

Summary:

Inspection of 75 pedestrian crossings in Oslo

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Authors: Michael W J Sørensen, Tor-Olav Nævestad
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An inspection of 75 pedestrian crossings in Oslo suggests that 14 pedestrian crossings should be removed, 30 should be upgraded, 26 should be somewhat changed, and one should be moved. Only two pedestrian crossings should be kept without changes.

Criteria for making pedestrian crossings

The objectives of pedestrian crossings are to improve the conditions for pedestrians regarding mobility, objective safety and subjective safety. To these purposes, numerous crossings have been made in Norway.

However, pedestrian crossings are not an unambiguous safety measure, and therefore the Norwegian Public Roads Administration in 2007 published Handbook 270, entitled “Gangfeltkriterier” (Criteria for making pedestrian crossings). The handbook recommends where new pedestrian crossings can and should be made. The criteria laid down may also be used in an assessment of existing pedestrian crossings.

The objective

The objective of this project has been to inspect 75 pedestrian crossings on municipal roads in Oslo and to recommend measures to improve safety. More precisely, we have set out to answer the following three questions:

1. *Criteria:* Are the 2007 criteria for making pedestrian crossings fulfilled?
2. *Risk assessment:* Is the risk for pedestrians high, medium or low?
3. *Regulations:* Are there any flaws in the regulations governing locations, design, markings, signs or maintenance of the pedestrian crossing?

Six different studies

To answer these questions, the following six studies have been carried out:

1. *Traffic counts:* Existing counts of average daily traffic or qualified estimates
2. *Pedestrian counts:* Manual counts of pedestrians and bicyclists in and near the pedestrian crossing for a total of six hours
3. *Conflicts:* Simultaneously with the pedestrian counts, observation of conflicts in the pedestrian crossings
4. *Speed measurement:* Radar measurement of vehicle speed for about 24 hours
5. *Accidents:* Police recorded accidents from 2006-2010 in and near the crossing
6. *Road design:* On-site inspection where data regarding location, design, marking, signs and maintenance of the pedestrian crossing are registered.

75 pedestrian crossings in the study

The Agency for Urban Environment of the City of Oslo has selected pedestrian crossings for inspections. These are crossings where there have been many accidents or fatalities, where the municipality has been contacted by citizens, or where the speed limit is 60 km/h. The pedestrian crossings have been divided between 32 in three-arm intersections, 11 in four-arm intersections, 20 in roundabouts, and 12 on road sections. 10 pedestrian crossings are regulated by traffic signal. The speed limit is 30 km/h for four crossings, 40 km/h for 14 crossings, 50 km/h for 25 crossings and 60 km/h for 32 crossings.

The criteria are not fulfilled in 29 pedestrian crossings

In 29 pedestrian crossings (39 %), the criteria for making a pedestrian crossing are not fulfilled. For another 12 crossings the criteria are just barely fulfilled. Among the 29 crossings, nine have both too high speed level and too few pedestrians. In 15 crossings, the speed level is too high, while the remaining five locations have too few pedestrians and bicyclists in the peak hour to qualify for a crossing.

High and medium risk in 73 pedestrian crossings

The risk assessment for vulnerable road users shows the following risk in the pedestrian crossings:

- *High risk*: 37 pedestrian crossings (49 %)
- *Medium risk*: 36 pedestrian crossings (48 %)
- *Low risk*: 2 pedestrian crossings (3 %).

Pedestrian crossings with high and medium risk normally have many accidents, high speed level, few pedestrians, impaired sight, long crossing distance, more than two traffic lanes in the same direction, and/or insufficient marking, signs or road lighting.

Large and small remarks to all the pedestrian crossings

The registration of flaws regarding locations, design, marking, signs or maintenance of the pedestrian crossings shows the following:

- *Many remarks*: 37 pedestrian crossings (50 %)
- *Few remarks*: 37 pedestrian crossings (50 %)
- *No remarks*: 0 pedestrian crossings (0 %).

The remarks are categorised as follows:

- *Markings*: 38 pedestrian crossings (51 %)
- *No speed measures*: 27 pedestrian crossings (36 %)
- *Signs*: 22 pedestrian crossings (29 %)
- *Road lighting*: 21 pedestrian crossings (28 %)
- *Road surface*: 14 pedestrian crossings (19 %)
- *Traffic signals*: 9 pedestrian crossings (12 %)

- *Number of lanes*: 5 pedestrian crossings (7 %)
- *Design*: 5 pedestrian crossings (7 %)
- *Sight*: 4 pedestrian crossings (5 %)
- *Speed limit*: 2 pedestrian crossings (3 %)
- *Location*: 2 pedestrian crossings (3 %)
- *Waiting area*: 0 pedestrian crossings (0 %).

45 pedestrian crossings should be removed or upgraded

Based on the registrations, analyses and assessments the following solutions are recommended for the 75 pedestrian crossings:

- *Remove*: 14 pedestrian crossings (19 %)
- *Move*: 1 pedestrian crossing (1 %)
- *Maintain and upgrade*: 30 pedestrian crossings (40 %)
- *Maintain, few changes*: 26 pedestrian crossings (35 %)
- *Maintain, no changes*: 2 pedestrian crossings (3 %)
- *New inspections*: 2 pedestrian crossings (3 %).

There is a need for inspections of pedestrian crossings

60 % of the inspected pedestrian crossings should be changed significantly (removed or upgraded). A large part of the pedestrian crossings are problematic in terms of safety. This comes as no surprise since the crossings were selected because they were expected to be the most problematic in Oslo.

This and other studies confirm that there is a great need for inspection of all pedestrian crossings in Norwegian cities. Also, it is quite important that the recommendations resulting from the inspections be implemented. It is recommended that the results of all of these inspections be assembled, with a view to assess if certain types of pedestrians crossings are more problematic than others.