

Brera - Garibaldi Environmental Island in Milan

Cassani Federico
Fabio Casiroli
(Systematica s.r.l.)

Introduction

This project, carried out during the year 2001 and at the moment on the way of implementation, represents one of the first Environmental Island projects and the biggest traffic calming scheme implemented in Italy today.

The main objective of this paper is to demonstrate how, through an in depth analysis of the existing conditions, a detailed transport modelling phase (both on the “macro” and the “micro” levels) and traffic management and planning procedures, it is possible to develop a successful and environmental friendly urban design project.

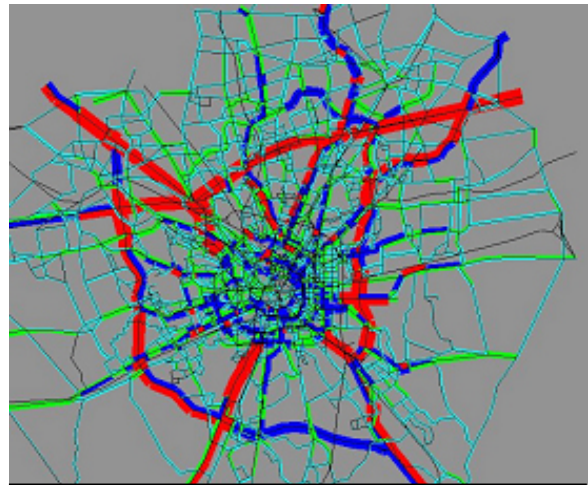
The methodology of the study consists in the following steps:

- In depth survey campaign of all the components of mobility and of the built environment.
- General traffic model of the study and surrounding areas
- Micro simulation model of the study area
- Draft proposal of new traffic management, parking management and pedestrian areas
- Assessment through the simulation models of the impact and effects of the proposals
- Final proposals and urban design projects
- Monitoring of the effects of parking and traffic management schemes

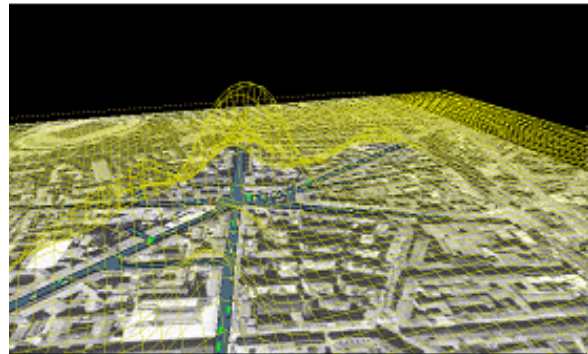
The study area

The study area, as shown in the picture aside, is located in the heart of Milan, in the northern part of the centre close by the inner ring road (“cerchia dei Bastioni”).

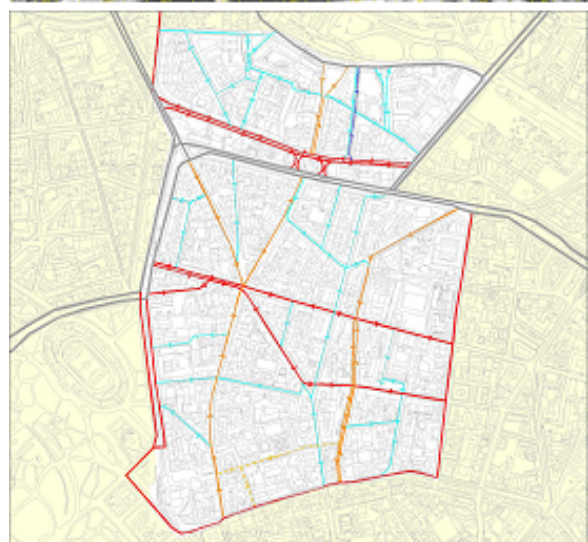
The area is characterised by a high accessibility with public transport – with three underground



Milan traffic model



Micro simulation model of the study area



Proposed road hierarchy

stations and several bus and tram lines - and a very complex mix of function (offices, shopping areas, nightlife activities - such as bar, restaurants, theatres, discos, cinemas,- and residential buildings). The most important figures are:

- 5.948 households;
- 620 shops;
- 851 offices;
- 6.438 on street parking spaces;
- 6.000 ca. Cars owned by residents;
- very important buildings and functions (Fatebenefratelli hospital, two theaters, Corriere della Sera newspaper headquarters, German Consulate, several bank headquarters, three cinemas, three schools, etc.);
- very popular and fashionable recreational facilities (restaurants, discotheques, pubs and bars, fitness centres).

Survey analysis

During the first steps of the project an in depth survey analysis has been carried out with the aim to understand and to develop an extensive knowledge of the area.

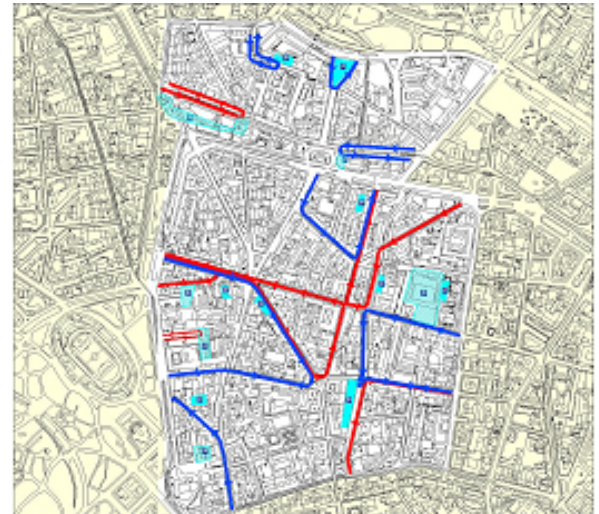
The main surveys carried out are:

- Survey of all the geometrical characteristics of the streets in the study area
- Survey of the on street parking (supply, day and night demand and turnover)
- Survey of traffic turn flows during Am and Pm peak hour in the most important junctions in the survey area
- Pedestrian traffic count in the main square and exits of the underground stations.
- Mobility questionnaire in the main traffic generators of the area (Corriere della Sera newspaper Headquarter and Hospital)

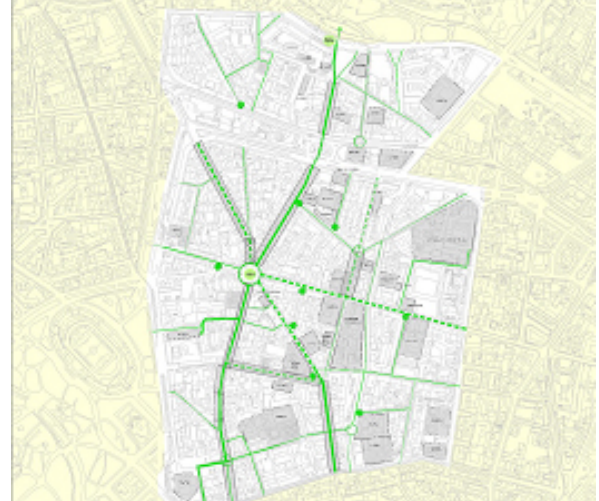
Micro and macro simulation models implemented

To assess the actual traffic situation of the area and to verify the quality of the proposed traffic measures several traffic models have been implemented.

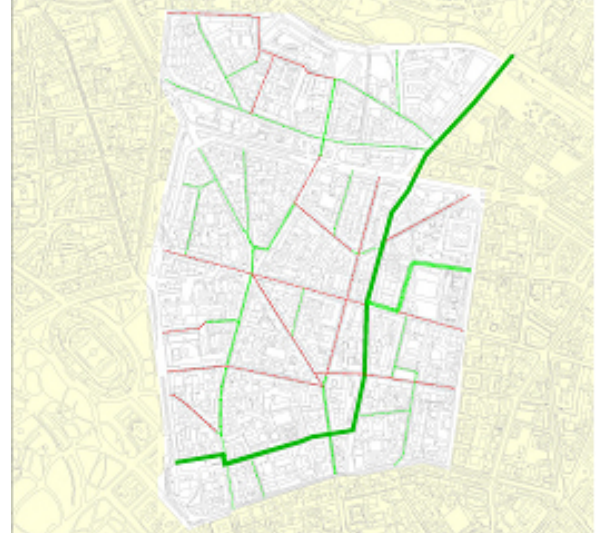
In detail were used:



Loops connecting the area car parks



Pedestrian priority network



Cycling priority network

- Citylabs Trips/Cube model for city scale traffic assignment (Picture beside)
- Sias Paramics for micro simulation of the major intersection of the area
- Savoy Autotrack, for the correct design of the new roads layout.

Major project objectives

The aim of the project was based on the following tasks:

- To eliminate through traffic
- To create a new road hierarchy
- To explore innovative traffic calming solutions and enhance street safety for all users
- To create non through traffic itineraries connecting parking facilities
- To protect and enhance public transport routes
- To create an extensive pedestrian network
- To develop the existing cycle routes
- To reorganise on street parking
- To create an extensive program of traffic calming measures
- Enhance urban quality and urban design of the area.

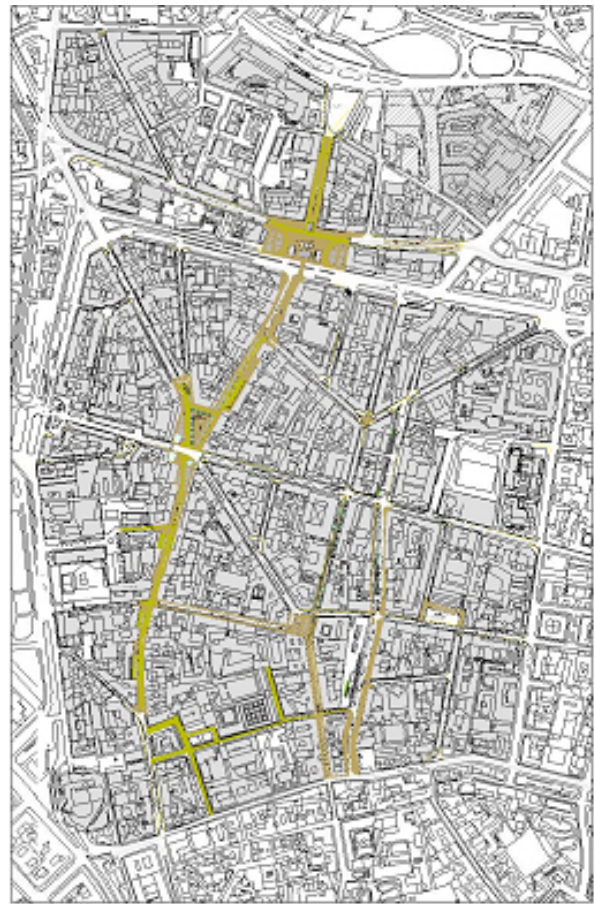
New Road Hierarchy

The new road hierarchy was developed with the aim of eliminate through traffic. The main roads are left on the perimeter of the area except the east – west itinerary that was not possible to eliminate. The road network left out is basically composed by local roads and in traffic calmed streets. On the major road network bus lanes are provided to enhance and protect public transport routes.

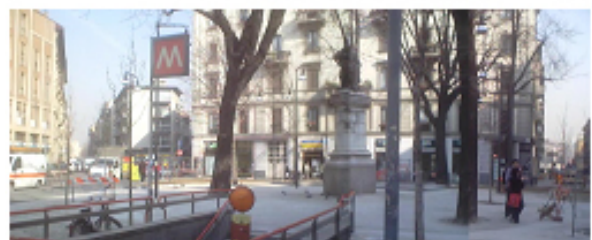
To eliminate through traffic from the local street network a series of traffic measures were implemented. In detail three Limited Traffic Zones and one Pedestrian Area have been introduced in the main commercial streets. On the other streets were introduced extensive traffic calming measures (pavement enlargements, speed humps, plateaux, etc.)

Loops connecting parking facilities

The project identifies ten loops connecting the existing and the future car park facilities in the area. These loops are needed to connect the parking facilities avoiding the creation of through traffic corridors inside the environmental area. On the loops have to be located all the parking information on parking availability (led display



Enviromental island master plan



Existing – design – post conditions

signals).

New on street parking organisation

The on street parking spaces have been reorganised to meet the following tasks:

- Eliminate free parking
- Introduce parking fee's for non residential use to increase turnover
- Introduce residents only parking spaces
- Create new out of street parking facilities both for turnover and residential use.

The controlled parking zone introduced reserved to the residential use 905 parking spaces out of a total 1704 spaces. 722 parking lots were left for turnover and short stay with a fee of 1,20 € per hour. The remaining on street parking were left for commercial use (load and unload for shops) and for disabled users.

Extensive pedestrian network

Enhance pedestrian mobility is the first goal of developing an environmental area. The survey of pedestrian use in the main square inside the study area ("largo la Foppa") have shown peak traffic of 2.700 pedestrian/ hour in the morning. The project aims to create an extensive pedestrian network. This network has been divided into different itineraries depending to the pedestrian use and the importance of the connected functions. The following routes have been identified:

- *Pedestrian priority routes*: these are the main pedestrian itinerary in the environmental areas, connecting the underground stations and the major functions in the area (the axis north – south of Corso Garibaldi and Corso Como). For these routes are implemented traffic free zones (pedestrian areas and controlled traffic zones).
- *Secondary pedestrian priority routes*: these are still important pedestrian itineraries but less frequented.
- *Pedestrian protected routes*: these are the main frame of the pedestrian mobility, characterised by traffic calming measures and pavement enlargement, without traffic restriction.



Existing – design – post conditions

Extensive Cycle network

As for the pedestrian network, the cycle network has been divided into different routes depending to the use and to the different degrees of protection. During the development of the project the team has decided not to create new segregated cycle path but to enhance cycling mobility through traffic calming measures and traffic closures. In this way all the local road network has been made cycle friendly.

Enhance urban quality and urban design of the area

The drawing beside shows all the traffic calming and urban design measures implemented in the environmental area. The major scheme is the creation of a traffic controlled zone in Corso Garibaldi (north – south axis), the refurbishment of the main square (Largo la Foppa), and the creation of a pedestrian area in Corso Como (on the top side of the area). All the other measures on the drawing are high quality traffic calming measures. The design of Corso Garibaldi is based on the creation of five small squares along the corso. The traffic limited zone is controlled thanks to telepass and video camera system. Corso Como is a fully pedestrian square characterised by two round fountains and high quality paving, lights and furniture. In the following pages are shows few images regarding the situation before the project, the sketches of the proposed design and the realisation (still under construction).

Design results

The tasks have been overall met thanks to a complex mix of traffic management measures. First of all has been introduced a controlled parking zone with 70% of the available on street parking spaces reserved to residents. Second of all two Limited Traffic Zones and one Pedestrian Area have been introduced in the main commercial streets. This areas have been redesigned with extensive traffic calming measures, pavements enlargement, pedestrian squares, fountains and trees. All the main pedestrian routes connecting the main public transport stops and stations has been protected with raised pedestrian crossing and pedestrian

traffic lights.

These measures, especially the introduction of controlled parking zones and limited traffic zones, have reduced the traffic pressure on the area, producing enhancements on public transport utilisation and on the alternative means of transport. The study also carried out a survey on long term development of out of street parking facilities (especially for residential use).