

ABSTRACT

REDUCTION IN THE ENERGY CONSUMPTION FROM GOODS TRANSPORT IN ODENSE

August 15, 1994

THE BACKGROUND

In most Danish cities we experience problems with the distribution of goods in the city centre. On the one hand the environment suffers from the impact of heavy lorries, and on the other hand the distributors have great difficulty in bringing goods to the city, because of traffic congestions and restrictions on the heavy traffic, enforced by the municipality. Since the traffic density in Danish cities is steadily growing, there will be increasing need for solutions of the problems.

The municipality of Odense has initiated a project, in which the problems will be analysed in search for future solutions. In 1993 the Commission of the European Union granted support to the project within the framework of the SAVE Programme. The Danish Transport Council, which is established by the Danish government, is furthermore giving support to the project.

Odense is the third largest town in Denmark with approximately 170.000 inhabitants.

THE PURPOSE OF THE PROJECT

The project aims to demonstrate, that it is possible to make reductions within the following fields:

- * The energy consumption from goods distribution in a city centre
- * The environmental pollution in a city centre
- * The transportation and store expences.

These aims shall primary be reached by establishing a city distribution terminal, in which the goods deliveries will be reloaded from lorries to small distribution vehicles. In addition to this the terminal shall provide for an efficient goods distribution in the city centre, and may furthermore offer storeroom to retail shops. The terminal shall be situated outside the city centre with good access to the primary road network.

Besides establishing a city distribution terminal as the primary means to reduce the heavy traffic, other means to reduce the heavy traffic in the city centre will be considered, such as replacing the heavy vehicles with small distribution-vehicles equipped with special loading gear, and measures by which the municipality may support the general aims of the project, e.g.

loading zones, route signing, restrained roads, parking and loading restrictions and overnight lorry parks.

The project seeks to further the aims of the SAVE-programme by reducing the energy consumption of goods transport in cities based on a strategy with several means.

THE PROJECT

The project started at January 1, 1994 and will be going on for the rest of 1994. It consists of 6 phases:

1. Description of the problems of goods distribution in city centres
2. Datacollection
3. Elaboration of a concept for goods distribution in city centres
4. Estimation of the consequences of a city distribution terminal
5. Feasibility study
6. Evaluation of the project

Each phase will be described below, and it shall be noticed, that the first 2 phases already have been completed.

Completed phases

1. Description of the problems of goods distribution in city centres

The problems of heavy traffic in cities have been studied by means of:

- Information retrieval
- A visit to Holland
- Local evaluations.

The information retrieval has given some knowledge and experiences, by which the project may benefit, although the amount of literature within goods transport in cities has proven rather small.

In March 1994 a Danish delegation visited Holland to learn about Dutch experiments on goods distribution in cities. The delegation payed a visit to Maastricht and Utrecht, which by then were farthest on establishing city distribution terminals. The municipalities in Arnheim, Leiden and Groningen are considering similar initiatives.

The shopkeepers, the distributors and the municipality of Odense have made evaluations of the present problems of goods distribution in the city centre of Odense, as seen from their points of view.

2. Datacollection

For the purpose of estimating consequences of different means we have carried out an analysis of the total goods transport to and from the city centre in Odense on may 4, 1994. The analysis consisted of the following parts:

- 1) A questionnaire-analysis aimed at all the goods vehicles, entering the centre.
- 2) A number plate analysis of the goods traffic both entering and leaving the city centre.

In the questionnaire-analysis the goods vehicles were stopped on 11 accessroads to the city centre in the period from 6⁰⁰ a.m. to 6⁰⁰ p.m. The drivers recieved a questionnaire to be completed and put in a mail box. The questions concentrated on data about the vehicle, the load, the type of goods, the number of stops in the city centre and the adresses of the stops.

In the number plate analysis 5 numbers were registrated. By means of the analysis we have determined the use of the accessroads, the size of the through-traffic, the traffic assignment and the time spent by goods vehicles in the city centre.

On the day of the analysis the goods traffic amounted to 2.980 vehicles entering and 2.930 vehicles leaving the city centre. Totally 2.560 questionnaires were handed out, and 1.230 answers have been recieved, corresponding to a return of 48% of the questionnaires, which is satisfactory.

The computations of the results from the traffic analysis have not been completed yet.

Not completed phases

3. Elaboration of a concept for goods distribution in city centres

In this phase the location and size of the terminal, the type of goods suitable for a terminal to handle, the methods of distribution the goods and the need for distribution vehicles will be determined as part of the conceptbuilding in the phase.

4. Estimation of the consequences

On the basis of the datacollection the traffic densities on the road network, the energy consumption, the environmental impact and the transportation costs will be estimated.

5. Feasibility study

On the basis of the earlier phases the relations between the amount of goods passing through the terminal and the transportation costs will be studied.

6. Evaluation of the project

The project will be evaluated of a group of representants from Danish cities, experiencing the same kind of problems with goods distribution in their city centres as Odense.

Before the SAVE-project started in 1994, we have in 1992 carried out a questionnaire aimed at the shopkeepers in the city centre of Odense, and thus collected informations on the goods deliveries, the goods vehicles, the loading gear etc. and furthermore on the attitudes of the shopkeepers towards a city distribution terminal. This analysis was supported by the Danish Ministry of Transportation.

THE ORGANIZATION OF THE PROJECT

Behind the project stands

- the Municipality of Odense
- the Danish State Railways
- the Danish Mail Services
- the Association of Freight Lorries
- the City Centre Association of Odense.
- the Albani Breweries

The Danish consultancy firm Anders Nyvig is chief consultant on the project. The Dutch consultancy firm M+I Consultants and the Danish Packaging and Transportation Research Institute is furthermore subconsultants.