Trams and Traffic Signals from a Gothenburg Perspective

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Biggest goes first !

Trams and traffic signals from a Gothenburg perspective

Gothenburg – A pioneer in public transport (PT) priority in Sweden

- Signal priority at traffic signals
- Trams are superior to all other traffic according to law
- Priority both on dedicated tracks and in mixed traffic
- Buses are also given priority when driving on street-tracks

Different types of signal regulation

- Traffic signals
  - Full or partial regulation

- PT-warning for vehicles

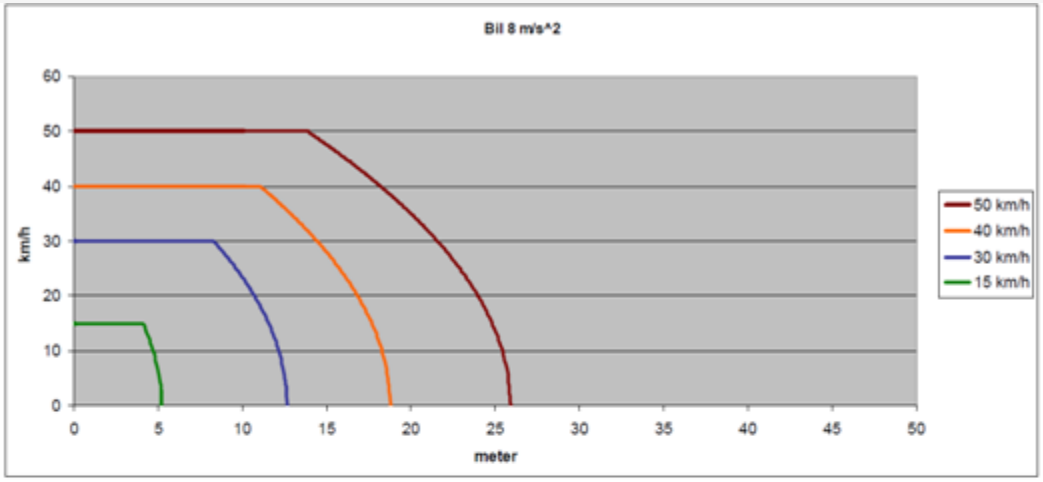
- PT-warning for pedestrians

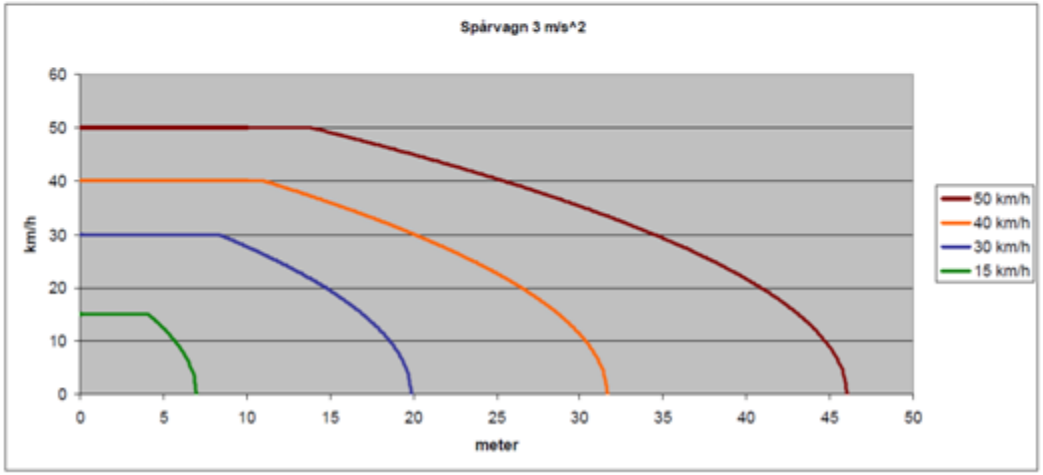
Traffic safety

- Trams have a long braking distance which affects the signal control strategy
- Signal safety-times are affected
- The regulation of pedestrian crossings is affected, an example is the location of signal masts

Braking distance: Car vs tram

- Almost double the braking distance at 50 km/h





When crossing the tracks, should the ”green man” be blacked out?

..or should he be green ?

Signal control strategy

Priority is allocated in a ”brutal” manner

- Can involve stage re-ordering
- Can involve extension, truncation and additional stages
- Ongoing priority is never interrupted
  - Conflicting groups can be bypassed in co-ordinated control
- PT-priority is relaxed at congested intersections with regard to the needs of other transport modes
- It is not an optimized system

Communication: Vehicle-roadside DETIC

- Inductive serial detection – inductive loops
- Used for signal priority, switch control and vehicle positioning for the real-time system KOMFRAM
- Very fast communication and quick response time
- Different types of messages can be transmitted,

  for instance: ”desired route”, ”left –right”

Road side unit TIC-1R

Arial mounted on tram underside

Control panel in vehicle

PT-priority in Gothenburg

Positive features:

- Ensures PT-mobility needs at signals
- Proven technology
- System redundancy, multiple detector loops as backup
- Very good system competence (locally)

Limitations:

- It is not an optimizing system
- There can be long waiting-times for pedestrians and cyclists
- The system may have difficulty to handle the coming increase in PT-traffic

Back-up control for PT-priority (green circle)