Managing traffic lights from a multimodal network management framework

Problem description

A multimodal network management framework (Dutch: Multimodaal Netwerkkader, or MNK) gives road authorities tactical tools for controlling traffic, in particular by:

- The networks on which traffic management can be deployed (based on the mobility objectives);
- The desired quality on different types of network parts (functions of network parts and target performance values)
- A prioritization sequence of functions for when scarcity occurs and choices have to be made

At the moment, many road authorities struggle with realizing these tactical principles 'on the street'. Traffic lights are now adjusted to distribute the green time neatly, for example on the basis of traffic demand. But this distribution is not necessarily in line with the policy objectives (e.g., where cyclists should be given more greentime). Road authorities would like to change this and regulate more in accordance with the policy objectives, but they do not know how to achieve this and also do not know what the (negative) side effects of adjusting these traffic light parameters are.

Assignment

This project is a joint project between Transport & Planning (civil engineering) and Arane Adviseurs (www.arane.nl). The following are possible research questions:

- What is needed to manage traffic in line with a multimodal network management framework (MNK) on signalised intersections from a technical, traffic management and/or organizational point of view?
- Which traffic management solutions are feasible when prioritizing specific modalities? And what is needed to operationalise those solutions?
- Which secondary effects can occur when prioritizing specific modalities at signalised intersections?

There is a possibility that this assignment can be carried out together with a road authority. Affinity with control tactics/techniques is useful, as is interest in the policy side of the question. A local simulation or model study can be part of the assignment.

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