

# TRAVISIONS

## TRA Visions 2018

**Final Project Template** – This template is to be used for submitting the final version of the project. The final deliverable should be submitted by the 31<sup>st</sup> of October 2017

Idea Number:

PILLAR / TRANSPORT MODE			
ROAD <input type="checkbox"/>	RAIL <input type="checkbox"/>	WATERBORNE <input type="checkbox"/>	CROSS MODAL <input type="checkbox"/>
Project Related to:	<input type="checkbox"/> RA1: Environment and Energy Efficiency <input type="checkbox"/> RA2: Vehicles & Vessels – Design, Development and Production <input type="checkbox"/> RA3: Advanced Propulsion Systems <input type="checkbox"/> RA4: Smart Urban Mobility & Logistics <input type="checkbox"/> RA5: People Mobility – Systems and Services <input type="checkbox"/> RA6: Freight Transport and Logistics <input type="checkbox"/> RA7: Transport Infrastructure <input type="checkbox"/> RA8: Connected and Automated Transport <input type="checkbox"/> RA9: Digital Technologies for Transport <input type="checkbox"/> RA10: Safe, Secure and Resilient Transport Systems <input type="checkbox"/> RA11: Human Dimension in Transport <input type="checkbox"/> RA12: Socio-Economics, Innovation and Policy		

Project Title:

Replanning cities methodology for a safe, sustainable and democratic urban transportation



## **1. Research subject**

Thousands of vulnerable road users (VRUs) are killed or injured every year in city traffic causing countless human suffering and considerable economic consequences in countries. Almost 2/3 of 28 EU member countries population live in urban places (EU Transport in Figures, Statistical Pocketbook 2014, European Commission). According to 2010 data (ERSO Annual Statistical Report 2012) in 22 EU member countries, vulnerable road users (VRUs) victims in road accidents in cities were more than twice as high as VRUs victims in rural areas (4127 pedestrians and 1017 bicyclists in cities/1677 pedestrians and 854 bicyclists in rural areas). The object of this study is the creation of a new methodology for replanning cities in a way that vulnerable road users will be able to move safely.

## **2. Methodology of researching the problem**

Road accidents in cities are the result of the hostility people are facing in everyday transportation. In order to define the research problem it was necessary to find and examine what causes hostility in everyday transportation. Considering the results of this research a proposal is made for the improvement of everyday transportation. The fundamental question in the problem analysis was: "What causes hostility in everyday transportation, public space and road infrastructure or people's behavior?". The answer was found through literature survey and critical review of urban planning history and social rivalries in cities.

## **3. Literature survey conclusions**

Literature survey in the history of public space includes Neolithic period, Greek antiquity, Roman era, Hellenistic years, Middle Ages, Renaissance, Enlightenment period and especially the major urban planning theories of 19<sup>th</sup> and 20<sup>th</sup> century (utopists, garden cities, the industrial city, futurism, Bauhaus, modernism and new towns). The form of public space is unique for every city because of different historical and socioeconomic conditions. The way public space is planned, used and organized may reflect the power level of a certain group and the intensity level of past rivalries. The image of the city captures the domination of different groups through history and their manifestation on the urban scape. The form of public space and the way it is used by various means of transportation tend to make people get used to the fact that the economically and socially powerful people have the privilege to use their power on the weaker ones. Human relation to space cannot be studied without analyzing power relations within society. So, human behaviors were studied according to social sciences theories (positivism, interpretivism, realism, conflict theory) in order to analyze psychological parameters in everyday transportation (anxiety and major stressors like noise, fear and anonymity).

It is found that power relations have influenced the form of public space and the way everyday urban transportation is conducted. Although power relations exist, usually people are not able to notice, as they are used to them. Everyone taking part in urban transportation uses his/her power on weaker road users or tolerates someone stronger. Usually a person changes roles depending on the mean of transportation he chooses to travel with. The consequence of such a situation is that the existing urban transportation is considered as "normal" from the users' majority. Roads are the public space of the city where powerful users have to share the valuable space with the weak ones following laws and unwritten rules. Unfortunately, rules are in favor of the powerful users and the vulnerable are treated in an unfair and hostile way.

## 4. Proposed solution – Methodology

The aim of the proposed solution is to diminish aggressive behaviors threatening VRU's. If urban transportation planning treats every user in a fair way, then fair behaviors will emerge. Major element of such a planning is balancing the power among the road users. When a person moves freely in public space (not being excluded from certain space areas or surfaces) respectfully to the surrounding environment and to the rights of other travellers, then this person travels in a "fair way". When every urban journey in a city is conducted in a "fair way" then this place is a city with "**fair urban mobility**" (**F.UR.MO**). In this study proposal the "fair urban mobility" concept is introduced and the 3 basic principles for replanning a city in a F.UR.MO way are formulated. The 3 basic principles are:

1. The right of moving in public space is the same for everyone and irrespective of the power the traveller has.
2. The fair urban mobility planning aims to balance road users' power by protecting and reinforcing VRUs.
3. Every way of movement and every mean of transportation must respect the surrounding environment. Urban transportation is conducted among buildings and therefore must respect people in public space and inside the buildings as well.

The planning proposal has radical changes in the fields of urban planning where the vulnerable is threatened by the powerful user. The 2 main fields are:

- The public space distribution to various means of transportation
- The public space conditions the user deals with

Urban planning proposals and methods (from the international experience) aiming to achieve better conditions for VRUs are reviewed, categorized and analyzed according to their way and level of intervention in the above fields. Good elements of these proposals and methods are used properly in the formulation of the F.UR.MO proposal.

## 5. Planning proposal philosophy

In order to achieve safe transportation of VRUs in cities, radical changes are needed to be made in daily habits of people living and moving everyday in public space. Public space must be replanned in a way to invite VRUs to walk, stay, sit, socialize, cycle and enjoy it. Reconsideration of planning priorities is needed and safe transportation for everyone must be in higher level than the level of traffic flow. Reclaiming public space for pedestrians might lead to reactions based to the difficulty of visioning a different situation. Nevertheless it is known that the improvement of conditions and facilities for pedestrians leads to a new model of urban space use with economic development and benefits for the cities. In modern cities people move with high speeds but in the same time they cannot move freely in the public space around them. Replanning urban public space proposal develops in 2 levels.

A) The first level in F.UR.MO. planning provides cities' people the ability to live, move freely and enjoy public space in human scale. In this proposal, city is considered as a living organism consisting of structural units performing similar or different functions. The city organism's sustainability depends on the protection of structural units' functions and on the effective communication between units. The elementary structural unit of the city's organic network is a shared space area called "sustainable mobility cell" (SMC). Planning SMCs with F.UR.MO principles takes into consideration the particularities (existence of hospitals, universities, big public buildings, central markets etc.) of each place. SMC's size is no less than 2 building blocks and depends on the level of walkability (altitude, surface and safety issues). Private cars are not allowed to entry in SMCs and the use of sustainable modes of transportation is

attractive. Public Transportation (PT) can move in the perimeter but not enter the SMC area. Environmentally friendly (zero pollution) vehicles are allowed to move in SMCs under special circumstances and for specific reasons (e.g. carrying goods, limited mobility persons)

B) The second level of F.UR.MO planning creates the suitable conditions for safe and effective transportation in every scale. Modern cities have sizes far bigger than the human scale and this proposal takes into consideration the fact that great distances have to be covered quickly in everyday transportation. In the F.UR.MO. city, SMCs are functionally connected through public and individual transportation network. The city's road network is categorized according to the geometrical and specific road features. Vehicle speed is the main determining factor for the road classification and the planning of pedestrians' area and crossings. Roads of the same category surrounding SMCs define larger units of SMCs where specific transportation policies can be implemented (detailed regulations or different pricing).

## 6. F.UR.MO. planning proposal main elements

The F.UR.MO. planning proposal main elements are:

*(Note: the planning details are a work in progress at the time of submitting the final project)*

- Respect of the 3 basic planning principles
- Ensure limited mobility peoples' everyday transportation
- Creation of the SMCs where people can move freely with personalized sustainable and environmentally friendly ways. Public space in SMCs is also planned for socialization, recreation time and not for drive-through traffic.
- Vehicle speed is the main determining factor for the road classification. Public space distribution serves VRUs first and afterwards PT, vehicles carrying goods and cars in such an order.
- Public Transport (PT) has priority in traffic planning. Different kinds of PT are classified depending on the road category they use and the range they cover. In PT exclusive corridors, maximum speed limit is higher than the allowed for other vehicles.
- Abolition of private cars use for urban travel. Private cars are allowed to park in suitable spots and are intended to be used for the personalized travel entering and exiting the city.
- Private motorbikes are allowed for urban travel (inside SMCs only if they are classified as "zero pollution") and park in suitable spots.
- Personalized urban travel can also be made through a network of shared vehicles (cars, motorbikes and bicycles). The network may be operated through Mobility As A Service (MaaS) schemes and supervised from the Municipality.
- The latest achievements in Automated Vehicles (AVs) technology are considered and AVs are mandatory in the majority of road network ensuring the powerful users behavior towards VRUs.

## 7. Democracy in a F.UR.MO. city

Planning with F.UR.MO. principles ensures that aggressive behaviors are diminished and everyone can move in the city in a safe and sustainable way. Protection of human rights, personal freedom and equality before the law are the core elements of modern democracy. The city that behaves fairly to its citizens, respects individual rights of VRUs and protects them from aggressive powerful road users is a city which

reflects the principles of democracy. A city with fair urban mobility may inspire society to emerge behaviors that strengthen democracy.