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Users friendly urban spaces: a sustainable approach. An overview of the layout of streets and squares in the city centre and the historical areas of Timişoara.

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Abstract

Transport is one of the main sources of pollutants and cities administrations are in a constant search for solutions for the traffic problems. During most of the 20th century the fluency of the car traffic occupied the central stage, often detrimental to the residents, to the pedestrians and to the character of the urban spaces. New ideas emerged in the late '70ties and '80ties in which the urban spaces in city centres and in residential areas did put in a central position the pedestrian. First the Dutch "Woonerf", later the German policies of "Verkehrberuhigung" opened the way to new approaches. Shared spaces, liveable streets, pedestrian areas appeared in most cities. In this light this paper undertakes an analysis of the situation in historical districts of Timişoara.

Rezumat

Transportul reprezintă una dintre principalele surse de poluare şi administraţiile oraşelor sunt într-o continuă căutare de soluţii pentru rezolvarea problemelor de trafic. În majoritatea timpului în secolul al XX-lea fluenţa traficului vehicular a reprezentat principalul scop, afectând caracterul spaţiilor urbane şi fiind deseori în detrimentul locuitorilor unei zone şi a pietonilor. În anii '70 şi '80 au apărut noi idei care au plasat pietonul în centrul atenţiei în zonele centrale şi rezidenţiale. Mai întâi a apărut conceptul olandez de "Woonerf", mai târziu cel german de "Verkehrberuhigung". Acestea au deschis calea spre noi abordări în proiectarea spaţiilor urbane. Zone pietonale, "shared spaces"(spaţii cu utilizare mixtă) şi " liveable streets" (străzi pentru viaţă comunitară) au apărut în multe oraşe. În această lumina articolul de faţă întreprinde o analiză a situaţiei din zonele istorice ale Timişoarei.

Keywords: Pollution, Traffic calming, Pedestrian areas, Urban spaces.

1. Introduction: Short recent history of urban traffic

The perception on the role of streets and public squares has evolved along history. Timişoara, a city that, in spite of its long existence, has today an urban structure completely altered after a design of the 18th century, is a material testimony of this evolution during the last 300 years [1]. But none of the former changes was as dramatic as those occurring in the 20th century, both concerning the physical aspect and the theoretical approaches having as object the urban space. These transformations were mainly due to the requirements of motor vehicles traffic and the problems it generated. Cars, these rapid and elastic means of transport, became largely accessible to individuals

and societies after WWII. Cars were enriched, in addition to their practical role in transportation, with significance concerning status and success. They tended to become in the '60ties and '70ties overwhelmingly important, both at a private and at urban levels. Traffic studies aiming fluency, trying to solve traffic jams and to answer the requirements of a continuously growing car park changed radically the aspect of existing urban spaces. The simplest solution, very often adopted, was that of sidewalks and central roadway. But this simple approach did often create conflicts and insecurity, precariously answering to the requirements of both cars and pedestrians. To cope with the traffic problems the idea of *circulation segregation* emerged in the '60ties, intending to solve multiple difficulties:
- security for pedestrians in spaces destined exclusively to them
- fluency of car traffic
- avoidance of traffic jams allowing high speed circulation etc.

Side effects were quick to appear. In pedestrian zones these were:
- inhabitants tended to avoid dwelling in areas not accessible for private cars, having as effect
- lack of functional diversity
- appearance of deserted urban areas outside the daily working and shopping hours etc.

For the one observed that:
- high speed traffic continued to generate dangerous conflicts
- the streets destined to car circulation were urban spaces overlooked in the speed of the vehicles
- monotony and lack of personality of the urban spaces resulted by answering traffic necessities and fluency requirements, the solutions being similar everywhere all over the world etc.

In historic districts *circulation segregation* appeared to be virtually impossible to implement. Car traffic affects also the architectural aspects of historical areas:
- the roadway surface dominates the streets, radically changing the appearance of urban spaces
- pedestrians walk only on one side of the street, perceiving asymmetrically only one front instead of viewing the street's whole space
- often the sidewalk is narrow and precarious
- parked cars dominate the image
- the roadway crosses public squares, disfiguring representative historic spaces which are scarcely perceived etc.

In addition to inducing similarity of images in all districts and cities and relegating pedestrian in marginal positions, in all cases car traffic brings air and acoustic pollution, especially harmful in residential area and very aggressive for historical monuments.

Air pollution has been an issue in cities since Antiquity. Already in the first century, Vitruvius spoke about pollution and the necessity to ventilate cities [2]. The cumulated effects of industrial revolution, consumption economy and motorized transport brought this problem to an unprecedented level. Since 1970 alarm signals appeared concerning the ecological effects of human activities. *Global warming, Climate change* and *Ecological footprint* became everyday unavoidable political topics. Recently (November 2017) the European Commission and the EU Environmental Agency launched a new Air Quality Index and an Air Quality Atlas, stressing the unprecedented number of a variety of diseases and untimely deaths in Europe due to air pollution, and showing that health related costs range from 330 to 940 billion pro year [3]. This index is nowadays presented by Euronews channel.

Eurostat monitors also the greenhouse emissions pro country, and although some steps were taken to reduce these emissions, no conclusive results are to be seen in the environment [4].

2. New approaches: *care for people* versus *car hegemony*

Since the proliferation of cars, cities were designed to adapt to the traffic needs, as seen beforehand. Neglect and ostracism of the pedestrian and local inhabitants, unfriendly urban environments and

insufficient positive results created the circumstances in which new approaches appeared. In the '60ties and '70ties in Delft, Netherland, Niek de Boer (Dutch architect) and Joost Vahl (Dutch urban planner) developed the concept of *Woonerf* (in English *living yard*, also called *residential grounds*). In residential areas, in order to protect the inhabitants of the pollution and aggression of heavy traffic, pedestrians and cyclists were allowed to use the entire surface of the street, while cars speed was limited to 15 km/h. This concept was successful and today 2 million Dutch people live in *wooherven* [5].

In Germany the concept was adopted under the name of *Verkehrberuhigung* (Traffic calming). Some of the early theoreticians were Cristoph Valentien and Donata Valentien (German landscape architects and urban planners). In their paper *"Verkehrberuhigung und Stadtgestalt"* (*"Traffic Calming and Urban Layout"*) they enlarged the concept to a general basis for urban planning. By studying the traffic in a whole district or even a whole city, they considered one should detect, on one side, streets that will be destined and designed to undertake a fluent car mobility and, on the other, residential streets and historic centres urban spaces that should be designed for people and in which cars are strictly limited as lane surfaces, speed, parking places etc. The concept of Traffic Calming relies on measures called the three E's:
- *Engineering* measures: the layout of the urban space (squares, streets, residential alleys)
- *Education:* the awareness of the users, both drivers and pedestrian/cyclists that they have to cohabit without disturbing unjustified one another
- *Enforcement:* the legal appearance and placing in the intended areas of a specific road sign.

For designers the most interesting measures are the Engineering ones, the design of streets in order to create a layout that will induce the pedestrians to feel at ease an secure and the drivers to acknowledge that the street is not suitable for high speed and to slow down, feel that the variety of visual elements (urban furniture, street floor cover, curved and narrow lanes etc.) preventing the leisurely advance of being boring and to perceive it instead as bearable and even interesting.
Concerning the historical centres, the concept takes into account the fact that inhabitants tend to avoid living in areas where the private car is strictly forbidden and, in order to encourage a functional mix in these areas, traffic calming design is suitable. Historical districts were never meant for high speed and crowded traffic. They are characterised by:
- Narrow and often curved streets
- Inadequate curve radiuses at crossroads
- Lack of space for parking places etc.

The inherent slowing down should also be strengthened by the visual elements.
In all cases the engineering measures can be:
- Narrow traffic lanes, locally or on the whole length of the street
- *Bulbouts* at crossings
- Pedestrian refuges in the middle of the street
- Speed bumps, humps, cushions etc.
- Raised pedestrian crossings
- Change of surface colour, texture, materials etc.
- Chicanes and other means to deflect the roadway from the straight line etc.

3. Proposals for Timişoara

3.1. Being in Munich at the beginning of the '90ties I was in wonder and quiet enthusiastic about the user friendly layout already to be seen in several parts of the city. Having had the privilege of meeting Professor Valentine, I became aware of the theories of the *Verkehrberuhigung* concept. Already in this period I conceived a first proposal. I detected the Salcâmilor Street in a residential area of Timişoara, with isolated family houses having facade gardens, where a mixed use of the

roadway appeared spontaneously because of a narrow, slightly elevated side walkway which thus wasn't inviting. I proposed a shared use of the street surface [7], with several characteristics:
- Deflected lane by alternating the parking places
- Local narrowing of the lanes
- Pedestrian refuges at the crossing
- Change of surface materials at the road crossing, when entering the traffic calming area
- The perception of a unitary street space.

To these proposals some additional elements would have been advisable, like urban furniture, bollards and a more detailed desciption of the propused planting.
Some ecological measures were also taken into account:
- Unification of the green strip with façade gardens to increase the free earth surface and create better conditions for the vegetation
- green pavers for parking places, also unified with facade gardens (Fig1).
The proposal intended to be a low cost, simple transformation of a commonplace street in a pleasant varied space with personality.

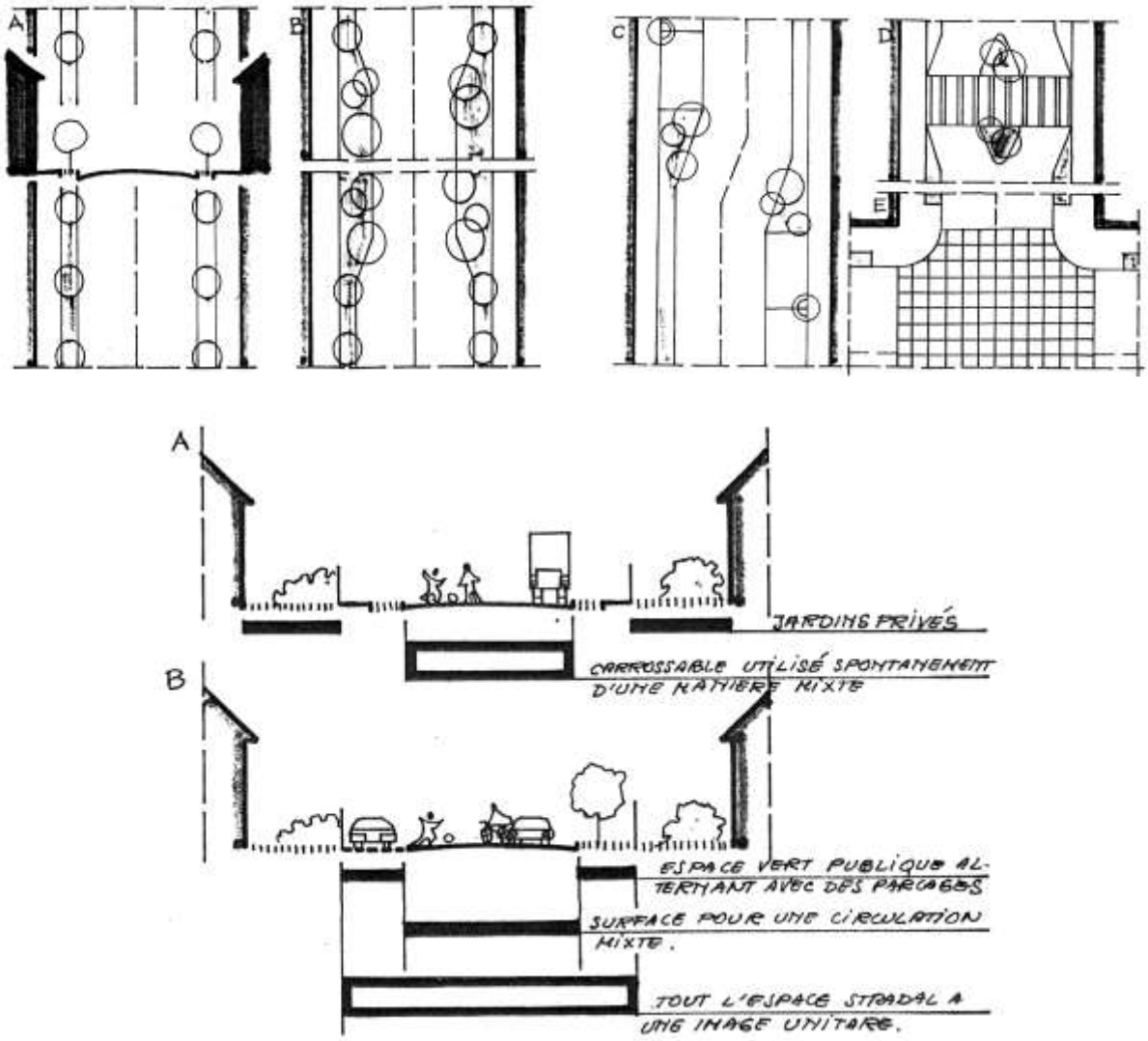

Fig.1: The original situation and the proposal for the Salcâmilor Street in a residential area of Timişoara (original drawings)

3.2. Traian Lalescu Street is in front of the building of the Civil Engineering and Architecture and

Urbanism Faculties of Timișoara. A proposal for the layout of this street was the subject for a Landscape Architecture student project in the 5th year. The existing characteristics of the area were (and are):
- A pedestrian crossing between the perpendicular Ioan Curea Street and the alley on the grounds of the Mechanical Engineering Faculty
- Cars are parked on both sides of the street, even occupying completely the walkway opposite the Faculty; that creates an unpleasant ambience without personality and lacking any other function except the traffic
- Although the street is only of local importance, speed bumpers had to be placed in order to discourage the drivers' tendency to accelerate on the straight tedious roadway lacking any variation.
The presented project proposes:
- A unitary pavement for cars and pedestrians at the crossing of the Traian Lalescu and Ioan Curea streets, where at certain hours hundreds of students pass from the campus to the university buildings
- A refuge with a canopy of trees and sitting places marking the monumental steps at the entrance of the Faculty of Civil Engineering and Architecture
- A small planted surface separating the walkway from the road, also with sitting places
- Sitting places along the side walkway
- A narrow green surface adorning the wall placed on the opposite side of the street
- The cars circulation is organized on narrow lanes of both sides of a parking central area on the rest of the street (Fig.2).

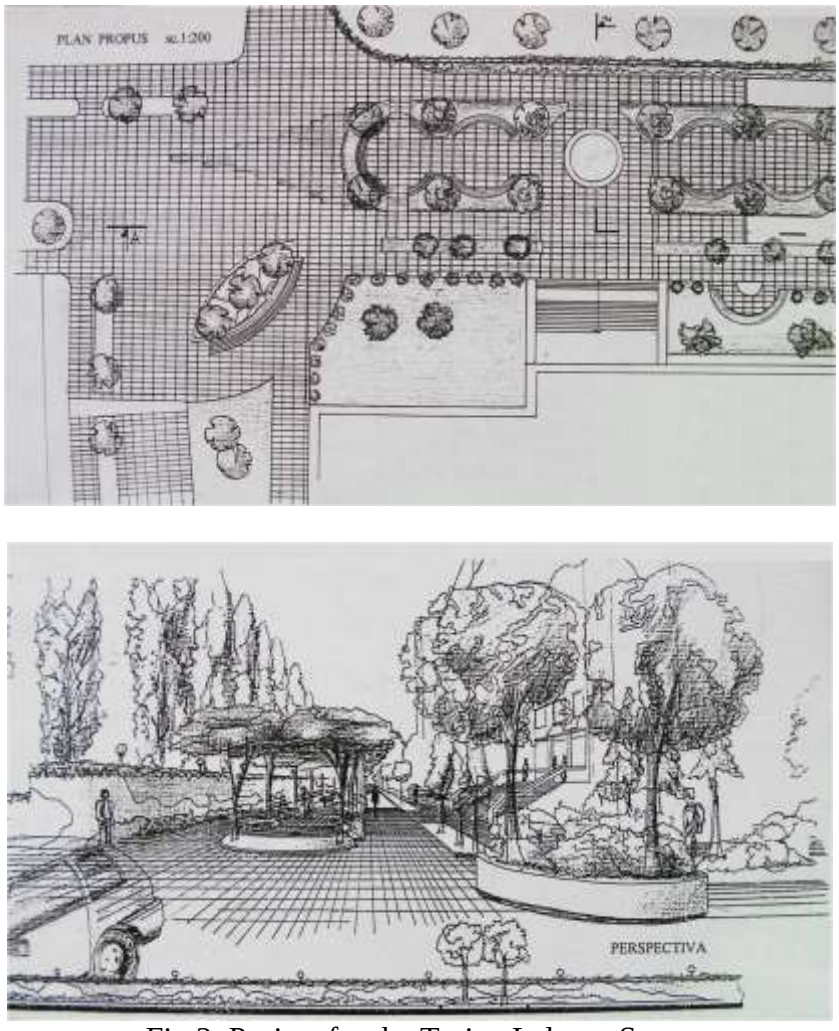

Fig.2: Project for the Traian Lalescu Street

3.3. In historical areas, as stated before, traffic calming tends to appear spontaneously. That

happened on the former Tinereţii Boulevard, today Carol I. This important avenue, designed at the turn of the 20th century in order to link the western commercial district Josefin with the city centre, was part of a system of new boulevards that became, by their layout and by the imposing Jugendstil buildings erected along their fronts, important urban elements of the city. The Tinereţii Boulevard entered a refurbished process in the years 2000, and was proposed as subject for another students' project. Formerly, this street had an important green central space, with tramways and car lanes on both sides and a large walkway passing in front of the aligned shops. The mix of tramway with car lane, the driveway covered with stone pavers, the trees creating a canopy above part of the transversal profile created a typical ambiance for traffic calming appearing spontaneously (Fig.3).
The elaborated projects were designed to create an eventful, friendly layout, inviting passersby to stop, to enjoy the shade of trees and the sight of the urban life. The parking places were placed in the central former green area, shaded and surrounded by greenery, avoiding an ostentatious presence in the general atmosphere of an important historical boulevard (Fig.4).

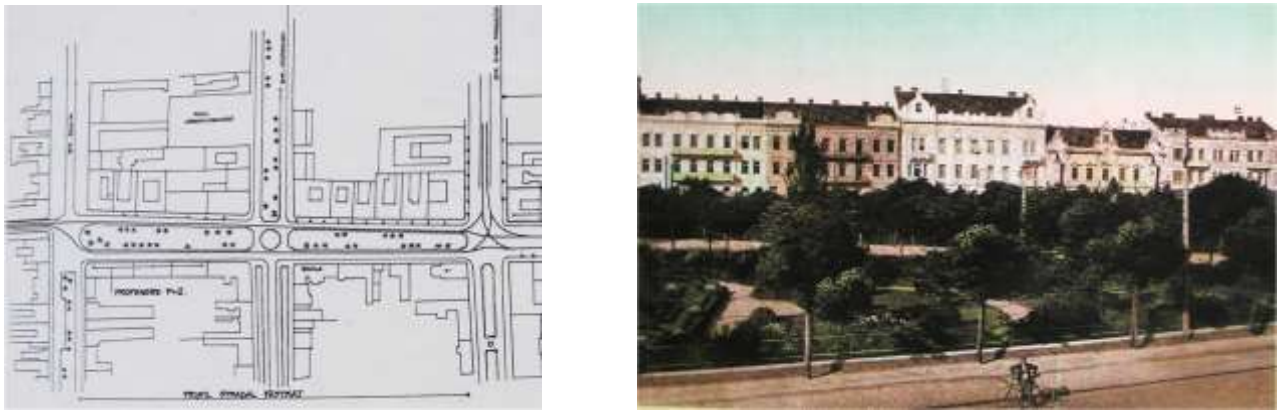

Fig.3: former layout of the Tineretii (Carol I) Boulevard

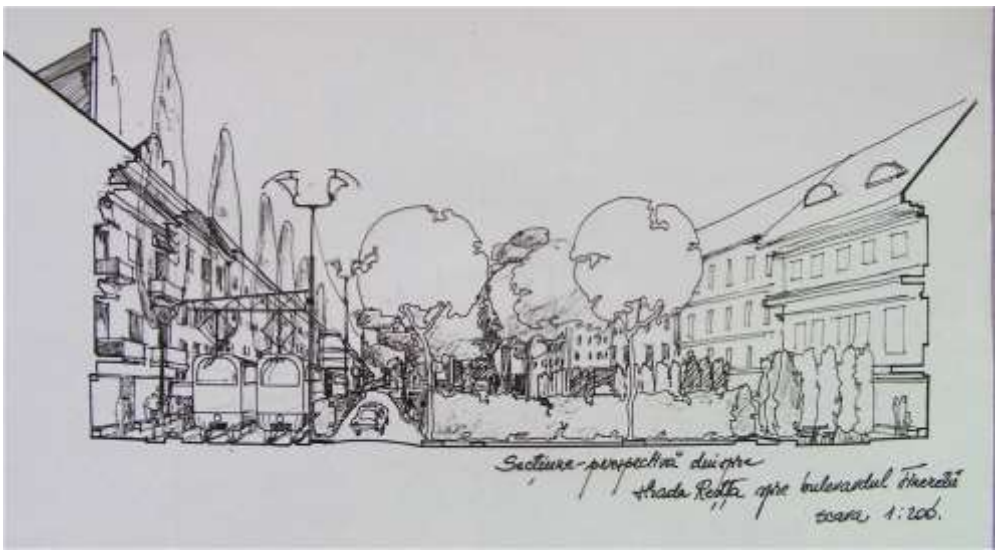

Fig.4: Proposed perspective cross section

But the need for parking places prevailed over other considerations. The new layout transformed an urban boulevard into a parking lot, lacking personality, unattractive and uneventful, not inviting the pedestrians to stop in any part of the walkway. A two track tramway line is completely separated from the rest of the urban space (cars and pedestrian paths), inviting these vehicles to gain high speed (Fig.5).

3.4. The city centre of Timişoara, the Fortress (former fortified district), has an orthogonal grid of streets designed in the 18th century. Their width of 10 to 13 meters accommodated with difficulty

pedestrians, densely parked cars on both sides of the streets and traffic. In the last years the transformation of the city centre in a pedestrian area was undertaken, and a great part of the district is inaccessible to cars. The extensive pedestrian area appearing was not compensated by the appearance of parking possibilities in the vicinity. And, as stated in a former article, some of these pedestrian streets and squares lack urban attractive functions [1].

Fig.5: Tineretii (Carol I) Boulevard today

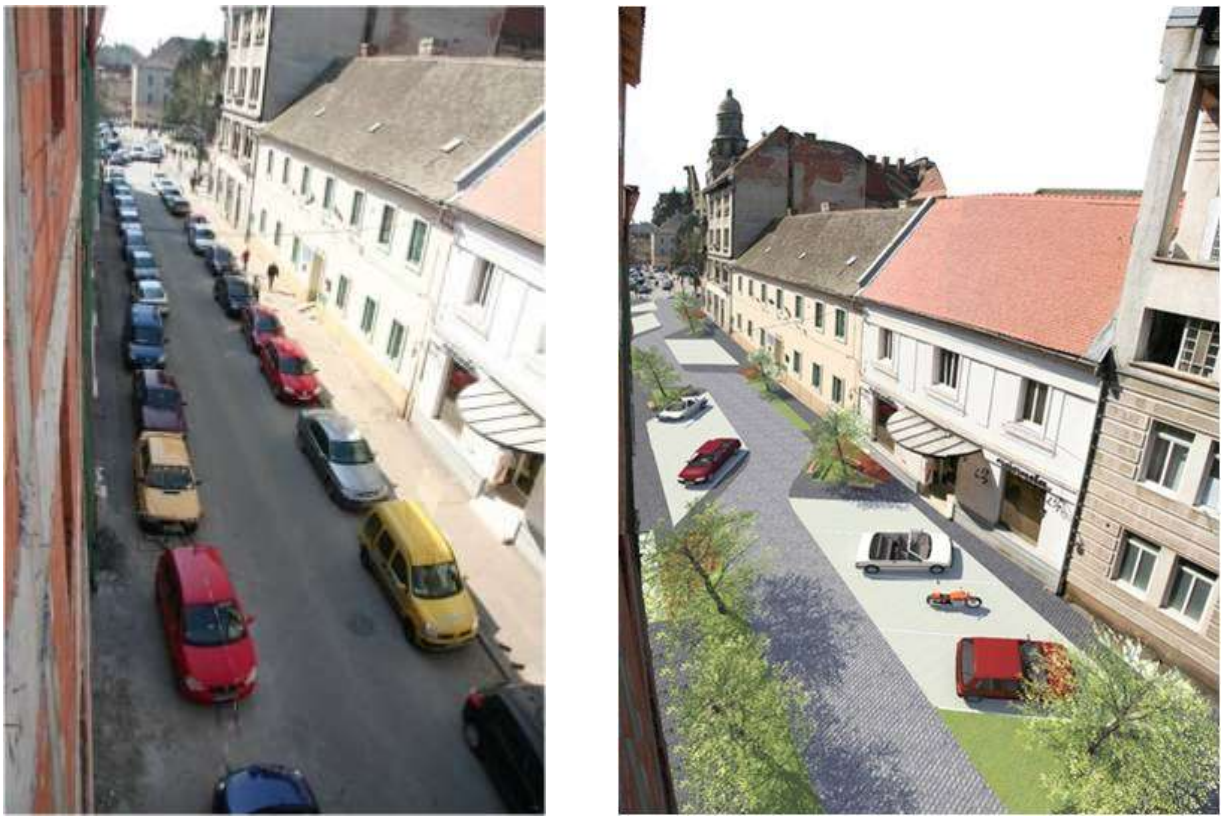

Fig.6: The Emanoil Ungureanu Street now and the proposal for traffic calming

That is the situation of the Emanoil Ungureanu Street, not a pedestrian area and lacking elements of interest on most of its length. For that historical straight street, together with our colleague architect Catalina Bocan, PhD, we proposed a traffic calmed street with alternated parking places, winding road, small green surfaces, bulbouts at the street crossings, varied pavement etc. These elements should be completed by the appearance of urban furniture that were not part of the proposal that remained at the urban level (Fig.6).

4. Conclusions

Along the years we have experimented varied solutions of traffic calming and agreeable environment for very different surroundings:
- Residential zone with family houses
- A local street in the university area
- A historical boulevard in one of the old *extra muros* districts of the city
- A street in the core of the city itself.

Each time varied solutions that were users friendly, accessible as investment, offering a sustainable environment by avoiding excessive pollution and ensuring security and a pleasant surrounding for pedestrians could be found. We met with little or no interest for these proposals. We still hope for a first success that will show the indisputable advantages traffic calming offers to citizens.

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