# Evaluation of the effects of providing side strips on residential roads

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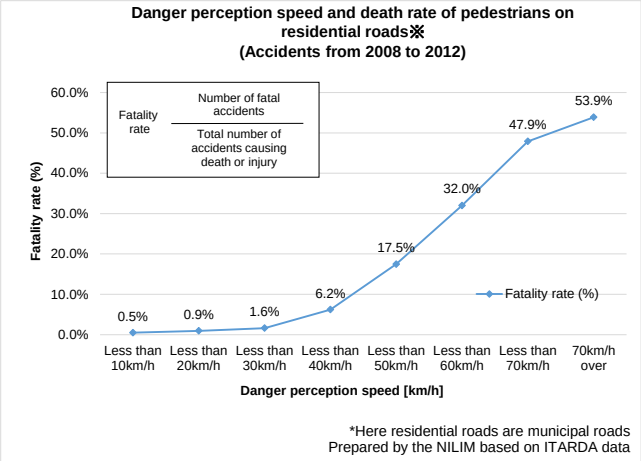
*(Key words) Residential road, providing side strips, traffic safety*

## 1. Introduction

The percentage of traffic accidents which cause death or injury that are four wheeled vehicle - bicycle or pedestrian accidents is about 25% on all roads, but higher at about 32% on residential roads.

And as the figure shows, the fatality rate of automobile – pedestrian accidents on residential roads rises from near the point where the danger perception speed exceeds 30km/h, and it is believed that restricting the traveling speed of vehicles to 30km/h or less will prevent serious accidents and reduce traffic accidents.

Figure. Danger Perception Speed and Fatality Rate




There are two traffic safety countermeasure methods: hard methods such as installing humps, chicanes, or narrowingss and other structures to restrict speed, and soft methods such as restricting traffic. The effectiveness of implementing many hard measures has been confirmed by past research, but the effectiveness of taking soft measures has not been verified as often as that of hard measures.

This research has focused on providing side strips, which is a soft method that gains local approval relatively easily, and which can be installed at lower cost than hard methods, to verify its effectiveness.

## 2. Analysis of the effectiveness of providing side strips

This research surveyed the state of travel on roads with similar roadside conditions etc. and analyzed the traveling speeds of vehicles, clarifying its effectiveness.

The analysis assessed the significance of differences between vehicle speeds on multiple similar routes where only one road structure element differs. The table shows the results.

Table. Significance of Speed Differences by Road Structure Element

| Analysis items (road structure elements) | | Overall assessment of significance* | |
|---|---|---|---|
| | | Average speed | Maximum speed |
| Center line | Center line placed/not placed | ○ | ○ |
| Traffic restrictions | Traffic restriction enforced/not enforced | △ | △ |
| Road width | Road width (two-way traffic) | ○ | ○ |
| | Road width (one-way traffic) | △ | △ |
| Side strip | Roadside strip provided/not provided | △ | △ |
| | Width of roadside strip | ○ | × |
| Vehicle lanes | Width of vehicle lanes | △ | △ |
| Color | One side colored/not colored | × | △ |
| | Both sides colored/not colored | △ | △ |
| | Comparison of one side and both sides | × | × |
| | Differences in color | × | × |

*Case where significance of 5% is considered significant
○: Significant difference between all streets analyzed
△: Partial significant differences between all streets analyzed
×: No significant differences between all streets analyzed

Significant differences in speed were confirmed between roads with and without a center line and according to road widths (two-way streets), and it can be stated that these impact the reduction of traveling speed. There were partial significant differences according to traffic restrictions, road width (one-way

street), side strip width, and road width. And regarding coloring, which is counted on mainly to clarify side strips or regulate traffic, excluding one part, no significant differences in speed were confirmed.

### 3. Future directions

The comparison of routes did not clarify the effectiveness, although it did show a tendency for the speed to differ according to differences in road constituent elements. So now states of travel before and after countermeasure on the same route are being compared. And to clarify the effectiveness of measures other than speed restrictions, a questionnaire survey will be carried out to confirm the feelings of safety of users.

In the future, we want to organize these effects for each condition such as road width to clarify the most effective way to construct side strips.