

Image: NM Magazine



Traffic flow impacts of truck platoon priority at signalised intersections

Problem description

Truck platooning is an application of connected driving that allows one or more trucks to automatically follow a manually-driven leading truck. This can potentially make the transportation of goods more efficient, e.g. by saving fuel. However, while truck platooning is relatively easy along uninterrupted road stretches, difficulties may arise at discontinuities in the road network. One example of such a discontinuity is an intersection with traffic lights. The signal controller can communicate with platoons and help, e.g. by avoiding cutting platoons into two by extending green when a platoon approaches the intersection, so that the platoon can cross in its entirety. This was recently applied successfully in the province of North-Holland, but the wider impacts of such measures remain unknown.

Objectives & Assignment

The objective of this project is to model and quantify the impacts of giving priority to truck platoons at signalised intersections. How the green times of all approaches change? How does the travel time change for trucks and other traffic in various directions? How does this affect the capacity of the intersections? How does this depend on the frequency of truck platoons? The student will use traffic microsimulation software to answer these and other relevant questions. The results of the study should help understand the impacts on the wider transportation network. The study should pave the way for follow-up projects analysing expected route choice and mode choice impacts.

Research group

Transport & Planning Department

External support

Your research will be part of the STAD research project. An internship position at one of the STAD partners may be available.

Information

Dr.ir. Jeroen van der Gun – j.p.t.vandergun@tudelft.nl