1. INTRODUCTION
The traditional method of determining traffic safety is based on statistics of traffic accidents. But it often does not correspond to the requirements of traffic engineering and research. Traffic accidents are statistically relatively rare events. That is why we can consider as valid only 4-5 years accident statistics. For example, changed traffic regulations give obvious results after years. At the same time we must take into account that only a part of all accidents could be registered by officials. Therefore, it is suitable to use different events on determining traffic safety, such we can call as risk situations in general. These situations must be easily recorded and statistically more frequent events than accident.

First study in the USSR using the Traffic Conflicts Technique (TCT) was carried out by Road and Traffic Research Laboratory of Tallinn Technical University in 1979. There was used original criteria of traffic conflicts developed in USA (Perkins, Harris 1968). As the results were encouraging we decided to start a new series of investigations in 1982. Compared to above mentioned we decided to make some modifications in method we used. It was decided to determine the conception of potential conflict. In 1983 we started to use videorecording on investigations. But the objective instants were not contained in conflict criteria, that
was based on subjective appointments of investigators.

The TCT got more popularity and that caused a subsequent supplementing of the method. Investigations made after 1984 use time-to-collision as criteria of the conflict, and demand that there must be a collision course between the participants.

The basic idea and result of investigations was the elaboration of instructions of the technique and detection of the conflict-accident connections. In last years we have carried out some ordered studies in traffic engineering area using the TCT operational tool.

There is a mathematical simulation model in control stage. We have set up a goal to make it usable for evaluating traffic safety and intersection traffic conditions in design stage.

Side by side with Tallinn Technical University, Moscow, Vilnius, Kiev and other centers are engaged in the TCT problems.

2. DEFINITIONS.

The conflict technique used at present defines a conflict as a situation in traffic, where at most t seconds before a potential collision one of drivers brakes or weaves to avoid collision. t - we call time-to-collision value. The quantity of t depends on speed limit, types of vehicles participated in conflict and some other local conditions.

Conflicts are grouped into 3 categories on an urgency scale: - slight (or potential) conflicts - precautionary braking or lane change, when risk of collision minimal.
- moderate conflicts, There is no time for steady controlled manoeuvre, deceleration is rapid.
- serious conflicts, Emergency braking or violent swerve to avoid collision resulting in a very near miss situations.

Therefore the obligatory elements of the conflict definitions area are:
- at least one of the participants must be a vehicle
- there must exist a collision course
- at least one of the participants must take evasive action (braking or weaving to avoid collision)
evasive action must be taken at most \( t \) seconds before potential collision (time-to-collision value). Usually \( t \)-value is 1...2 seconds.

There are distinguished 6 classes of conflicts, grouped in 16 types:
- rear-end conflicts (types 1...5)
- head-on conflicts (type 6)
- lane-change conflicts (types 7...8)
- cross-traffic conflicts (types 9...14)
- pedestrian conflicts (type 15)
- others (type 16)

3. FIELD STUDIES.

The basic contingent of investigators have been durable and acquired sufficient experience and requisite accordance. The training of new investigators is made in three stages:
A-theoretical part. Introduction in the principles of the technique.
B-laboratory part. Investigations from video-recorder in laboratory conditions with further analysis.
C-field part. Conflict countings in field conditions, further analysis and control.

Investigators must have basic knowledge in traffic engineering. The control tests have shown that coincidence in case of investigators of basic group is more than 90\%, and 85\%-preparation group. Traditionally the investigation group consists of 2 investigation vehicles with 4 investigators on an intersection. The investigation vehicles are placed on a major street about 50 m from intersection. Two of investigators are counting conflicts, and two- traffic stream. As far as possible the investigation vehicles must be placed on parking grounds, yards etc. causing minimal attention. We can't use special purpose vehicles (like police) of course. Often the video-recording makes demands to the dwelling-place of the investigation vehicle.

Investigations in 1981-85 were carried out on urban non-signalized intersections with speed-limit 60 kmph. Further...
investigations include both signalized intersections and outside of intersection space. We have often used video-recordrs, digital timers, speed meters and other devices. The special equipment developed for traffic countings could be useful.

Registering field conflict countings we use special forms with columns for types of conflict, time, participants and other information we need. Traffic stream data will also be registered.

Conflict countings are usually carried out on Tuesdays, Thursdays or Wednesdays: on two days both during 7 hours—in all, 14 hour of investigation. On urban intersections the counting period lies usually between 8-11.30 p.m. and 2-5.30 a.m. The countings are carried out in April, May, June, September or October. Special investigations could be realized during different periods.

4. ANALYSIS AND RESULTS.

The analysis of collected data based on filled forms and supplementary overhaul of videotapes. The basic aim of investigations was to compare the validity of conflict data and accident data. 5 years accident history registered by police was used. We have computed correlation coefficients between annual accident data and average conflict data by classes. The results of the correlation analysis have shown that conflicts are statistically significantly related to accidents. It was possible to evaluate the length and accuracy of investigation by using accommodated data. We have fixed that investigation period must be at least 10 hours (on traffic stream 400...1500 vph). Most suitable periods for investigation were determined. As the results were significant in comparison with traditional methods, it became possible to use the TCT as operational tool. In 1985/86 we have investigated the efficiency of road marking on coordinated main streets in Tallinn by using the Traffic Conflicts Technique.
6. FUTURE ACTIVITIES.

Future investigations are planned in following directions:
- specifying a conflict criteria by using objective data
- introducing semi-automatic countings
- determining the local influence to counting data
- operational investigations on critical points
- observing international development of the TCT.