

Research Trends and Results

Preparation of countermeasure proposal technology document based on past traffic safety countermeasures

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1. Introduction

Although the numbers of fatalities and injuries caused by traffic accidents have tended to fall in recent years, every year, more than 800,000 people are killed or injured in traffic accidents, and this statistic continues to be high as an absolute value.

The fall of the number of traffic accidents is the result of the promotion of traffic safety education and the improvement of vehicle safety accompanied by diverse traffic safety countermeasures on the road side. At places where road managers take traffic safety countermeasures, each one has its unique road traffic environment and site conditions, and the causes of accidents also vary widely, so a problem faced by officials in charge of these locations is that they must rack their brains to propose countermeasures for each one.

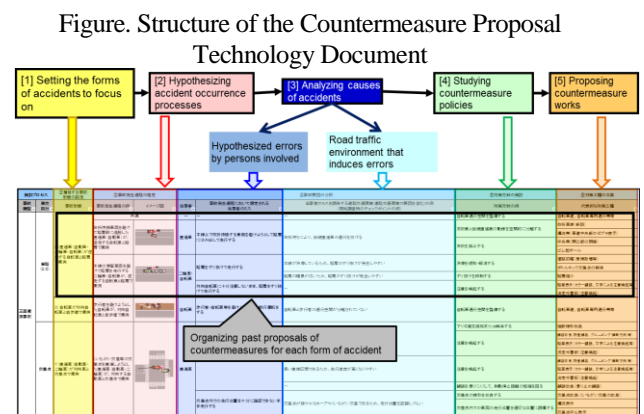
So in order to support the proposal of traffic safety countermeasures appropriate to the causes of accidents in order to implement effective traffic safety countermeasures, a countermeasure proposal technology document has been prepared based on past countermeasure projects.

2. Preparing the countermeasure proposal technology document

To propose traffic safety countermeasures for arterial roads, generally, based on the results of the organization of accident data etc., studies are conducted—[1] to set the forms of accidents to focus on, [2] to hypothesize accident occurrence processes, [3] to analyze causes of accidents (hypothesizing errors by people involved and road traffic environments that induce errors), [4] to study countermeasure policies, and [5] to propose countermeasure works.

The countermeasure proposal technology document was prepared with the structure shown in the figure so that it can serve as reference material that road managers use when proposing countermeasures along with the study process.

To select the forms of accidents (location of each accident and combinations of people involved) to be




entered in the countermeasure proposal technology document, statistical traffic accident data of the Institute for Traffic Accident Research and Data Analysis were used to aggregate forms of accidents for each accident category and to select about 50 cases as frequent forms of accidents. And from among accident occurrence processes, causes of accidents, countermeasure policies, and countermeasure work methods that are hypothesized for each form of accident, past proposals of countermeasures at about 8,000 locations accumulated in the Accident Countermeasure Database of the NILIM (locations defined as black spots in 2003 or in 2008, and where countermeasures were taken) were used to abstract appropriate combinations from the hypothesizing of accident occurrence process to the proposal of countermeasure works. And in addition, past countermeasure proposals for each form of accident were organized to simplify hypothesizing causes of accidents unique to each location. The table presents an example of the organization of right turn accidents at intersections.

3. Conclusion

This technology document will be completed and updated as necessary in response to the state of the execution of traffic safety countermeasures in the future.

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Table. Example from the Countermeasure Proposal Technology Document Concerning Right Turn Accidents at Intersections

Study process		[1] Setting the forms of accidents to focus on	[2] Hypothesizing accident occurrence processes		[3] Analyzing causes of accidents			[4] Studying countermeasure policies	[5] Proposing countermeasure works
Fom of accident	Type of location	Fom of accident	Example of accident occurrence process	Image diagram	Person involved	Person's error hypothesized in the accident occurrence process	Example of a road traffic environment that induces error by a person	Example of countermeasure policy	Typical countermeasure works
Accident while turning right	Intersection	Vehicle right-turning collides with a vehicle coming straight from the opposite direction at an intersection	A right-turning vehicle turning right into the intersecting road between vehicles traveling in the opposing lanes collides in the intersection with a vehicle traveling in the opposite lane		Right-turning vehicle	Turns right while unable to adequately check the oncoming vehicle	Because of vehicle turning right from the opposite direction, it is difficult to check the opposite lane	Improve the visibility of vehicles approaching from the opposite direction when turning right	Right-turn lane (newly created or location improved)
					Oncoming vehicle	Traveling at a speed delaying avoidance of the accident even after noticing the right-turning vehicle	Because it is a descending slope, vehicles tend to travel too fast	Guiding the traveling position of the right-turning vehicle to appropriate locations inside the intersection	Channel indicator (right turn) Intersection center indicator
							Removing the descending slope or making it gentler Alerting the driver	Improving longitudinal alignment Road surface indicators Illegal signboards	