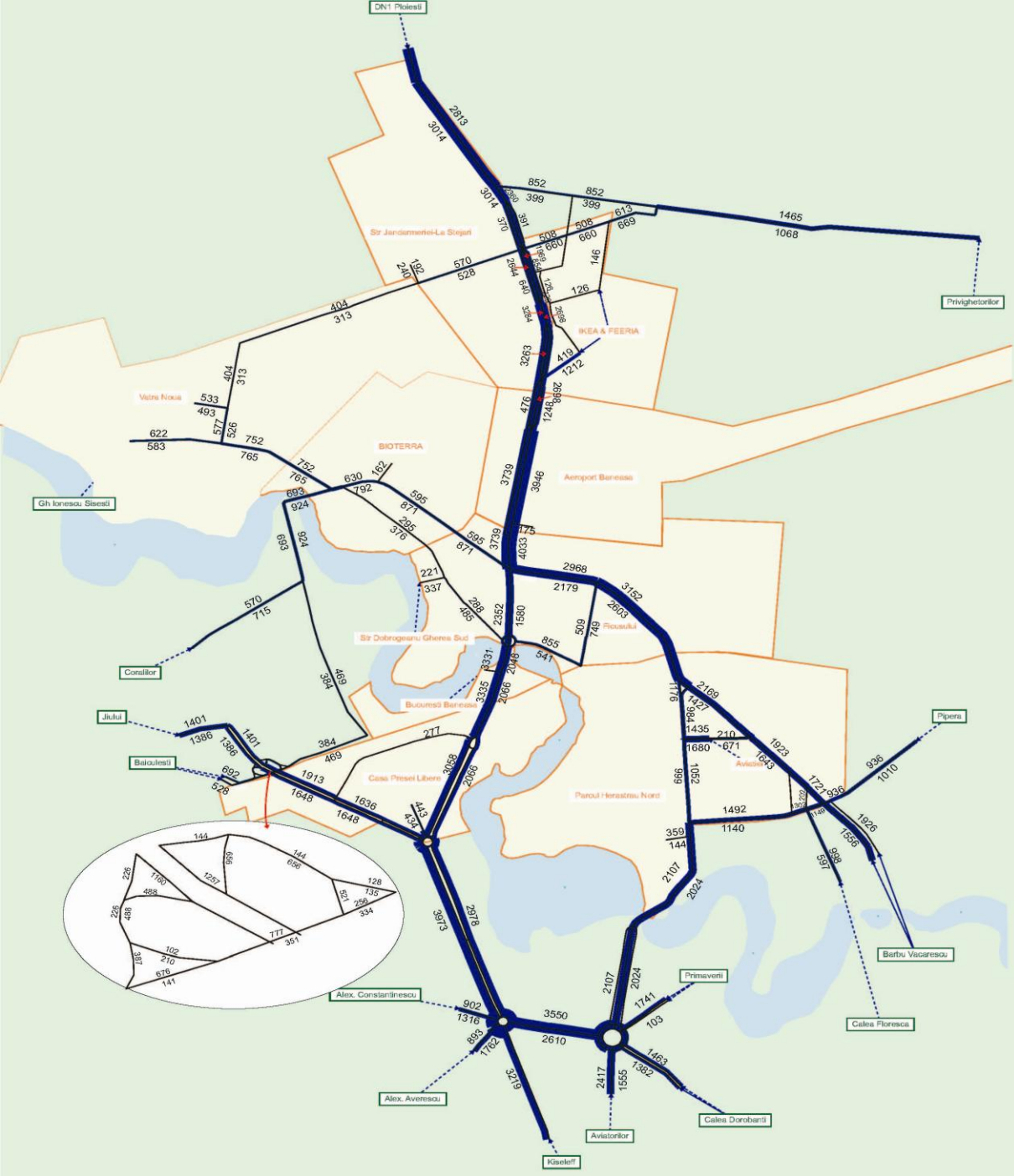
**LEGEND**

Major street boulevards

Traffic census points

2<sup>nd</sup> step:  
Dividing the area in sub areas,  
to create different scenarios





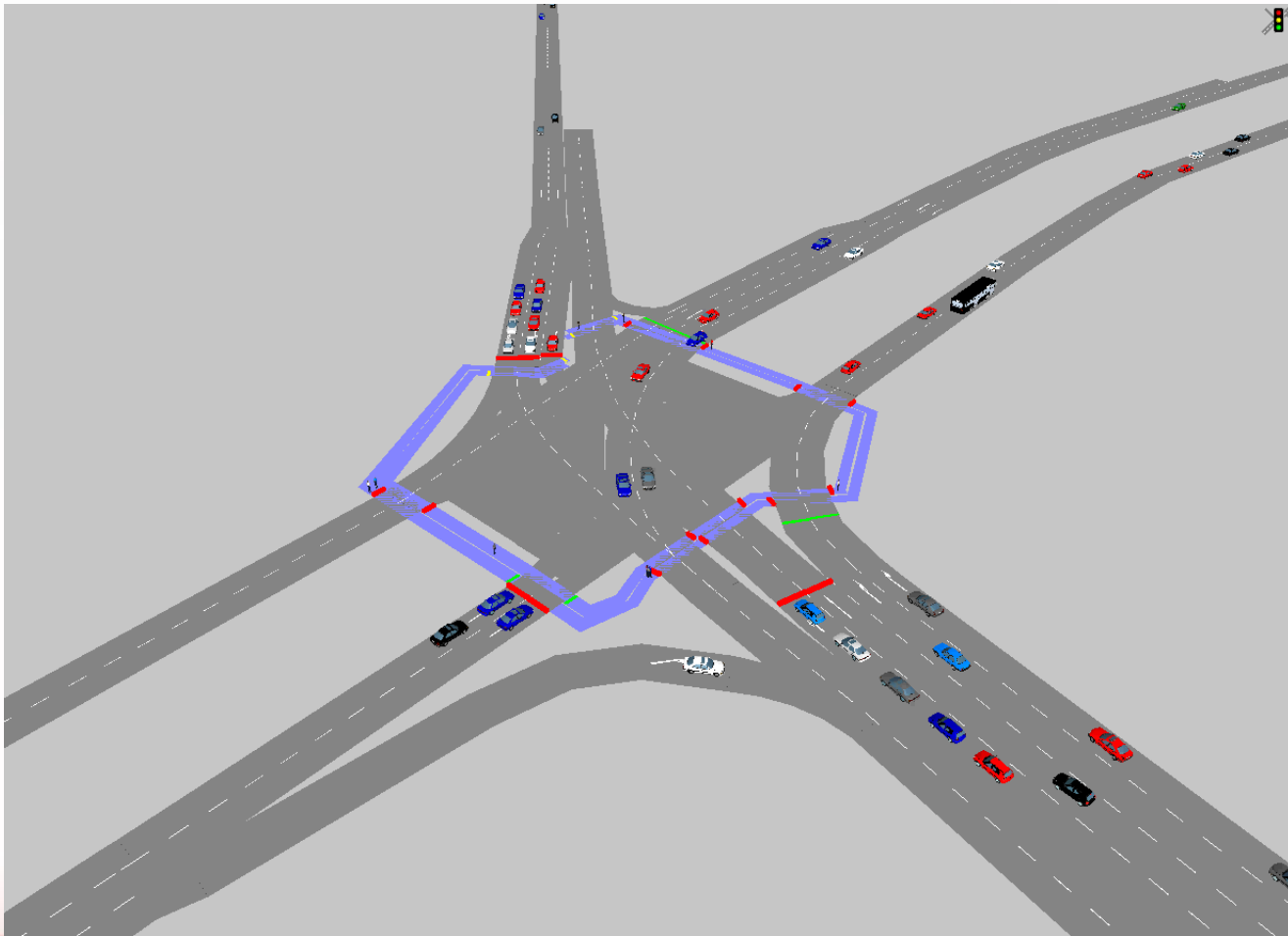
**Maxim capacity simulation for the traffic flows (vehicles/ hour)**





**Which are the traffic needs versus the traffic capacity?**

# Simulation of the scenarios





Costs for land acquisition are always higher than estimated...

If new road infrastructure projects are launched....



Contract management was difficult to be performed because of the place of the road works – all the road works were done under the traffic flows and was necessary to adopt very complex measures for temporary signing and markings



Metro over passage  
- works execution

Compared view ...



How it will look?



# IKEA over passage - works execution



How it looks now?



The actions must take into consideration future commercial development, which will need extra measures (like overpasses for splitting the neighborhood traffic and local commercial traffic from the transit traffic)



OTOPENI OVERPASS  
Day & Night

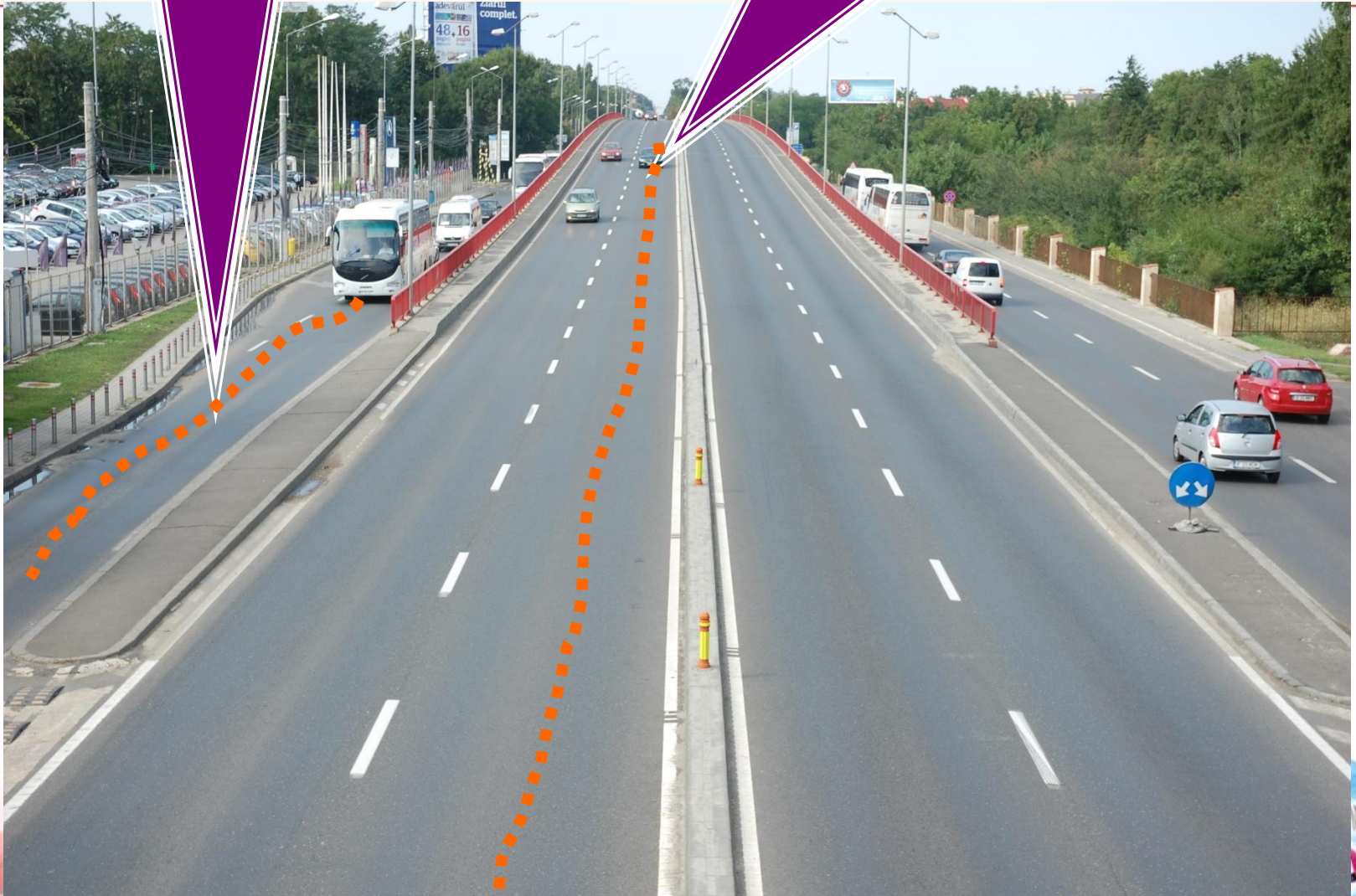
RIVERAN AND  
COMMERCIAL TRAFFIC

TRANSIT TRAFFIC



**DIVISION OF THE TRAFFIC**  
**LOCAL TRAFFIC – RIVERANS,**  
**etc.**

**DIVISION OF THE TRAFFIC**  
**TRANSIT TRAFFIC – National Road no. 1 is**  
**the route to the mountain area, etc.**



**DECOMPRESSING THE TRAFFIC  
AND ALSO CREATE FACILITIES  
FOR THE RIVERANS BY  
CREATING PARKING AREAS**



•RESPECT THE DRIVER AND THE PEDESTRIANS IN THE SAME TIME BY BUILDING PEDESTRIANS OVERPASSES



•ASSURING A CONTINUOUS LEVEL OF SPEED FOR THE DRIVERS



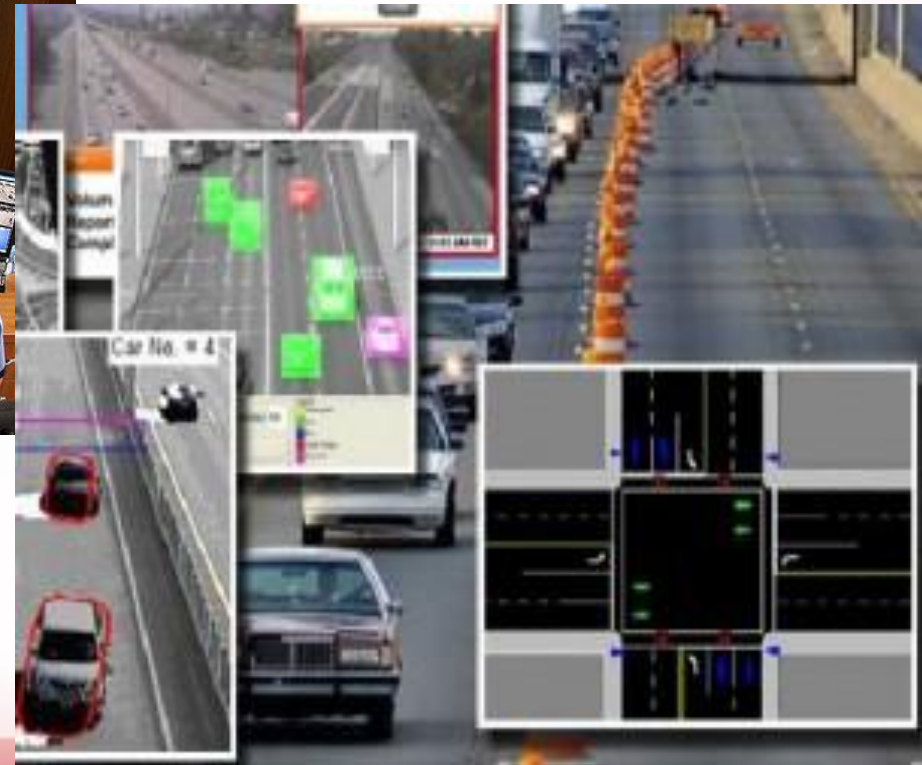
**NR no. 1  
OTOPENI UNDER PASSAGE  
SECTION VIEW**



The investment into this area and the results show that we have to think for medium further solutions, because “small” traffic jams are starting to appear...



# TRAFFIC MANAGEMENT IS ALWAYS A USEFUL TOOL: webcams, sensors, VMS, others



## **COSTS ARE ALWAYS HIGHER THAN THE ESTIMATED AMOUNTS**

### **EXAMPLE OF COSTS:**

**Widening of NR 1, from Baneasa Airport to Bucharest Ringroad**

**Length: 5,41 km, with 2 bridges and 6 lanes and an expropriated area of:  
112.455 square meters + underpass**

**Design: 0,450 million Euro**

**Consultancy: 0,285 mil. Euro**

**Works execution: 51 mil. Euro**

**Savings after implementation of the solution with bridges along the main  
road : 20 mil. Euro from the land expropriation**



On short term - All the investments which were done along this sector proved that the bottlenecks and congestions now are moved in other locations inside the city and in the nearby – the stringent need to be build a ring road at motorway profile.



THANK YOU FOR YOUR KIND ATTENTION...

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