A feasibility study for Weather-Controlled Variable Speed Limits (VSL) in Norway

Background

There is a new policy in Norway to increase the speed limit on highways from 90 and 100 km/h up to 110 km/h, and it has also been politically discussed the introduction of 130 km/h as an upper speed limit.

Research has shown that drivers reduce the speed when the driving conditions are getting worse but not to the extent that is needed for keeping the risks on an acceptable level. This implies an increased probability for severe traffic accidents to occur during the periods when the drivers do not adapt their speed to the actual driving conditions. During these periods, there is therefore a need to inform the travellers, and it may even include a temporary reduction of the speed limits.

Objective

The objectives of the feasibility study are:

- Describe state-of-the-art for:
    - ITS applications informing travellers about weather and road conditions that may cause an increased risk level concerning traffic safety
    - ITS applications that reduce the speed limit due to bad weather and road conditions
- Describe how an ITS application for VSL may function for a virtual pilot on E18 in Vestfold (2 + 2 lanes highway), Norway
- Recommend future work based on the findings of the previous objectives

Results

The methodology applied for the state-of-the-art for the two ITS applications has been to:

- Define a physical architecture for systems that:
- Define a functional architecture for this type of systems
- Define a role and responsibility model
- Describe the existing systems having implemented one or both of the ITS applications
- Describe the experiences achieved by the ITS applications in operation

The study report on how other countries with similar winter conditions as Norway have implemented ITS applications for informing travellers and for traffic management including Variable Speed Limits (VSL). It also studies if there are any legal and major obstacles for implementing the same ITS applications in Norway. Finally, the report describes a virtual pilot on a highway section in the South Eastern part of Norway. By virtual pilot is meant that the found requirements for VSL are applied on the highway section without really changing the speed limits.