This paper presents the first large-scale results from a finalised research project regarding the identification of Hazardous Road Locations (HRL) on the basis of Floating Car Data (FCD). The objective of the project was to build a predictive model for identification of HRLs on the basis of FCD. FCD are GPS data about the driving activities from cars in normal use.

Although enhancing road safety, which might partly be caused by the deep financial crisis in the last 5-6 years, most countries are still far behind the set road safety target. Also, still around 25,000 fatalities appear yearly on the European road network, which require ongoing actions.

A central part of the road safety work is the identification and enhancement of HRL. However, this identification is based on police-reported accidents, which show increasingly underreporting. In Denmark in 2011, only 10% of the injury accidents were included in the official traffic accident statistics — more than a halving during the last 15 years. Indications from various European countries indicates, that a similar tendency is present in other countries as well — especially regarding accidents, which include Vulnerable Road Users (VRU) as involved part in the accidents. Hence, HRL identification and enhancement is to a great extent carried out at random. Moreover, it is retrospective as accidents from a 3-5 years period has to appear and to be collected before any road safety enhancements can be made and/or assessed.

Instead, a predictive model based on serious jerks (the derivative of the deceleration) found in FCD has been developed. Studies indicate that the vast majority of accident avoidance activities are decelerations. Also, there are indications, which show that near accident situations cause more hard decelerations, i.e. bigger jerks, than normal driving behaviour.

From conflict studies it is known that there is a connection between the number of conflicts and the number of accidents. Likewise, the hypotheses are that there is a connection between the number of serious jerks and the accidents, and that the method can work as an area-covering conflict study technique, where jerks are proxies for serious conflicts.

A central part of the past analyses were concerning data quality and reliability. The total amount of data is big: around 9.9 million km and 19.1 billion accelerations are collected. Besides erroneous FCD due to installation problems and software errors in a few cars collecting FCD, it was also found that road surfaces effect the recording of jerks considerably. It is particularly the case regarding speed bumps and any driving on dirt roads. Hence, a full data collection on all speed bumps (2,300) in the northern part of Denmark (which is the study area) were carried out, to avoid this systematically erroneous in the FCD. FCD used for this project are from the newly finalised project ITS Platform (http://itsplatform.dk/en.html), which includes driving data from 425 cars. A subset of data from 3 months of driving, equivalent to around 1.6 million km driven have been used for the analyses which focus on identification of HRLs in the northern part of Denmark. The analyses based on the selected jerks are ongoing and results are expected in June 2015.