Estimation and evaluation of the effects of future implementation of GPS-based bus priority in Copenhagen
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**Background**

- **MOBILITY NEED**
- **CONGESTION**
- **NOISE**
- **AIR POLLUTION**
- **GREENHOUSE GAS EMISSIONS**

**SUSTAINABLE TRANSPORT**

- More bicycles
- Better public transport

**TRANSPORT INITIATIVE 2 (Copenhagen Climate Plan):**
Public transport gets even better – we invest in comfort, reliability, minimal travel times and smooth linkages between the different public transportation systems.

**TRANSPORT INITIATIVE 10 (Copenhagen Climate Plan):**
Intelligent transport systems optimize the city's traffic signals to the benefit of bicyclists and buses.

**The project idea**

**INTELLIGENT TRANSPORT SYSTEMS**
The application of information and communication technology to vehicles and transport infrastructure.

Examples of Intelligent Transport System

**BUS PRIORITY**
Different measures to prioritize buses in the network, both on the links (roadway) and at the nodes (intersection), with the purpose of relieving buses from congestion and thus achieving shorter travel times and higher punctuality.

Examples of bus priority

**Description of the system**
Buses are equipped with a GPS receiver, which continuously gets its location from GPS satellites. When the location coordinates correspond to predefined detection points ("virtual" detectors), placed at a certain distance before the traffic signal, a priority request is sent – usually via radio – to the traffic signal controller.

Priority can be given:
- by green extension, if the bus approaches the signal during the green phase,
- by green recall, if the bus approaches the signal during the red phase,
- by inserting an extra stage in the signal plan.

**Advantages**
- Low installation and maintenance cost
- Rapidity of implementation
- Easiness to extend the system
- Flexibility in the relocation of detectors
- Possibility of implementing differential priority
- Great potential to integrate the system with real-time traffic information.

**Benefits**
- Shorter travel times
- Higher punctuality and reliability
- Operational savings

**Evaluation parameters**

- Travel times
- Fittings

The project is in progress. Therefore, no results are currently available.

**References**

City of Copenhagen, The Technical and Environmental Administration, Copenhagen Climate Plan. 2009.