AN INNOVATIVE APPROACH

This paper deals with a feasibility study concerning a new mobility system designed within a rehabilitation proposal for Pietra Papa District, at Viale Marconi, in Rome. Such proposal, run by a university interdisciplinary working group and supported by Rome Municipality, represented the applicative phase of a long term research called “Urban rehabilitation and pedestrian mobility” run within the COST Program (European Cooperation in the Field of Scientific and Technical Research - EC- DG XII), Action C6 “Town and infrastructure planning for safety and urban quality for pedestrians”, and therefore it took advantage by the exchange of knowledge promoted by this coordination.

The very innovative aspect of this proposal is based on the “integrated design” concept, i.e. the design and the management of the urban phenomena aimed at synergically pursuing the quality of the urban spaces and the control of the mobility, at its different speeds. To achieve such result, it has been important to determine which were, in this specific case, the suitable techniques, technologies and methods to apply, in order to improve life and urban environment quality, to increase pedestrians safety and, in particular, to promote the town re-appropriation by the most vulnerable, and by the outside spaces structure most conditioned, users categories (disabled people, elderly, children, and so on). In this sense, the research intended to verify the feasibility of a city “ground” functional and environmental transformation, focusing on the wide pedestrianization topics, limits and possibilities and checking the chances given by the implementation of rules, and of innovative connected techniques, related to traffic calming and pedestrian zones, in use in different European Countries.

According to this point of view, the differences with others interventions carried out so far by Rome Municipality are easy to be individuated: in the last decade, and especially in the very last years, because of the approaching event of the 2000 Jubilee, many squares and streets of the historical core of the city have been, step by step, turned into pedestrian zones, enhancing in this way their ancient “glamour” that for years cars veiled; since the city is a complex system, it was not possible to create, in such a short period, a real pedestrian network, but dwellers and tourists benefited, anyway, of safer and more comfortable paths. In the same time, some efforts have been made to improve the traffic management, in terms of restrictions for the private vehicles and of upgrading of the public transportation system. Such changes did not affect the semi-central and the suburban areas. Indeed, in these areas only some scattered spots have been improved, thanks to some design contests.
whose main outcomes were the embellishment of some squares with no attention to the mobility aspects.

So it can be said that the interventions in and around the city center have a common feature: a missing holistic point of view in the design directions; spaces’ new uses and people and their requirements for mobility are taken into account only in part and never in the same time: for instance, not a single square has been designed thinking that pedestrians are not a homogeneous category (so, with different exigencies that calls for various specific performances) and that it could act as, or be linked to, an intermodal exchange point.

In this sense the proposal for Pietra Papa seems to be innovative: indeed, the study is characterized by the attention given, side by side, to the implementation of a new mobility system and to the urban quality upgrading of the external spaces for pedestrians, in particular for the elderly and for the impaired people, in relation to their needs and to the location of different activities.

In this design proposal, reorganisation possibilities and achievable qualitative levels prefiguration have been defined using a methodology which allows, by analysis and selection consecutive steps, to compare dwellers requirements to places performances, and so to individuate the needed adjustments in relation to the spaces new use.

**FOCUS ON THE RESEARCH CHOICES**

But why did the research focus on elderly people in a semi-central area of the city?

The answer to the first part of the question is simple: Italy is getting older.

In Italy, aging of population is a phenomenon of vast proportions: in 1996, people aged over 60 were 12.5 million and will be 19.5 million in 2041. Those older than 60 will pass from 14.7 million (as counted in 1996) to 28 million, overpassing the percentage of people under 15 (see Golini, A., *Progetto “Invecchiamento”*, CNR, Rome 1996). In the north west areas of the country, in many cases, people aged over 60 are already in percentage more than people aged 15.

Also in some roman districts the trend is the same: the percentage of inhabitants who are over 60 years old is higher than the one of those who are younger than 19 years. Roughly, it can be said that Rome is a city inhabited by elderly people, singles, and small families; the new family model consists of single elderly women, usually widows. In 1991, people aged over 60 were 401.000 (about 14,5% of the inhabitants) and those aged over 75 were 163.739 (about 5,9% of the inhabitants).

The aging process affects also other important social aspects, as for example, the house ownership: 79% of elderly families (60 and over the head of the family) has the ownership of the house (source: ISTAT data, 1993); or the lifestyle: only 14% of the elderly live on their own and most of all women (22% vs 5%); all the others live with a partner or with their relatives. Moreover, the role of grandparents is becoming very relevant: Grandparents in Italy are an essential help for their children in the growing up of their nephews. Their number is bigger than that of their nephews with whom they have non continuous but very strong relations. Some facts and figures can frame this phenomenon: grandparents are 38,4% of the population above the age of 40. Only 10% of them live in the same house with their nephews, 44 % live within a kilometer. most of them are grandmothers; 77,8% of grandparents see their nephews, especially the younger ones, more than once a week; about 84 % of grandparents take care of their nephews with a certain continuity; about 1/3 of them cover the role of baby sitter; 29,8% takes care of the children while their parents
are at work. These figures are taken from a 1998 research by ISTAT, considering grandparents with nephews under the age of 14.

So dealing with aged people is a relevant research topic, since it becomes more and more important that municipalities ensure the ability of the elderly pedestrian to carry out his normal life, in particular on foot.

For what concerns the other part of the question, the area of Pietra Papa, has been chosen for this pilot project because its negative features are common to many roman residential districts, located in semi-central or suburban zones and recently developed: social services and gathering points lack, valuable environmental and architectural features absence and car massive use, with traffic and parking, air and noise pollution related problems.

The low level of life quality, that characterizes these areas, stems from the fact that here urban spaces have been designed mainly to meet car mobility requirements; so pedestrians mobility has been compelled to use the “left-over” spaces, unsuitable for the required performances, and above all, for fostering social relationships. Such car culture is so deeply rooted that also when pedestrian urban spaces are planned anew, they are designed in a way that doesn't succeed in inducing users to start an identification process. Being not thought from the pedestrians point of view, they often are not popular, then misused and finally assume such a state of neglect that they reach exactly the opposite goal which they have been created for.

THE METHODOLOGY

According to the research design methodology, targeted to compare people requirements to the places performances to delineate the possible uses of the spaces at disposal and what is necessary to make them fit, and thence, once the intervention corresponding alternative solutions have been sought after, to sift them in order to define their compatibility level and to estimate, so to guarantee, their suitability, having in mind the environmental quality control on its whole, the analyses tasks begun.

First it has been run the receptivity analysis, a kind of description of the physical status quo of the area, especially concerning its features about mobility, services and environmental situation, and to enlighten existing potentialities and lacks. Then some hypotheses about pedestrian and vehicular mobility and “parking” reorganization, about city “ground” and buildings “dados” transformation measures, about new possible wanting services locations have been expressed. The development and the further deep investigation of these hypotheses have been articulated by two different analysis moments: the desirability one, run for a suitable definition of users and requirements, as imposed by new uses, and the opportunity one, i.e. the limits and the possibilities set by current, cultural and architectural, rules and valuations.

For what concerns the desirability analysis, this was considered one of the research main elements: first, the big users classes have been individualized, so as they are defined by the road rules, and, focusing on the pedestrians and no more on the vehicles, relations and interferences have been set out, checking again priorities, conditionings and compatibilities.

As some requirements by some kinds of users could come into conflict with those by other ones, once the different users categories have been defined, it has been decided, that they would have been taken into consideration one by one; this allows to compare them in order to define the compatibility or the incompatibility among their different requirements, and
then among the different measures needed to satisfy them, and finally to determinate the achievable satisfaction global level. That being stated, it is evident the importance of clearing up the reasonably reachable goal, for which two possibilities can be set: to obtain a kind of relative “optimum” for all the users, being quite impossible to satisfy at the same time and completely every requirement; to structure urban spaces to make them usable and enjoyable by different users, but without considering, in any sense, the “borderline” ones, for not creating ghettoizing and no integrating solutions.

Even if, for the sake of brevity, it is here not possible to deepen about these requirements (on this purpose, see Martincigh, L., Corazza, M.V., “Safety and quality in urban areas: strategies, tools and techniques to promote pedestrian mobility”, as already presented in this conference) it is worth to underline that results of the above mentioned analysis has shown that the most shared demands are accessibility, safety, in all its facets, comfort and appeal, both to be considered under the physical and psychological aspect.

THE AREA ELDERLY

For what concerns the pedestrian categories individuation in Pietra Papa, even if it was difficult to calculate the right percentage of aged people living in the are, since there were no available local census on the population, at first sight the presence of the elderly seemed to be good, as the location of two dedicated centers in the area demonstrated (On the same time it was also decided to investigate another users category: the children).

Several way of investigating aged people behaviours have been run: direct interviews, questionnaires, direct observations on the spots.

The psychologist contribution has been yielded during the research first phase and has given some indicative parameters by which to affect life quality level and, more specifically, the considered “territory” (by direct observation, interviews, questionnaires and with reference to scientific literature, to the numerous well-acknowledged theories in the specific field and to the most recent topical researches constituting basic reading keys to know and to define this phenomenon).

From the run investigations, mainly by direct interviews, it comes out that among the elders, the most realistic ones, even if bearing out, in other parts of the interview, the district thousands faults (ugly, chaotic, decayed, jammed, greenless), state that they like it the way it is, because they were borne there, because, notwithstanding this, they love it, because there they have their friends and interests; they resign themselves to the “disease” conditions because the district, for most of them, features the place of their youth, where they came to live when “just married”, where their children grew up. The “familiarity” and the “nostalgia” feeling play a deciding role for both categories. The negative points and the lacks are many, but to move out, to “unroot”, would be heavy as well; elderly, in fact, confronted with changes, don’t fit easily and find difficult to get benefit from new conditions; they prefer a situation that guarantees them condition and values stability, behaviors repetition. Considering, indeed, the opinion and the requirements of these two kind of users, some wants, that make the district no more responding to their need, have been outlined, and some potentialities, that are worth to be considered and enhanced to satisfy them, have been brought to light.

PEOPLE PARTICIPATION

Other interesting results arose from the questionnaires concerning mainly people walking habits and car traffic amount during a working day as usual, within the studied area.
The first deepening about people walking habits was studied and run by some members of the working group. The group decided that the way how dwellers walked and moved could be inquired basically by a written questionnaire, supported also by some face to face interviews.

The first problem was how to prepare the questionnaire: easy to understand and to fill in; so it was articulated in few, simple questions to answer just crossing yes or not. The questions concerned the interviewed people “yesterday - activities”, especially about their shifts out of or within the neighbourhood, or within Pietra Papa area (this last question was related to the matter that Pietra Papa is part of a bigger neighbourhood, called “Quartiere Marconi”)

Each one of the above mentioned question was to complete with more information about reasons, destinations, modes, travel times of the shifts.

If the related crossed answers were about cars, it was also asked “how many km did you drive along?”. Last questions were: “Did you have something to remark about your movement possibilities?” and “Did you have something to remark about your city movement possibilities?”

This questionnaire, about 600 form copies, has been distributed among the districts dwellers, especially at schools (in order to make schoolchildren parents and grandparents fill it) and at the church elderly centre. Besides that, as previously said, some streets interviews have been run, during a working day, from 9h30 to 12h30. Most of interviewed people were aged ones, and after answering all the asked questions, they still stopped and start complaining their personal problems and difficulties, mainly concerning movements within the area, but also their rage for being left apart by the “society”, as a useless part of it. One of the most important aspect emerged from the direct interviews is that old people remain the main pedestrian users, in respect, for instance to children who often go with their parents by car; but notwithstanding this, there is no care in equipping urban spaces with the most simple elements such as benches, for example, useful for them.

This forced the working group to think the pedestrians entirely or partially dedicated spaces to be articulated into resting or walking areas, where different uses modalities and suitable environmental settings are allowed, just to pass over the impasse of only finding space for pedestrian use in the modern urban residential areas, as at the beginning mentioned.

To denote such urban spaces, indeed some traffic control or exclusion devices, and few street furniture elements are not enough. It is necessary to look for a sequence of events, typical of historical towns, characterized by landmarks and all those features that constitute the “places”, according to Norberg Schulz (i.e. place as a significative space) and that polarize social life.

**THE DESIGN PROPOSAL FOR INCREASE WALKING**

Once achieved every kind of useful information, the design proposal has begun: from the comparison between the requirements and the existing situation, has flowed the transformation actions list to be carried out; the matrix shows both the in common exigences and the congruous measures; from this come the spatial and functional units list; then, from this categorisation the group has given some suggestions and planning directions about the general layout, then the urban space, in a peculiar part of the area, has been re-shaped so to be also at “children and elderly size” too; this has been done considering the fact to limit the interventions to what could be made, involving only those public spaces that could be made use of, under the point of view of the operation real feasibility.
It has been proposed a pedestrian mobility system that plays the role of a connective tissue supporting some urban functions; it alternates spaces in which are present, at different levels, both vehicular and pedestrian mobility, to spaces exclusively devoted to pedestrians, that have been articulated in several categories and where are housed routes and resting area; they can be used in different ways depending on their dimension, shape, location and structure. Once that, by the ergonomic configuration, have been defined the activities housed in each “unit” and the performances to offer, it is possible to allocate the “units” in the most suited space at disposal in the area; moreover the equipments that characterize these activities have been defined; both the spaces and the equipments have been dimensioned on the behaviours and on the activities that they have to house, according to the specific anthropometrical data and ergonomic capabilities, so that all the users can feel them as their own, but checking as usual the compatibility among the performances given as answers to the different requirements. The specifications of the fit interventions, to make in order to satisfy the requirements, has been studied taking into consideration different alternative suitable technical solutions; from the quality indicators come the parameters to use in order to evaluate them and to operate the most proper choices, according both to the prefixed goals conformity and to the reciprocal congruence.

THE STRUCTURE OF THE SPACES

After these theoretical directions the design proposal went in details, on two different, but strictly interrelated layers: the mobility management and the space structuring and shaping. For what concerns the first task, starting point were the rules in force in Italy that allow to set and to define “environmental islands” in urban areas, and to enhance the “pedestrian network continuity” concept.
According to this premises, the mobility switches the role of main actor from the car to the pedestrian, but not only, it also reduces extremely (at least for the Italian standards and habits) the speed limits and controls the circulation. In this way, pedestrians take advantage of this walking area “regain”, and finally get a suitable space. In the environmental island, with the imposed speed limit at 30 km/h, the mobility scheme to adopt, based on a “rooms and corridors” one way pattern plus a U shaped two way distribution ring, and the urban rubbish collection path too, have been checked by the opportunity analysis, verifying the rules conformity and facing out all the possible conditionings coming from prescriptions and proposals of the others public services operators (XV District traffic police, AMA technics and so on). The rescue teams vehicles accessibility has been also carefully studied and organized, in order to meet, since the starting phase, all the related duties. The statements meeting between these operators and the multidisciplinary working group ones has imposed some changes. These modifications, also if less observant of the initial theoretical directions, reflect the complexity of all the variables come into play; some solutions have been turned into some mediations, in respect to the former positions, even without invalidating the results or compromising the prefixed goals, but reaching, instead, the relative optimum, previously mentioned. This adopted scheme has also a smoothing effect on the vehicle circulation and discourages the through traffic, which is very dangerous.

In relation to the road infrastructures design, the Italian rules and prescriptions store, but above all the foreign technical solutions (in Italy very innovative) concerning traffic calming and speed control, have been used: vehicle entrance “gates” to the environmental area (in order to indicate a slower speed area entrance), raised pedestrian crosswalks (in order to guarantee pedestrian paths continuity and safe use) and chockered ones (designed by narrowing the roadway width, in order to reduce the distance to cross), cul de sacs, roundabouts, chicanes and carriageway reductions until the minimum size by law. All these devices are aimed at speed decreasing, at its low running keeping, in order to throw down pollution, noise levels and vibrations, originated from the continuous gear shifts, accelerations, brakings of the high speed driving. In this case the approach was multidisciplinary too, and all the aspects about traffic calming devices basic features, such as materials and building techniques have been carefully studied.

In this case study experimental application, all the traffic calming devices and directions have been implemented according to the Italian road rules, but looking at them with an European point of view, especially about some elements such as vehicle “gates” and raised crosswalks. This comparison between the European practice and the Italian one takes into account the opportunity to plan some changes, in order to update Italian laws in this field.
Public lighting (an important element along all pedestrian paths and at every crossing point) has been studied according the pedestrian point of view, setting as priorities the car incidents prevention and the mugging safeguard, and aiming at endowing the users a stronger safety feeling about urban spaces. This has been originated from the statement that, at present day, road lightings are usually designed not according to pedestrians, but according to drivers. The lightings plan has been also designed, playing on lights and shadows effects, to enhance positive elements and to leave in the dark environmental faults, so to better urban quality for what concerns its aesthetic agreeableness.

Regarding pedestrian mobility, it can be said that a main axis has been created, an area central street that plays the role of a “piazza”, meant for filling up a centrality lack and for meeting the requirement for a special place where to gather all together and where to have good time; this space has been though as a spanish “rambla” and it has been structured in order to allow walking, resting and meeting. Along this main axis there is a minor cross system, a place for new centralities, which has been created to meet elderly and youngsters requirements, where can take place some leisure activities to favour the intergenerational relationships.