

Research Trends and Results

Traffic safety measures for residential roads by vehicle speed reduction

Sachiko Ohashi (Dr. Engineering), Senior Researcher

Haruka Kawase, Research Engineer

Naoyuki Kawamoto, Researcher

Susumu Takamiya (Ph.D), Head

Road Division, Road Traffic Department

(Key words) residential road, School routes, traffic safety

1. Development of traffic safety measures for residential roads

As arterial roads are being developed, we are getting to the stage where we can transfer motor traffic to such arterial roads and make the residential roads into a space for pedestrians. In this situation, with the goal of substantially reducing the traffic fatalities among pedestrians and cyclists, which are currently at the worst levels in the advanced countries, the standardization of new road specifications for pedestrian and bicycle safety and the construction of a system for administrative measures have been promoted.

2. Research on standardization of new residential road specifications

To standardize new specifications, the NILIM is collecting and organizing technical knowledge as evidence of it. In particular, since high-speed vehicles cause more serious accidents, we are focusing on controlling vehicle speeds by installing humps, narrow areas, and chicanes on roads, and are considering appropriate installation methods and effective shapes for these.

(1) Examination of shapes with driving experiment

We placed humps and chicanes on a test road simulating a residential road, and conducted a driving experiment to consider the most effective shapes.



Photo 1: Driving test on hump



Photo 2: Driving test on chicane

In the experiment, we prepared two types of humps with different heights, and studied the driving speed, noise, vibration, and driver's attitude (Photo 1). We also prepared three types of chicanes with different bending levels and studied the driving speed and attitude (Photo 2). Based on these results, we are analyzing the effects of different shapes, and setting appropriate shapes.

(2) Examination of measures with demonstration experiment

To promote measures, we conducted a demonstration experiment for the measure operation method on elementary-school-commuting roads, in cooperation with Tsukuba City. We extracted dangerous points based on the information of users and various traffic data, and developed and executed a measure. We confirmed effects such as a vehicle speed reduction on the road with installed chicanes and humps (Photo 3, Figure).

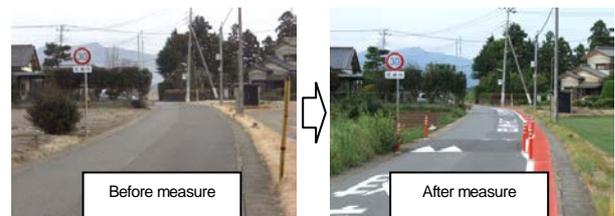


Photo 3: Narrowed hump installation zone

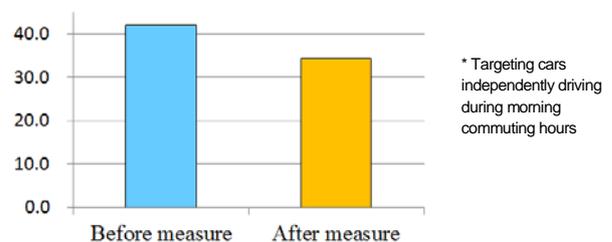


Figure: Speed change in installation zone

3. Future deployment

These research results will be used as basic knowledge for the determination of technical standards concerning new residential road specifications, which the Ministry of Land, Infrastructure, Transport and Tourism is currently

promoting.

☞ Detailed information:

1) Web site of Road Division

<http://www.nilim.go.jp/lab/gbg/index.htm>