

# Pedestrian Quality Needs: Some data from a mid-size town

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## Abstract

In this paper, we study the pedestrian quality needs in a mid-size town in the region of Madrid, El Escorial, through a questionnaire. Questions of the poll were selected from the questions pointed out in the Cost Action 358 "Pedestrians' Quality Needs". The pedestrians walk for one hour per day. The pedestrians consider that improvements in the public transport systems and improvements in the public spaces are necessary to get a higher pedestrian mobility.

## Introduction

The FRAV research group at the Universidad Rey Juan Carlos is involved in the Cost Action 358 "Pedestrians' Quality Needs". The main objective of this action is to improve the knowledge of pedestrian' quality needs. A better understanding of pedestrian needs will be useful to have better walking conditions, stimulating structural and functional interventions.

In this Cost Action the FRAV Group decided to select one city and measure some values to have a better understanding of the pedestrian needs of walking. Some requirements will be imposed to the city in which the study will have placed. Most important one is to be representative of as much cities as possible. And other consideration is to be near the research group. In Spain big cities (Madrid, Barcelona, Valencia, etc.) has increased its population in exponential way during 1900-1980 but in 1980 this kind of concentration of populations ended. In 1980 the grown of big cities stopped and cities surrounding this attraction points start to increase its population. Actually, the 25% of the population lives in a town of 10-50.000 habitants and the 34% of the population is concentrated in the regions of Madrid, Valencia, Barcelona and Seville.

The research group avoid the big cities. Pedestrians' problems in big cities are very complex (not only pedestrian needs are involved) and have to be considered in a huge multidisciplinary team. More significant data and useful information could be obtained from one mid-size town. Our selection was "El Escorial", a mid-size town in the region of Madrid. El Escorial is a town of 14.113 habitants (in 2006) located in the northeast of Madrid. The distance from Madrid (3.128.000 habitants) is 45 kilometres. So, all conditions are considered: representativity, population size and distance to a big city.

## Research and questionnaire

To have a better understanding of the pedestrian needs the research group decided to obtain first some information directly from the habitants. Similar actions have been developed in Spain (see, for instance, MOVILIA 2006 [1]). The information was collected as a poll integrated in the cost action 358 Pedestrians' Quality Needs. Questions of the poll were selected from the questions pointed out in the Cost Action. This survey was delivered in the public libraries, public schools, city council and other public open areas. Table 1 shows the main results of the questionnaire.

**Table 1.** Summary of the main results of the questionnaire about pedestrian quality needs, pedestrian mobility, public transport and public spaces at El Escorial (Spain).

Variable	Average or possible answers	Percentage
Age	39.7 ( 37.6 – 41.8 )	
House location		
	Residencial areas, out of the town centre	35.3 %
	Town Centre	43.1 %
	Another town	21.5 %
Job location		
	Close to the town	21.6 %
	Town center	47.1 %
	Another town	19.6 %
	Without job	9.8 %
Own car		82.4 %
Walking time in minutes (per day)	56.0 ( 40.2 – 71.8 )	
Main trip by walking		
	Job / Shopping	40.0 %
	To the nearest bus stop	3.1 %
	Spare time on weekends	36.9 %
	Others	20.0 %
What is the influence of your house and job location on your mobility?		
	It is imposible to get it by walking	35.3 %
	I could arrive by walking but I do not	13.7 %
	Sometimes I walk	23.5 %
	Always I get it by walking	27.5 %

In your opinion, what are the groups with the highest mobility difficulties?

Disability people	62.3 %
Elders	23.2 %
Others	14.5 %

To improve the mobility for the persons with low mobility capabilities:

What architectural action will help? To improve the sidewalks 66.6 %

What security action will help? To improve the traffic lights, traffic informations,... 7.8 %

What factors are relevant on the decision of walking?

Distance	57.8 %
The weather	33.3 %

What are the relevant factors related to the use of public transports?

Quality of public transports	20.4 %
Time	53.7 %
Comfort	16.7 %

What personal variables are relevant for walking?

Physical capabilities	26.6 %
Disabilities	3.3 %
Available Time	63.3 %

What public space factors are relevant?

Traffic signals	26.3 %
Traffic density	36.8 %

Is there any relation between your behaviour as a driver and your behaviour as a pedestrian?

If I had a car, I will use only as an alternative, usually I will walk	32.7 %
I will try to use public transport	23.1 %
Always, I will try to walk	21.2 %

Is there any relation between the public transport and your behaviour as a pedestrian? If there will be a public transport stop near you...

I always will use public transport	36.5 %
I will use it as an alternative	25.0 %
I will try to walk	23.1 %

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If you had some disability, will you change your pedestrian habits?

Yes	61.5 %
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In general, how is the relation between pedestrians and cars?

Good	9.8 %
There is no relation	15.7 %
Bad	23.5 %

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How is the behaviour of pedestrians in crosses?

Bad	21.6 %
Good	49.0 %

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What is the risk of accident for a pedestrian?

High or very high	39.2 %
Half	33.3 %
Low	21.5 %

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Do you think education is important for pedestrian mobility?

Yes	90.2 %
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Do you think that the law should be change to improve the pedestrian mobility?

Yes	49.0 %
No	35.3 %

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What changes in the public spaces will improve the pedestrian mobility?

Improvements in the sidewalks	28.8 %
Improvements in the traffic signals	17.3 %
More pedestrian spaces	19.2 %

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What changes in the public transport system will improve the pedestrian mobility?

More frequency	41.2 %
Accesses	3.9 %
Others	17.6 %

What is the behaviour of pedestrians in public space related to others pedestrians' behaviour?

Negative	19.6 %
Positive	13.7 %

How is the pedestrians' behaviour presented on mass media?

Good behaviour	23.5 %
Bad behaviour	31.4 %

What factors are relevant to determine not to walk?

Distance, the weather, the time...	47.1 %
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What mobility improvements from your City Council are relevant for you?

Improvements in the sidewalks	21.6 %
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## Discussion

Answers of this survey give us an indication about the real and perceived pedestrian needs. Most of the individuals in this survey live in the town centre or in residential areas, close to the town. The average age is almost 40 years (rank between 22 and 52 years). In general, most of the people live near their job location. Nevertheless, a high percentage (82.4 %) of them possesses their own car. The pedestrians walk for an average of 1 hour per day to arrive their jobs or for shopping or during the weekends (sparse time). Figure 1 represents the box plot of the walking time per day.

For most of the pedestrian it is impossible to arrive at job by walking. This is the main reason to use private or public transport. The weather is another important reason. To improve the sidewalks and the traffic signals are the main actions needed in the town to get a highest mobility. Disable people and elders are the groups with most mobility difficulties. If the public transport improves, especially the frequency between buses, most of the people will get the bus before get their own private transport.

The relation between pedestrians' behaviour and drivers' behaviour is good only for the 10.0 % of the sample. The relation between pedestrians' behaviour in crosses is good only for the 50% of the sample. As a consequence, the expected risk of accident is high or very high for the 40% of the sample.

The education is considered very important to improve pedestrian mobility but they think it is not necessary to change the law. Most of the pedestrian think that it would be enough to respect the existing law.



Figure 1. Boxplot of the walking time per day (in minutes)

## Conclusions

The main objective of this paper is to study pedestrian quality needs. To do it, we have collected a questionnaire about pedestrian needs in “El Escorial”, a mid-size town in the region of Madrid. Most of the people in the sample live and work in the town or near the town. Improvements in the public transport systems and in the public spaces are necessary to get a higher pedestrian mobility.

This is the first phase of our study. Once these answers have been evaluated, information will also be obtained from local policemen and city authorities. Comparison between both answers will serve to mark a direction in which work will continue.

## References

- [1] Movilia 2006. [www.fomento.es](http://www.fomento.es)