

## **The Results of Transit Oriented Development in the Randstad Southwing**

Providing high frequency transit is one of the alternatives currently being considered. In this project the University of Twente, Delft University of Technology and Free University of Amsterdam examined the mobility, accessibility and economic effects of Transit Oriented Developments (TOD) strategies in the Randstad South. Transit Oriented Development aims to concentrate the construction of new housing, offices and services nearby transit stops. This aim is to increase transit ridership levels to can justify investments in high frequency transit services. The research project is conducted in close collaboration with Stedenbaan, a regional TOD programme in which local and regional governments, Dutch railways, and the national railway manager Prorail participate. Some of the main findings are:

### *The accessibility of TOD*

In the Netherlands, about 40% of train users use the bike to travel to the station from home. A survey among residents of the Randstad South was conducted to examine the factors that determine access and egress mode choice, and the degree to which station accessibility influences train use. The results show that improving the quality and connectivity of train stations for bicyclists is important for TOD strategies in the Randstad Southwing. Improvements in the quality of bicycle parking facilities, providing free bicycle parking, and improving the station quality of (middle-sized) trainstations are important strategies to increase train use and job accessibility at the regional level. Improving access/egress transport can potentially be more costeffective than furtherimprovements in the quality of train services.

### *The economics of TOD*

The Dutch Randstad area has a relatively high density of train stations. The number of train stations affects the spatial economic effects of TOD. Our research shows that number of train stations is limited, the degree of urbanization (e.g., population density) is higher around the remaining train stations. At the same time, the effect of railway travel on road congestion is relatively small. By contrast, if there are many train stations there is little effect on urban spatial structure, but a considerable decrease in congestion. These findings suggest that there is an important policy tradeoff between congestion and urbanization.

In the Netherlands, office vacancy rates are relatively high. About 15% of office space is vacant. Our research shows that office vacancy rates are not significantly related to proximity to railway stations in the Randstad Southwing. Railway station areas do not perform better. This implies that TOD strategies should focus on a better utilisation of existing offices (e.g., new functions) rather than adding new offices, and strategies to reduce office supply outside TOD areas.

### *The market perspective for TOD*

It is often assumed that people living closer to transit stops, are more likely to travel by public transport than by car. However, there is a lack of information on who is willing to live near transit stops in the Randstad Southwing, and who is more likely to use the transit provided. A survey was conducted among car or train commuters residing and/or working in the Randstad Southwing to examine 1) the relative importance of distance to transit for mode choice, 2) the willingness to live closer to public transport to facilitate train use, and 3) characteristics of people willing to live closer to transit. The results indicate that built environment characteristics around the employment location are more related to train use than those around the residentiallocation. Whereas existing train commuters are more willing to live closer to transit than car commuters, about 13 per cent of current car commuters would like to travel by train more often.