

# THE GROWTH OF THE DIFFUSE CITY IN THE CANARY ISLANDS: EFFECTS FOR THE TRANSPORT BY ROAD

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There are a number of factors that influence the increased mobility in the Canary Islands in recent years. Among them we highlight the evolution very high population dispersal in the territory and at least also the separation between place of residence and work.

As regards the population, moving from 1.3 to almost 2.1 million people between 1975 and 2009. The percentage increase between these years has exceeded 60%, although this growth has been uneven, with the islands more closely linked to tourism (Lanzarote, Fuerteventura, Gran Canaria and Tenerife), which have been in the forefront of growth. It is precisely in these islands which are located the greatest increases in daily average road traffic.

As we say in this population increase would be added the increasing involvement of the Canarian economy towards tourism. This has facilitated a further increase of the real population of the islands, further enhancing the mobility, not only by increasing the floating population, but because every tourist tends to move more in relation to a resident.

Thus, between 1991 and 2007, cars have increased more than 120%, rising to the roads on the islands about 900 thousand vehicles that require more space to park and move around the territory.

The latest figures indicate that between 1991 and 2001, average daily mobility attributable to a job or study of each resident of 16 years and over had increased by 46%, from 17 to 25 miles a day for each person performing Islands residents. This represented in 2001 carrying about 19 million miles a day made by all the inhabitants of the Canary Islands who moved for reasons of study or job.

But not only is important to increase mobility, but most of these trips were made in 2001 in transport with greater impact (cars, vans and motorcycles), accounting for just 66% of labor mobility school.

The new low-density residential model that has developed in the Canary Islands in recent decades has led to a significant pressure on oil-dependent transport. In fact, more environmentally friendly means of transport such as cycling and walking, haven't place in the territorial model where all functional areas are far (schools, workplaces and leisure facilities, shops, etc.). This model implies almost immediately, if no congestion in these areas of low density, other significant complications that traffic at the entrances to the cities that do have these functional areas. This results in the spaces between these points of low density and large cities, a large occupation of land for the road, resulting in substantial economic costs for expansion. At the same time, the impact on the landscape by the excessive consumption of land for the road, calls into question the model of the city that grows horizontally.

In addition, the low density residence implies a cost that implies in particular transport, it is very difficult to establish here a profitable public transport. Similarly, the costs of the diffuse city are not only here, as they also involve a considerable price increases attributable to bring services up there certain common features, such as sewage, electricity, waste collection, cleaning and road maintenance, etc.

One of the indicators that best reflects the huge development of the sprawling city on the islands are the times of transport, in addition to distances greater than 40% each cash daily performed in 2001 relative to 1991. While it is true that we can not compare travel times between 1991 and 2001, it is true that in some islands as small size, almost 40% employ between 20 and 45 minutes each way to travel, while 10% exceeded 46 minutes travel time.

In turn, low occupancy rates of vehicles and that result from car use to connect the low density areas of the workplace, we indicate the great waste of energy in the horizontal growth of cities in the islands. Indeed, it is well known that on this issue has particularly affected the technology in recent years in an attempt to mitigate such consumption, although the result, while praising, is minimized. Indeed, the rate of adoption of new vehicles on the roads, has undermined those technological advances, although they currently consume less fuel cars, as many of them in circulation, has led to increased global input fuel, generating more air pollution, just as greater reliance on foreign energy.

But while much progress the technology until we get closer to zero pollution, the problem then shifts to the unstoppable need for land to accommodate more vehicles each day on the road, coming mainly from the city that grows horizontally, it is a problem difficult to resolve. Indeed, like the energy problem, the need to travel territory is directly related to the occupancy rates of vehicles, as a lower occupancy, there will be more cars on the road to transport the same number of people. So much so, it is estimated that a conventional freeway lane at rush hour, one is able to handle 1,700 vehicles per hour, ie, about 2,025 people if we apply the load factor of 1.19 passengers per vehicle, this fact that corresponds to the actual occupancy of cars in the Canary Islands whose passengers were traveling in 2001 for work or study.

In short, one of the main objectives of this study was to demonstrate how mobility has increased in the Canary Islands in recent years, suggesting that much of this phenomenon is

due to increased territorial model of horizontal city where it is not possible the implementation of public transport with a minimum return. In this sense, improving accessibility, induced by the constant pressure of the separation of land uses, has been favoring the dramatic increase in land mobility in the Canaries. Thus, in just one decade, ie between 1991 and 2001, 50% from the global perspective and mobility by 40 per capita. This fact has contributed to improving the road network, with the refurbishment and introduction of new roads, but also other major factors such as the significant increase in population, vehicle fleet under tourism development, improvement of income, etc.

In this context, it is logical that in 2001 two thirds of the total mobility of the Islands was represented by oil-dependent transport: cars, vans and motorcycles. Even more serious is that the occupancy rates of private vehicles when traveling population in 2001 for work or school, was of only 1.19 spaces, a fact that reflects the energy-intensive model requires horizontal city, while high occupation of territory.

In short, the political management of the territory that comes from the various planning tools in the Canary Islands and by extension in at least the rest of Spain, several criteria should address sustainable in terms of transportation, as, for example The condition of the territory by road infrastructure and is significantly higher compared with predominantly residential land. With this we mean that the ground mobility planning should be in absolute accordance with the planning of the territory, trying to minimize the mobility through certain instruments such as the approximation of the workplace, business, etc. the residence.

