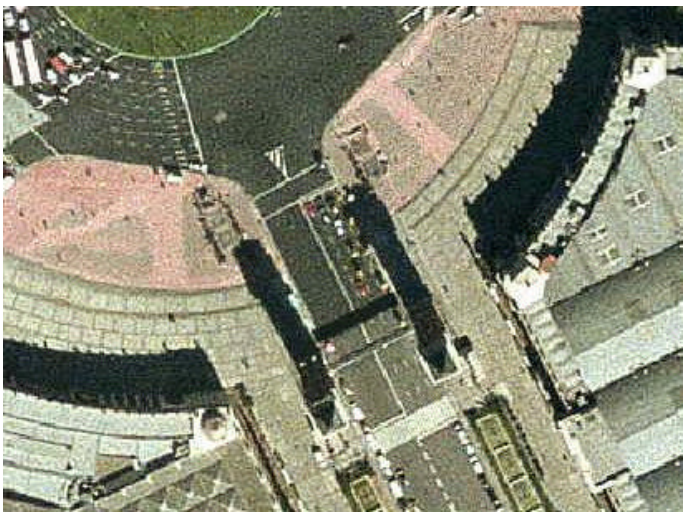
ETTER CONDITIONS TO ACHIEVE LOW RISK FOR PEDESTRIANS IN THE NTERSECTION PLAZA ESPAÑA – AV REINA Mª CRISTINA IN BARCELONA



Intersecting safely (International Student Competition)

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Better conditions to achieve lower risk for pedestrians in the intersection Plaza España – Av. Reina Mª Cristina in Barcelona

The present project concern getting better conditions for pedestrians in the access point between Av. Reina Mª Cristina and Plaza España in Barcelona.

To start the work contact was made with the Barcelona Municipality (Mobility Department) and the municipal Police. Information on the traffic accidents in 2005 in the Plaza España area, especially with pedestrian injury, was provided by the police. It was found that in and round the pedestrian crossing of Av. Reina Mª Cristina near to Plaza España, a pedestrian risk area emerged (Fig. 1).

A visual observation on the site took place to identify the most conflictive points. As a result of that information and the observations the following aspects are analysed:

- The carriageway is too large (4 lanes per direction) in a street with low traffic flow. The drivers are tempted to accelerate to too high speed due to impression of long way ahead, largeness and space free of obstacles (Fig. 2)

- About 5 % of the pedestrians near the pedestrian crossing (controlled by light signal) pass outside the crossing -towers side- due to existence of walls for the metro exit just in front of pedestrian crossing (Fig. 3)

- About 20 % of the pedestrians cross outside the signalised pass -Plaza España side- due to the location of the crossing. The itinerary for the pedestrians is not the natural for the pedestrians (Fig. 4).

- Being the carriageway fairly large, certain groups of pedestrians (elderly citizens) have difficulties to cross with time given in the green phase (Fig. 5).

- The width of the sidewalk in front of the Venecian towers is too small. It is insufficient for the high number of pedestrians using the pavement, especially during fair and spectacles in the Av. Mª Cristina. The presence of bus and taxi stops make the situation more serious. Additionally the location of the towers will intervene more in the natural itinerary of the pedestrians walking parallel to the carriageway (Fig. 6).

- It is a designed for the circulation of cars and, really, it is a zone with majority of pedestrian use. Not only for the major daily volumes of pedestrians, but also due to the grand number of social events organised in the area and during which car traffic is restricted. (events of piro -light-music, fairs, demonstrations etc.). With these events with thousands of pedestrians obstacles in kerb or central carriageway will disturb (Fig. 7)

For this reasons I have been decided to formalize a proposal for better design of the intersection where a major part of the problems can be solved:

- Construction of a elevated pedestrian crossing just at the entrance for drivers to Av. Reina Mª Cristina, in an area where the number of crossing pedestrians is highest, obliging the drivers to reduce considerably their speed (solution used

frequently in local streets in Cataluña). Stretch the carriageway; with 2 lanes per direction plus one for waiting taxi and one for bus. These measures will reduce the drivers speeds and avoid or reduce possible accidents whit crossing pedestrians (Fig. 8).

- Channel the pedestrians in their natural itinerary's, enlarging the area for the pedestrian crossing, offering in a crossing area all the natural passes where the pedestrians can cross (Fig. 9).

- For the groups of pedestrians with difficulties to cross during the green phase of the light signals, a median of two metres of width is disposed, so that the pedestrian can have a refuge in the case the time for crossing is finished (Fig.10). For the greater events and many pedestrians it is important that the number of metres of kerb is reduced, especially in the middle of the carriageway.

- The sidewalks are projected wider in accordance with the reduction of the carriageway. Passing the Towers, the width shall be doubled and the pedestrians can walk in more comfortable conditions. The bus-stop dispose of a platform with more useful space (Fig. 11).

- With the new design and signing, the zone get better conditions for the pedestrians, without imposing too many restrictions to the drivers (except during the special events) (Fig. 12).

With these easy constructive measures we can protect the pedestrian (being the most exposed to injuries) and the mobility as total shall be facilitated.

Fig. 1. Pedestrian accidents in 2005

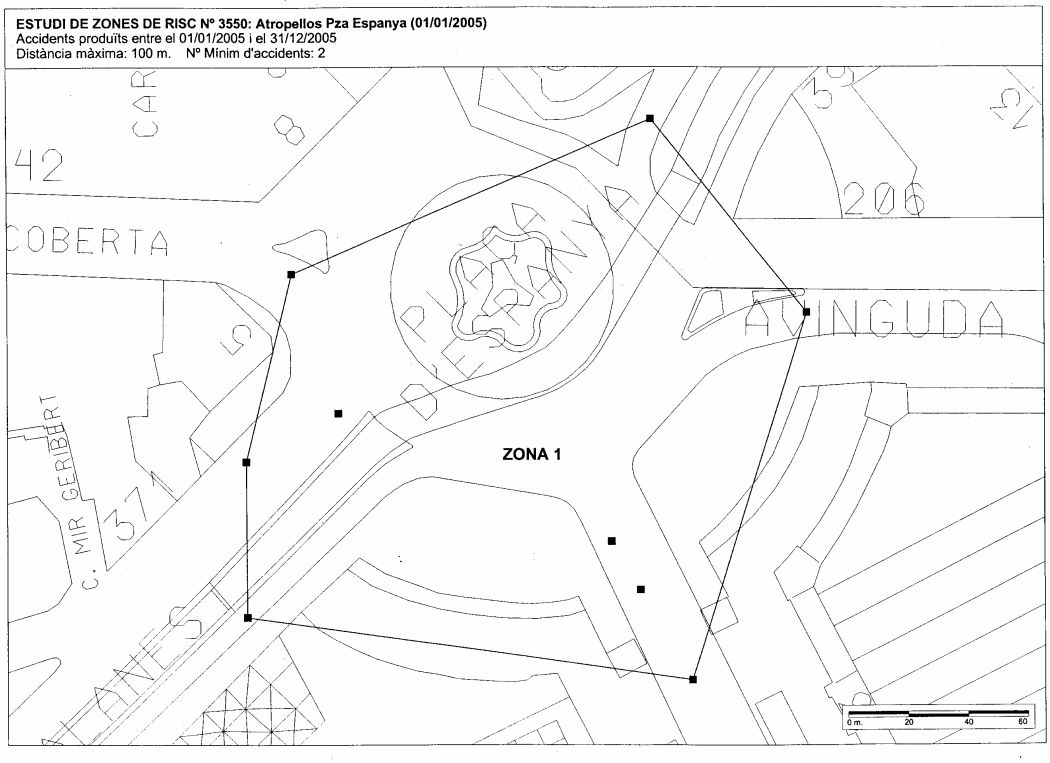


Fig. 2. Av. Reina Maria Cristina view (Plaza España at the bottom)



Fig. 3. Pass outside the pedestrian crossing (Venecian towers side)



Fig. 4. Pass outside the pedestrian crossing (Plaza España side)



Fig. 5. Elderly citizens and children crossing slowly



Fig. 6. Width too small of the sidewalk in front of the Venecian towers



Fig. 7. Event in Av. Reina Maria Cristina



Fig. 8. Longitudinal section of the elevated pedestrian crossing

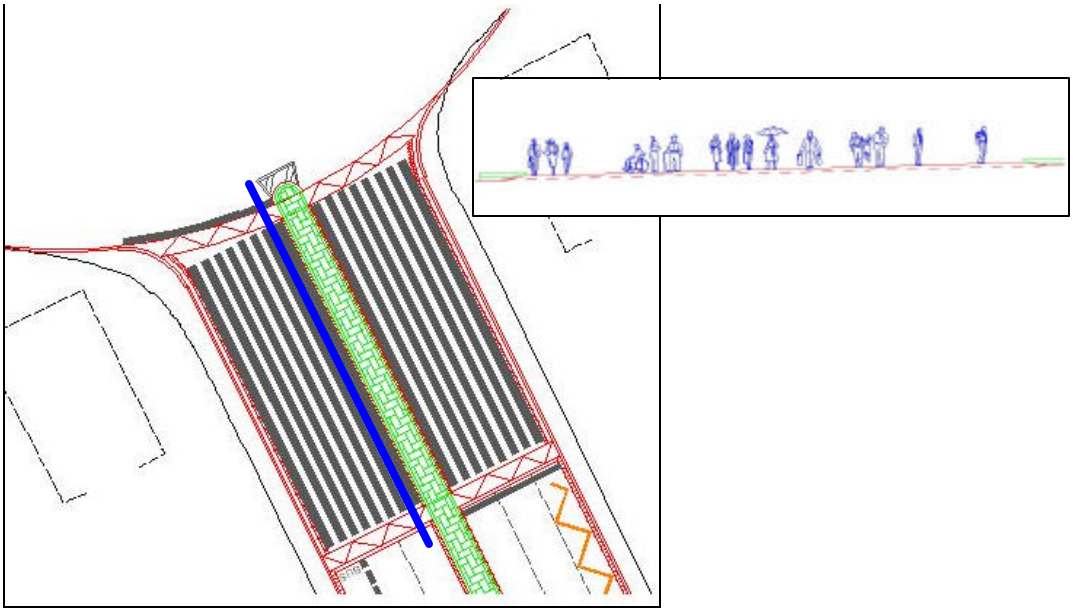


Fig. 9. Natural itineraries of the pedestrians

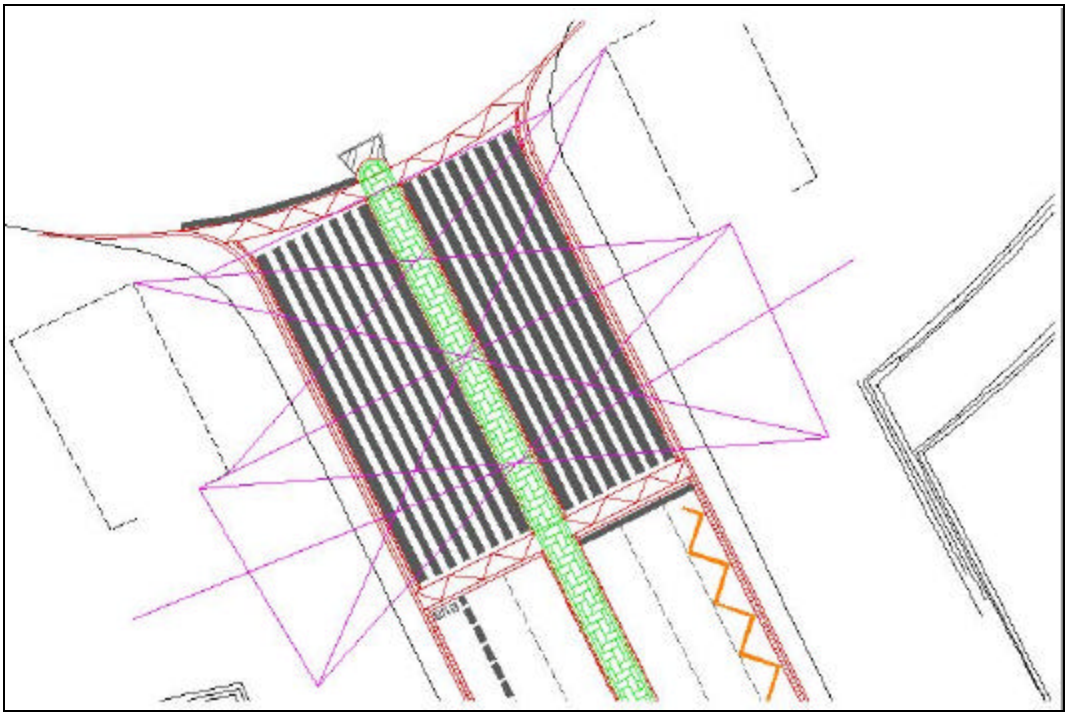


Fig. 10. Transversal section of the elevated pedestrian crossing

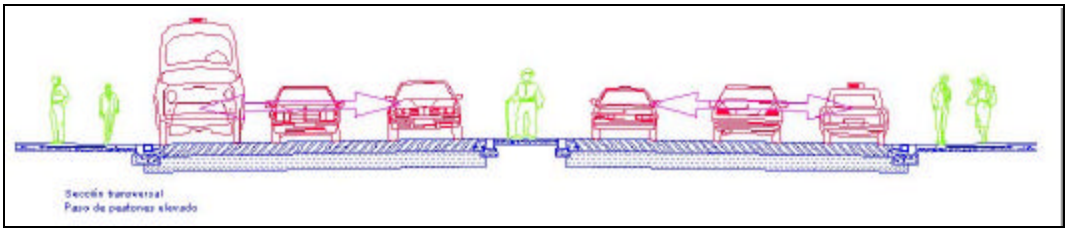


Fig. 11. Width doubled in front of the Venecian towers

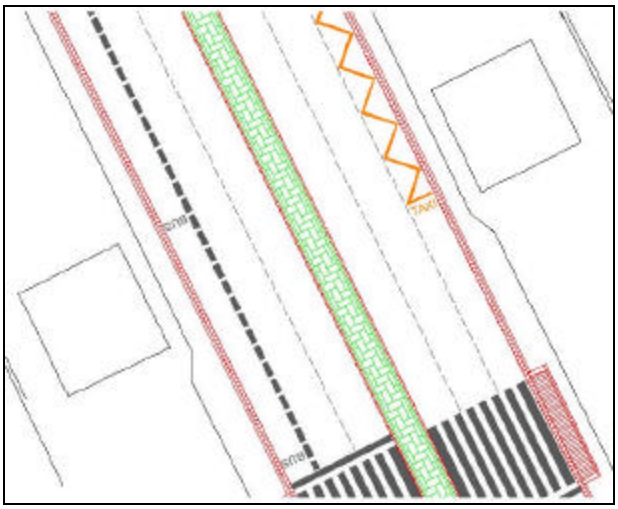


Fig. 12. New design and signing

