

Imagine a green wave at intersections which are over a 1000 meters apart, in both directions, between multiple intersections and addressing both continuous and merging traffic. Until recently it seemed impossible. However, these are the characteristics of a new traffic control system developed by DTV Consultants, that has been implemented on different networks.



ODYSA ® is designed to improve the traffic flow by dynamically adjusting the speed behaviour of the individual vehicles by means of a speed advise. The advised speed is communicated by specially developed displays next to the road. If the advised speed is respected, the green light at the next traffic light in the through direction is guaranteed. The advised speed is calculated individually for each vehicle, irrespectively whether it concerns traffic from the main directions or other directions. If the calculated speed is under an adjustable minimum speed or above the maximum allowed speed, a negative speed advise will be communicated that a green wave until the next intersection is not possible. The system can monitor different events in the network, for instance a slow agricultural vehicle or a traffic jam at the next intersection. In that case also a negative speed advise is communicated.

The system

ODYSA ® consists of several vehicle actuated traffic controllers with a fixed cycle time. A traffic-dependent program can select

the most suitable network cycle time and green times for the period of the day. The ODYSA ® functionality is integrated into the normal traffic controllers. ODYSA ® is suitable for all roads with a maximum permitted speed of 70 km/h or 80 km/h (50 mi/h or 60 mi/h), with a relatively high percentage of through traffic.

Benefits

ODYSA ® provides a substantial improvement of journey times for through traffic and a significant reduction of the number of stops. Not only the comfort of the drivers improves, but the system can also be employed as an environmental measure. Due to the homogenization of speeds and enabling prevention of sudden red phase, the system also contributes to improving road safety.

Ensuring

The effect of ODYSA ® on the traffic flow was measured with a floating-car study on the Westpoortweg in Amsterdam, the Netherlands. This study clearly showed that the acceleration and deceleration at the

intersections virtually disappeared and that it is possible to drive a constant speed throughout the network. Compared to the traditional vehicle adaptive variable cycle time controllers, ODYSA ® has a positive impact on journey time and the average speed up to 18%. By providing a green wave by means of individual and dynamic speed advice a homogeneous and more constant driving behaviour can be achieved.

Fresher air

A limited number of emission measurements for the ODYSA ® system have been executed at Westpoortweg, by a vehicle that drove multiple different routes in the network. The results, compared to vehicle-adaptive variable cycle time controllers, show a strong reduction of air pollutants:

- hydrocarbons (HC) by 84%;
- carbon monoxide (CO) by 91%;
- carbon dioxide (CO₂) by 17%;
- nitrogen (NO_x) by 66%.

Experience

An extensive user survey shows that users appreciate ODYSA ®, although the appreciation is higher for through traffic than it is for traffic coming from side roads. A large majority of through traffic drivers say to respect the speed advice and believe that the system improves road safety. Noteworthy is that truck drivers are even more positive than those of cars.

Implemented networks

- Westpoortweg, City of Amsterdam, 6 intersection over approx. 4 km;
- National road N218, near City of Spijkenisse, 3 intersections over approx. 3 km;
- National road N279, near City of Veghel, 6 intersections over approx. 4 km;
- Eisenhowerlaan, City of Eindhoven, 6 intersections over approx. 6 km.

New networks under development

- Noordelijke randweg, City of Bergen op Zoom, 6 intersections over approx. 3 km;
- National road N492, near City of Rotterdam, 8 intersections over approx. 6 km.

INFORMATION

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