



The environmental pillar: a case study

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Monika Skalská

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INTRODUCTION TO THE TOPIC

Cities all over the world are confronted with traffic and traffic-related problems, as the transport network in cities is not adapted to provide free flow 24 hours a day, 7 days a week, 365 days a year.

The problems of congestion and congestion, accidents, pollution and their impact on human life and the environment are a major challenge for cities. However, they are not a new phenomenon that has started to emerge in recent years, but a long-term problem that is growing in intensity with the number of cars and increasing mobility demands.

The question of how to increase or at least maintain the current level of mobility while reducing the negative impacts of urban transport is a very pressing one. Transport mobility affects the ability to work, has an impact on the quality of life, the economic productivity of a country and, finally, is important for our safety.

However, congestion in cities threatens mobility and the issue of sustainable transport mobility is increasingly coming to the fore. Sustainable mobility can be characterised as mobility that meets the need for the free movement of society, the ability to communicate, trade



and establish relationships without generating additional impacts on human life or environmental impacts, either today or in the future.

Sustainable mobility can be achieved through appropriate transport planning based on a set of principles that are firmly anchored in transport policy, regardless of the political status quo. Cities themselves should find answers to these challenges, considering the current situation and carefully balancing the advantages of agglomeration of people in a relatively small area against the disadvantages of the excessive traffic congestion associated with this dense concentration of people.

PRACTICAL APPLICATION IN THE CITY

On a theoretical level, there are two basic approaches to solving the problem of traffic congestion.

At a general level, it is possible to consider the use of traditional approaches that focus on traffic management in urban areas. These approaches consider the current demand and its expected future development. By using flow approaches, they try to maximise the physical use of the available capacity of the road network and do not take into account other issues (e.g. safety). They focus on identifying bottlenecks to minimise traffic delays and other congestion costs. However, they do not address the occurrence of recurrent congestion and its economic aspects.

Alternative approaches to the traditional ones are optimization approaches. These approaches have an economic focus and define the costs of congestion imposed by road users on other road users and on society. The economically optimal level of congestion then considers not only the cost of the transport infrastructure, but also the cost that people are willing to pay to use that infrastructure.

A practical example of a solution to the problem (using a charging system) can be identified in Stockholm.

The entrance to the wider centre of Stockholm is charged in the form of a so-called congestion tax. At the edge of the city, there are always three toll gates in a row at eighteen locations - front and rear registration plates are taken to ensure that no vehicle escapes without paying. The low number of toll gates is made possible by the fact that the city is divided by a sea bay and lakes that can only be



crossed by several bridges. The toll gates record the registration plate and owners of vehicles registered in Sweden are then asked to pay the toll each month - by invoice in the case of companies, by bank transfer in the case of individuals.

A charge is levied for each entry into this zone at peak and off-peak times and a maximum charge per day is set. Tolls are not paid on free days, the day before holidays and in July, when school holidays are in session and most Swedes are on holiday.

Citizens residing in the city centre also pay the toll without any concession. The toll was introduced on a trial basis in 2006, and after seven months a referendum was held on the introduction of the toll.

In addition to the toll system, a standard metered parking system operates in the city centre.

SOLUTION EVALUATION

The toll system is generally accepted by citizens, as it has shown unexpectedly positive results. Although hundreds of thousands of cars move around Stockholm on a weekday, there is no major congestion in the city thanks to the toll system and the traffic management system in place.

The introduction of tolls has had the following effects:

- reduction in the number of vehicles entering the city centre,
- reduction in congestion,
- reduction of emissions in the centre and in the whole region,
- reduction of dust in the city,
- increased use of public transport,
- collection of fees represents revenue for the city,
- revenue generated is invested by the city in developing the management of the city's transport system, improving traffic lights, widening roads, establishing dedicated bus lanes and developing a parking system.



CONCLUSION

The problems associated with road traffic congestion are becoming more acute in urban areas around the world. For transport developments outside built-up areas, congestion problems can be alleviated for a time by increasing the capacity of the infrastructure or by improving it. But this solution, which runs up against the Braess paradox and may mean adding fuel to the fire, cannot be used in urban areas. The costs associated with land acquisition, environmental issues, the urban design of cities and their historic centres are all obstacles to infrastructure expansion. While maintaining the level of transport mobility, alternative strategies to mitigate the impact of congestion must be sought.

Congestion is an essentially relative phenomenon linked to users' expectations and the actual progress of meeting transport needs. It is important to recognise that congestion cannot be completely avoided in urban areas that are attractive and highly frequented, as congestion is the result of the successful economic development of the area, high levels of employment, cultural and housing policy. And it is the wide range of activities, services, opportunities, and people that make living in an urban area worthwhile. The benefit is therefore not free and unrestricted movement, and therefore a certain degree of congestion, especially in the central parts of cities, must be considered.

This does not mean, however, that cities should resign themselves to the problem of congestion and be content with the current state of traffic, which may not appear critical for the time being, but may reach a critical point in the absence of appropriate measures. This is where congestion management comes in, which consists of directing traffic in a dynamic urban area.

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