



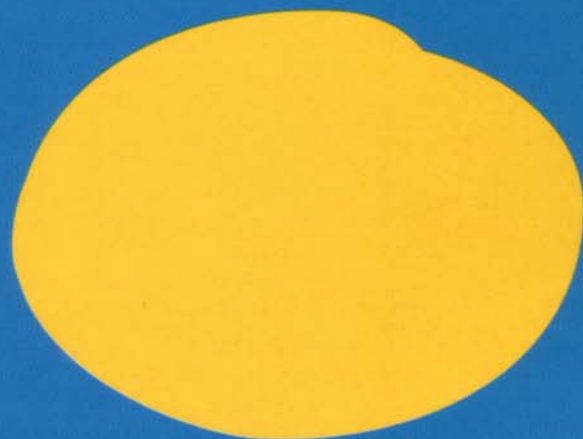
REBUILD

THE EUROPEAN CITIES OF TOMORROW

Shaping our
European
Cities for the
21st Century

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A NEW SUSTAINABLE MOBILITY MODEL FOR URBAN REHABILITATION A CASE STUDY: PIETRA PAPA IN ROME

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ABSTRACT: The rehabilitation proposal for Pietra Papa District, at Viale Marconi, in Rome, which has been run by an university interdisciplinary working group and which is going to be executed by Rome Town Municipality, is characterised by a new sustainable mobility system. Such proposal is the applicative phase of a research called "Urban rehabilitation and pedestrian mobility"¹, which is aimed at determining technologies and intervention methods, suitable for planning a better life and urban environment quality, and for increasing pedestrians safety, in order to enhance pedestrian mobility and public transportation use. According to this, the research intends to verify the feasibility of a city "ground" functional and environmental transformation, in order to individualise which are the topics, the limits and the potentialities of a wide spread pedestrian space and, in so doing, to check the possibilities presented by the application of existing rules and related innovative techniques, from different European Countries, about traffic calming and pedestrian areas, and their impact on the reduction of air and noise pollution.

The choice modalities about the intervention programme and the study complex structure need some explanations about the crucial points that constitute the work innovative and distinctive aspects.

1. THE INTERVENTION LOCATION

The intervention location in a roman semi-suburban residential area, representative of the Roman situation. The choice is due to the remark that, in great urban Italian areas, the life quality level is low, just in present day residential zones, located in semi - central or, even more, in suburban areas; this phenomenon is normally due to several factors: functional and physical decay, social services and gathering points lack, valuable environmental and architectural features absence, massive car use causing heavy traffic and parking problems, and consequently high levels of air and noise pollution.

These "missing" public spaces significance, leads to consider how they have been shaped and how their use modality has been changed. Walking is an integral part of the European cultural tradition: indeed, in past time, city spaces were shaped according to this aim, promoting in this way social relationships. In modern cities, spaces have been mainly designed, on the contrary, in order to meet car mobility requirements, so pedestrian mobility has been pushed to remainder spaces, unsuitable for the required performances, and consequently social relationships have diminished.

This statement can be proved by observing that the instrument of "pedestrianisation", even if obtained by minimal measures, is generally successful in historical

centres, because there it acts in spaces which had been shaped according to pedestrians point of view. Unfortunately, it isn't so in newly created zones, where pedestrians dedicated public spaces (but not pedestrians conceived ones) are not able to induce users to start an identification process: in this way they are neglected, misused or even used for socially banished activities, reaching the opposite aim which they have been created for.

2. THE WALKING PROMOTION

The promotion of walking for short distances, and of public transportation use for the longest ones, as urban upgrading device, by the improvement of pedestrians physical and psychological safety and comfort.

To make cities friends of pedestrians, is one of the sustainable urban development goals; to this aim, it is necessary to re-consider the pedestrian as the main actor of the urban scene and to get back thinking cities for him. Since 1988, the "Pedestrians Rights Chart", promoted by the European Parliament, suggested to re-create urban centres at pedestrians size, not at car size; in the following years, in Italian cities, especially in their most ancient and prestigious cores, many interventions have been run in order to rule out car traffic and to create "pedestrian islands"; from this experience has become clear that this device must be used wisely, avoiding to create pedestrians exclusive areas, too big in size and unbound to the cities complex systems, without any service infrastructures supports. In such cases, by reproposing a "zoning" and by breaking the city continuity, not only the required goals

¹ The long term research: "Urban rehabilitation and pedestrian mobility", run within the COST Program (European Cooperation in the Field of Scientific and Technical Research - EC - DGXII) Action C6: "Town and infrastructure planning for safety and urban quality for pedestrians", has been articulated in several phases and has been carried out in DiPSA - UNIROMATRE by an interdisciplinary working group, coordinated by Prof. Lucia Martincigh.

are not reached, but sometimes negative processes are primed: traffic jam increase around these areas, mopeds massive and often unruled use that both contribute to keep high air pollution and noise annoyance levels. This is not the unique solution; cities can be organised in sectors which are ruled and structured in order to allow the coexistence among several kinds of mobility, with different nuances mixture between pedestrian and car traffic, and which prefigure smaller pedestrian areas sequence, mixed to and supported by a ruled, calm road system.

Therefore the study focused, at the same time, both on private vehicles traffic control interventions and pedestrians safety, and on the interventions aimed at making pedestrian spaces not only usable, but also desirable by different pedestrians categories; the intervention proposal uses the existing urban "voids", in order to re-balance vehicular mobility and to create a pedestrian mobility system which, alternating rest areas to movement ones, plays the role of "connective tissue" supporting some urban functions. Re-creating a pedestrians size city means to promote social and cultural relationships anew, and to offer affordable use conditions to the most vulnerable users categories too; promoting walking in synergy with traffic calming, looks like the safest way in order to reach main objectives such as air and noise pollution decrease (by creating environmental islands with controlled speed levels, so to slow down the traffic and to avoid car accelerations, queues and breakings that are very dangerous because of their exhaust emissions and noises) and energy saving increase (by promoting a good public transportation system and a hierarchical road network).

3. THE METHODOLOGY

Reorganisation possibilities and achievable qualitative levels prefigurations have been defined using a design methodology, which allows, by analysis and selection consecutive steps, to compare dwellers requirements to places performances, to individuate the possible uses of the spaces at disposal and the needed adjustments; then, once the intervention corresponding alternative solutions have been looked for, to sift them in order to define their compatibility level and to evaluate, and thence to guarantee their suitability, having in mind the environmental quality control on its whole.

The run methodological procedure has been structured according to the following steps: once defined the "intervention programme", the "receptivity analysis" has been run; by this analysis, the conformation and the development of the considered urban spaces have been examined, the related mobility, services and environmental structure have been studied and the present potentialities and lacks have been put into light. Then the "desirability analysis" has been run: this analysis is related to the users definition and to their requirements, related to the hypothesized new uses for the area different parts. Last comes the "opportunity analysis", i.e. about the limits and the possibilities set by current, cultural and architectural, rules and valuations.

The intervention feasibility and suitability check makes it possible for researchers-designers, local political authorities, technical operators and social actors to act together.

4. THE URBAN QUALITY INDICATORS

The individuation of urban quality indicators for pedestrians cannot set aside the meaning given to "urban quality"; in this work urban quality is meant as the environment configuration capability, both in qualitative and quantitative terms, of satisfying all the users material and immaterial requirements, by offering the required performances.

As just said, therefore, the operative methodology focuses the design process on the users requirements field definition and, taking again into consideration pedestrians and no more vehicles as main users, it assumes an anthropocentric aspect.

First, the big road users classes have been analysed, and then the study has focused on pedestrians, without leaving apart relations and interferences due to car users coexistence; the different pedestrians - users categories, their several activities in the mobility field, and their respective, different, related requirements, have been defined so to put them into a ranking list, according to their importance.

Some requirements by some kinds of users could come into conflict with those by other ones, so, 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 check again priorities, conditionings, compatibilities, and incompatibilities, among their different requirements, then among the different measures needed to satisfy them, and finally to determinate the achievable satisfaction global level. That being stated, being quite impossible to satisfy at the same time and completely every requirement, 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; to structure urban spaces to make them usable and enjoyable by different users.

Even if, for the sake of brevity, it is here not possible to deepen about these requirements, it is necessary to spend few words about them. Walking promotion, as an alternative transportation mode, considers, taking also account of the D.P.R.503/96 many innovative aspects, accessibility as an urban public open spaces basic element. According to the research point of view, accessibility has been considered innate in the definition of urban space itself and therefore not to be set aside the design culture: which makes that the adjustment interventions aimed at satisfying the requirements are automatically defined also at making space accessible. Among the several requirements, originated from analyses and investigations, two look like fundamental and widely shared: the physical and psychological aspects to the user safeguard, i.e. safety, meant as safety of use and thence not only as safeguard from dangers related to traffic, but also from those inherent the use of the pedestrian space itself related,

and as security. The second one is comfort, meant, it too, as physical and psychological wellbeing. For an urban space not only usable, but also desirable, it seems worth to consider also some other exigences, which can be hard to define and mostly difficult to quantify, such as for instance the ones related to the surroundings lookout and the relation with it, with the various cultural, social, psychological, behaviour, language exigences.

5. THE ENVIRONMENTAL ISLAND

Rules in force in Italy allow to set and to define "environmental islands" in urban areas; this prescriptive instrument, mentioning "pedestrian network continuity" allows to set pedestrians as the centre of the mobility plan, and thence to reduce extremely (at least for the Italian standards and habits), by different devices, cars speed limits, to cut private vehicles circulation, and to give to pedestrians a bigger part of the walking areas, dimensioned and equipped in a suitable way, making the pedestrian spaces safe and bettering their environmental quality.

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, the urban rubbish collection path and the rescue teams vehicles accessibility, have been checked by the opportunity analysis, verifying the rules conformity and facing out all possible conditionings coming from prescriptions and proposals of the other public services operators. The statements meeting has imposed some modifications that reflect the complexity due to all the variables involved; some adopted solutions have turned out to be mediations in respect to the former more theoretic positions, even without invalidating the results or compromising the prefixed goals, but reaching, instead, the relative optimum, previously mentioned. The adopted scheme has a smoothing effect on the vehicle circulation and discourages the through traffic which, besides being very dangerous, is also polluting.

6. THE TRAFFIC CALMING DEVICES

The road infrastructure has been designed using also some prescriptions and the technical solutions store, in use in others European Countries, in Italy very innovative, concerning traffic calming and speed control: 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 chocked ones (designed by narrowing the roadway width, in order to reduce the distance to cross), cul de sacs, roundabouts, chicanes and carriageway reductions up to the minimum size by law. All these devices are aimed at speed decreasing, and at keeping it low and steady, in order to throw down pollution, noise levels and vibrations, originated from the continuous gear shifts, accelerations, breakings of the high speed driving. In this case the approach has been

multidisciplinary too, and all the aspects about traffic calming devices basic features, such as materials, building techniques, colours, lighting, environmental layouts and sign system have been taken into account and carefully studied, so to decrease drivers speed and, at the same time, increase their attention, thanks to urban "signs" that create stimulating visual images. (Fig.1)

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 eye, 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 updating of Italian laws in this field.

Public lighting (an important element along all pedestrian paths and at every crossing point) has been studied according to the pedestrian point of view, setting as priorities car incidents prevention and 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 lighting are usually designed not according to pedestrians, but according to drivers. The lighting 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.

7. THE INTERMEDIATE SPACE

By the comparison between the requirements and the status quo, has flowed the transformation actions list to make; the proposal sets an alternation of zones exclusively devoted to pedestrians and zones where vehicular and pedestrian mobility are present at the same time. This "intermediate space" is a step ahead of the "pedestrian island" concept, conceived in order to favour cars and pedestrians coexistence; in the study in fact, have been developed some Swedish researches rooting by Gunnarson, trying to systematize the relation between pedestrian and vehicle spaces. The spaces use modality by different users categories can be described by two complementary functions which, fractionated in five intervals, represent the prevalence variation of both the considered factors; such spaces have been defined and classified according to these five intervals; having different nuances and characteristics, they guest different uses according to their size, shape, location, structure and environmental performances.

8. CONCLUSIONS

It is worth to underline that the attention given to the urban quality of the external spaces for pedestrians, in relation to their needs and to the placement of different activities, side by side to the attention given to the mobility rebalance, seems to be in some way an innovative approach compared to the one usually used for engineering traffic plans. Moreover, the synergy

between Roma Tre University and Rome Town Municipality makes possible the realisation of this pilot project and the following designed solutions monitoring, in order to evaluate consequences on the

urban and social quality, to control the environmental quality improvement through the air and noise pollution reduction, and to obtain an energy saving.

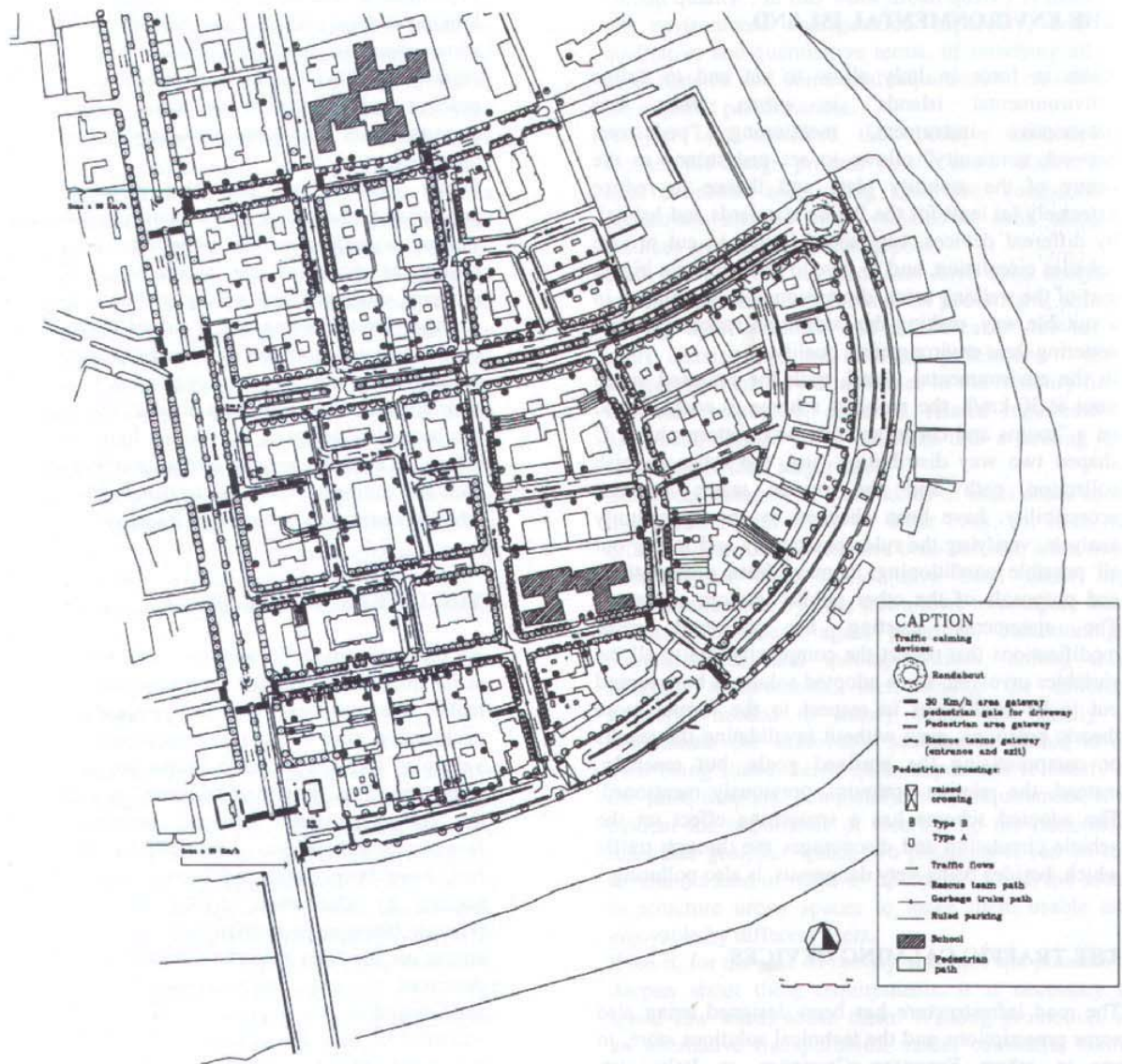


Figure 1: A sustainable mobility system