



European Transport Safety Council

European Student Competition “VOICE”

Vulnerable Road Users Organizations in Cooperation Across Europe

Name of task:

**Modernization of Grochowska street in Warsaw
Area of Grochowska and Minska crossroad**

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1. Technical specification

1.1 The aim of the study

The thesis below is on reconstruction of the crossroad of the Grochowska and Minska Streets. Presented solutions were made to improve safety of vulnerable road users in this area, i.e. pedestrians and cyclists.

This study concerns modernization of 200 m of Grochowska St., 170 m of Minska St. and 30 m of the exit from southern roadway of Grochowska St. to nearby housing estate.

1.2 Orientation



Picture 1. – Location of modernization area - Grochowska and Minska crossroad.

The project concerns modernization of Warsaw streets Grochowska and Minska. The crossroad of these streets is situated north-east to the city centre in the Praga district. Grochowska St. is a part of voivodship road No 637, and forms one of the most important transport corridors on the right side of the Vistula river.

1.3 The scope of the project

On the basis of the existing situation analysis, and taking into consideration the aim of the project – traffic safety improvement, the following actions are foreseen in the area of Grochowska and Minska streets crossroad:

1. Displacement of a pedestrian crossing together with a refuge establishment with so called “maze” – barriers forcing pedestrians to change their crossing direction. In addition to that:
 - for refuge separation a segment type fencing is proposed.
 - to increase pedestrian crossing visibility a double color (white-red) pavement marking is designed,
 - to adjust the passage to the needs of a disabled people with trolley, a ramp with longitudinal slope of 6% is foreseen.

Detailed cross section presenting the pedestrian crossing and proposed solutions is shown at the drawing No 5 (see cross section A-A).

Main advantages:

- better visibility of a pedestrian crossing,
- creating of a shelter for pedestrians crossing Grochowska street,
- creating a possibility to cross the street in to stages.

2. Moving of a pedestrian crossing in the direction of residential buildings on the exit of the southern Grochowska street roadway together with sidewalk separation on the both sides of the outlet using chain type fences. In addition to that:
 - widening (in the direction of Grochowska street) the sidewalk close to the edge of a building,
 - upgrading of 30m exit street (from the Grochowska street southern roadway), in the direction of residential buildings .

Main advantages:

- upgrading of visibility of a pedestrian crossing,
- increasing of the pedestrians security,
- elimination of undesirable car parking in the vicinity of pedestrian crossing.

3. Narrowing of a northern roadway of Grochowska St through profiling of street axis and removal of the entrance lane from Minska St to Grochowska street with the aim to slow down the traffic at the access road section before the crossroad.

Main advantages:

- speed reduction in the area of pedestrian crossing, specially cars entering the crossroad from Minska St.

4. The change of an angle of Minska St. entrance to the crossroad with Grochowska street (with the aim to reduce speed of vehicles entering Grochowska St). Introduction of a double coloured pavement on a pedestrian crossing, combined with a bike route through Minska St. Reconstruction of the existing entrance into a pedestrian path with segment fencing type barriers.

Main advantages:

- efficient reduction of vehicles speed approaching to the pedestrian crossing, before the entrance to the Grochowska St.

5. Reconstruction of an existing channel island located at the entrance of Minska street together with separation of the part excluded from the pedestrian traffic crossing using fences. The detailed cross section presented solutions proposed for the island is shown at the drawing No 6 (see cross section B-B).

Main advantages:

- forcing speed reduction at the entrance section to the crossroad,
- improvement of traffic safety at the pedestrian crossing through Grochowska St.

6. Building of double colour pedestrian crossing or pedestrian-bike path through Minska St.

Main advantages:

- distinguishing the site where the drivers have to increased their carefulness
- improvement of the non protected road users, i.e. pedestrians and cyclists.

7. Introduction of a bicycle route, in the north side at Grochowska St., separated from the sidewalk

Main advantages:

- continuation of a bike traffic without the necessity to cross Minska St.,
- improvement of traffic conditions for cyclists in the Praga district area.

8. Introduction of a bicycle route along Minska St on the south side of the street.

Main advantages:

- segregation of car and bicycle traffic and improvement of cyclists safety.

9. Introduction of a bicycle route, connecting school located at Minska St. with bicycle routes system

Main advantages:

- promotion of cycling among school pupils
- improvement of bicycles safety.

10. Separation of the part of the island and sidewalks using chain type fencing, assuring crossing the street only in the assigned places.

Main advantages:

- protection against the accidental and undesirable pedestrian entering the roadway

The detailed cross section through the island is shown at the drawing No 6. (see cross section B-B).

11. Introduction of a large-size vertical marking - pictograms - 17 (children) at Minska St and B-33 (speed limit) on the both roadways and all traffic lanes at Grochowska St.

Main advantages:

- additional warning for drivers approaching to the area requiring special attention.

12. Replacement the car entrance to the school.

Main advantages:

- elimination of a potential traffic disturbance at the entrance of Minska street to Grochowska street,
- improvement of the entrance to the school through creation of the possibility to enter and exit the school area in both directions (to the south and north of Minska street).

13. Facilitating the existing entrance road to the school

Main advantages:

- potential increase of the number of parking places at the school area

1.4 Alternative Solutions

Within the project 3 crossroad improvement options were analysed:

OPTION A

Option A foresees the change of the existing exit road from the southern roadway of Grochowska St. That creates the possibility to enlarge a space for pedestrians at the east side of existing street connecting Grochowska street with residential buildings. This solution shall require interference out of area of the existing local street to residential buildings.

Option A foresees introduction of bicycle route combined with a sidewalk on the south side of Minska St., and the application of double colour pedestrian crossing close to the entrance to the school.

Main advantages:

- separation of bicycles and car traffic
- enlargement of pedestrians space near pedestrian crossing.

OPTION B

B option assumes the modification of the existing exit from the southern roadway of Grochowska St without the reconstruction of the existing fencing located on the west side. This concept foresees the additional profiling of Grochowska street axis and narrowing of the Minska St roadway together with the introduction of two directional bicycle route located on in the sidewalk on the north side of the street (with bicycle route separation from the street using continuous yellow color separators U-25a type).

The detailed cross section presents drawing No 7 (cross section C-C).

Main advantages:

- creation of appropriate conditions for bicycle traffic at Minska St.
- reduction of vehicles speed (by narrowing traffic lanes) and using recovered street surface for cycling on Minska St.

SELECTED OPTION – AUTHOR’S PROPOSAL

The option is presented at the drawing No 1. and is the most beneficial from the point of traffic safety improvement. This solution ensures traffic safety in the analysed area of crossroad. In the selected option it was decided to abandon the idea of two directional bicycle route along Minska street roadway and to introduce bicycle path separated from the street and located along southern Minska street sidewalk. This will allow to cross Minska street only at specially marked points, together with separated pedestrian crossing.

Selected opinion do not foresee substantial modifications of exit street from the southern roadway of Grochowska street.

Summary of the main advantages of selected solution:

- improvement of pedestrian and cyclists traffic safety
- introduction of full traffic segregation
- possibility to use the northern part of Minska St. roadway for parking (with the exception for necessary visibility area before pedestrian crossing),
- reduction of crossroad modernization costs by modification of the existing exit to the residential buildings, without the need of replacing fencing and purchasing the terrain.

The detailed advantages are presented in 1.2.

2. Drawings list of contents :

1- Site Plan – scale 1:500

Drawing presents the designed changes in the background of a map of the existing situation. The consecutive points of upgrading are marked with numbers. The drawing do not presents sign marking.

2- Site Plan – Selected option - scale 1:500

Drawing presents the proposed improvement of crossroad area together with traffic organization and marking. The marking A and B at the drawing concerns the alternative options presented at the following drawings.

3- Site Plan – A option - scale 1:500

Drawing presents the proposed improvement of a crossroad area with the changed exit from the southern roadway of Grochowska Street and leading to the neighbouring residential buildings.

4- Site Plan – B option - scale 1:500

Drawing presents the proposed improvement of a crossroad area with the changed bicycle route, located on the north side of Minska St.

5 Cross section A-A – scale 1:20

Presents the cross section through the designed Grochowska street pedestrian crossing

6- Cross section B-B - scale 1:20

Presents the cross section through the traffic island located at the entrance of Minska Street.

7- Cross section C-C - scale 1:20

Presents the cross section through Minska Street (option B) at the section with bicycle route separated from roadway.