

VOICE SITES

POLAND

Improving VRUs safety at the section of Grochowska Street, Warsaw

The study was conducted by the University of Technology in Gdansk, Civil and Environmental Engineering Faculty, Highway Engineering Department, Krzysztof LINKE (Team PG-01), under the supervision of Dr. Inz. Kazimierz Jamroz.

Introduction:

The pedestrian crossing in Warsaw at Grochowska Street, 355 is very dangerous for traffic participants. Therefore, it was selected for the International Student Competition to improve the safety of vulnerable road users at urban intersections organised by the European Transport Safety Council in cooperation with the Motor Transport Institute in Warsaw.



Risk factors analysis:

The assessment showed that there is a high volume of motor vehicle (almost 4000 v/h in both directions in the area of pedestrian crossing) and tram traffic (38 trams per hour) at Grochowska Street making it difficult for pedestrians to cross the street along the pedestrian crossing safely. Speed measurements conducted with radar speed indicators in the proximity of analysed pedestrian crossing in both directions showed that more than 60 % of drivers in the direction of Wiatraczna Roundabout and 40 % of the drivers in the direction of Zieloniecka Street exceed speed limit of 50 km/h.



The majority of accidents involving pedestrians takes place directly on the pedestrian crossing. The reasons may be various but the most important is the location of pedestrian crossing. The recorded collisions involving pedestrians do not include fatal accidents, however given the recorded speed and a large number of collisions, a further increase in the number and severity of accidents may be expected.

The pavement on the right side of roadway is also very dangerous. For people in wheelchairs and the blind it constitutes the barrier impossible to break through because of numerous stairs, steps and the vicinity of fast moving vehicles. The pedestrian crossing at the adjacent Minska Street, as well as the entry from this street, requires modernization. The entry location at an angle close to 30 degrees to Grochowska Street, together with acceleration lane, encourages drivers to drive fast. It was observed that cars speeding from Minska Street literally run into the pedestrian crossing without any possibility to check the situation there because visibility for entering cars is blocked by the vehicles parking on the pavement directly in front of the pedestrian crossing.

According to 95% of the surveyed pedestrians, the pedestrian crossing must be modified (according to more than half – relocated) and traffic lights must be installed.

The most dangerous features of the pedestrian crossing were defined as:

- no safety island in the middle of the road;
- lack of pedestrian protection installations;
- lack of facilities for the disables, people with prams and cyclists;
- very narrow pavement on the right-hand side;
- sharp angle of entry from Minska Street encouraging drivers to run fast into pedestrian crossing;
- vehicle parking on the pavements and in proximity of pedestrian crossing.

Suggested improvements:

The basic set of measures to improve safety at the above location includes:

- **Change in Grochowska Street axis in the direction of Minska Street.** The change will allow for formation of pedestrian refuge island (of minimal width of 3 metres), where pedestrians, cyclists and people in the wheelchairs will be able to wait safely to pass the next stage of the crossing.
- **Moving the pedestrian crossing behind the entry of Minska Street.** It will allow for decreasing the width of roadway necessary to pass at one go, it will enable better communication between two sides of Grochowska Street and moves the pedestrian crossing out of acceleration and deceleration lanes.
- **Change of Minska Street entry construction into perpendicular passage to Grochowska Street,** which will force drivers to increase their caution, will decrease speed and significantly improve visibility.
- **Installation of traffic lights** at the pedestrian crossing (synchronised with the intersections in the area), which will make it safe, especially for the youth attending the nearby school.

Additional measures aimed at improving road safety and comfort of the pedestrian crossing were proposed:

- widening the pavement on the right-hand side of the road to 3 metres;
- installation of protection barriers for pedestrians;
- the bus stop was moved behind the pedestrian crossing according to guidelines;
- gaining space for the roadside vegetation square in front of the school – which will create a natural acoustic barrier;
- lowering the kerbs at the crossings for pedestrians and cyclists
- designing one and two-directional cycle paths in the whole area of modernisation
- creating a pedestrian – cyclist track on the right-hand side;
- designing refuge islands on the entry to Minska Street provides a safe place to wait for free way;
- cycle paths made of coloured asphalt of chameleon type divide clearly cycling zone.

The following measures were proposed to make the crossing friendlier and easier to use for the disabled and PRM:

- the use of warning flagstones for the disabled pedestrians on the pavements before the pedestrian crossings and across the pavements according to the guidelines;
- filling tramways with rubber plates on the rails' level facilitates passing and
- decreases the risk of wedging;
- the use of audible traffic signal to facilitate the blind pedestrians crossing the street.

Conclusions:

The scope of the proposed measures is very wide, but only such a comprehensive solution will ensure reaching „Vision Zero“ targets, i.e. eventually eliminating the cases of cars' collisions with pedestrians and significantly decreasing the number of accidents related to other road users.