

T-39 Kärkna Junction Traffic Safety Audit



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Maanteeamet

Oy Talentek Ab

T-39 Kärkna junction, traffic safety audit

Participants

The Traffic Safety Audit was initialised by Maanteemmet, represented by Reigo Ude. The audition was carried out by Klas Hytönen, MSc (CEng) of Oy Talentek Ab.

The audition process

Site inspection was carried out 22nd February 2005.

Drawing of the junction, Tinter projekt

Traffic volume data (2004)

Traffic accident data 2003-2004

The site

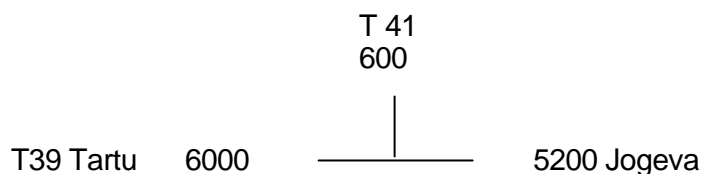
The Kärkna junction on T-39 is situated in a large curve to the left in direction to Tartu. The elevation is uphill in the same direction. The junction between the Tartu-Jogeva T-39 road and T-41 secondary road is a three road junction.

The T-39 road has lanes for turning traffic to left from Tartu and right from Jogeva. The directions are divided by road markings. The T-41 has an middle isle with kerbs, and painted isles dividing turning traffic.

There are barriers on all sides. The bridge over Amme river is close to the junction towards Tartu.

The traffic situation

Traffic volumes: (vehicles/average day)



The heavy vehicles are 15 % of the T39 traffic and 40 % of the T 41 traffic.

The speed limit in the junction is 90 km/h on T-39 and 70 km/h on T-41.

During 2003 and 2004 six accidents have been recorded. Three of these are singel accidents, where the vehicle crashes the barrier, two are rear end collisions and one is a bike accident. No injuries are recorded.

Present problems, site analysis

There seems to be a problem with adjusting the speed to the current driving operation. The many crashes into the barriers is an indication of too high speed in the turns. The rear end accidents also indicates problems with acknowledging the appropriate speed.

The junction is in open landscape above the ground and few references a obtained from the surroundings, which makes it difficult to know you speed.

The lay-out of the junction seems to be too loose with too few references for the driver.

For vehicles turning left from the T-41 there is the common problem with a road connecting to the outside of a curve, where as in this case the outer side is almost 0,4 m above the inner side, and the road surface seems to run away.



Suggestions

First-aid

Measures to improve guidance and visibility without changes of design

Paint the barriers or adjust notice-stripes

Lengthen the TARTU JOGEVA direction sign behind the T-41 to make a longer wall (for instance with "sergeants")

Alter the give way sign to STOP on T-41. This should reduce speed of those turning left.

Small changes

Bring the kerb of the middle isle closer to the T-39. It should be possible to bring about 2,5 meters closer without causing hazard to passing traffic on T-39. The end of the kerb is a good fix point for left turning traffic, and forces the driver to make a sharper bend

Redesign

Tighten the junction. Vehicles should reach and drive through the junction with care and caution. High speed should not be possible since traffic flows are mixed. The turns with $R=25$ m are too wide and should be reduced to approx 15 m.

Bring the middle isle closer to the T-39 as said above.

Bring end of left turning lane on T-39 from Tartu closer to the junction not to allow vehicles to start turn too early.

Major change

Build middle isle kerb/barrier on the T-39, and reduce speed limit to 70 km/h. This also requires road lights.