

小規模道路の平面線形及び縦断勾配の必要水準に関する基礎的検討

濱本 敬治	*
上坂 克巳	**
大脇 鉄也	***
木下 立也	****
小林 寛	*****

概要

本資料は、地域の実情に応じた道路設計に資するため、道路構造令の第3種第5級及び第4種第4級の小規模な道路の平面線形及び縦断勾配の最小限保持すべき水準の基礎的検討を行ったものである。

平面線形の必要水準を検討した徐行での走行実験の結果、自動車走行軌跡ソフトで求めた最小曲線半径（普通自動車は11.0m、小型自動車等は6.4m）での走行は可能であり、曲線部での走行軌跡幅員の最大値から、普通自動車、小型自動車等共に1.0mの余裕幅があれば、走行できることがわかった。

縦断勾配の限界は、徐行を前提とすると、車両性能の物理的側面、実在する急勾配箇所での実態及び国内外の種々の基準値という様々な角度からの検討の結果、道路構造令の設計速度20km/h時の特例値である12%より大きくできる可能性があることが分かった。

キーワード :

道路構造基準、平面線形、縦断勾配

*	前 道路研究部道路研究室研究官
**	道路研究部道路研究室室長
***	前 道路研究部道路研究室主任研究官
****	前 道路研究部道路研究室交流研究員
*****	道路研究部道路研究室主任研究官

Preliminary Study on the Minimum Required Standards
of Horizontal Alignment and Longitudinal Grade of Small-Scale Roads

Keiji HAMAMOTO	*
Katsumi UESAKA	**
Tetsuya OWAKI	***
Tatsuya KINOSHITA	****
Hiroshi KOBAYASHI	*****

Synopsis

This is a preliminary study of the minimum required standards of the horizontal alignment and longitudinal grade of small-scale roads classified as Category 3 Class 5 and Category 4 Class 4 of the Road Structure Ordinance so as to contribute to the betterment of road design that suits local circumstances.

An experiment with slow-moving cars was conducted to review the required standard of horizontal alignment. It was found that the minimum curve radius (11.0 m for an ordinary vehicle and 6.4 m for a small-sized vehicle) derived from vehicular running path software permitted the running of a slow-moving car and that both ordinary and small-sized motor vehicles can run when a margin of 1.0 m is provided according to the maximum value of the running path width at the curve.

The authors estimate that, assuming the vehicle runs at a slow speed, the upper limit of the longitudinal grade is about 16 to 18% in areas other than snowy cold regions based on reviews from various angles, including in terms of the physical aspects of vehicle performance, the data of actual conditions at existing steep slopes, and the various standards in Japan and foreign countries. As a result of this, it is now known that the possibility exists to have larger values than 12%, which is the exception value for [Road Structure Ordinance] design speeds of 20km/h.

Key Words : Road structure, Horizontal alignment, Vertical slope

*	Former Researcher, Traffic Engineering Division, Road Department
**	Head, Traffic Engineering Division, Road Department
***	Former Senior Researcher, Traffic Engineering Division, Road Department
****	Former Guest Research Engineer, Traffic Engineering Division, Road Department
*****	Senior Researcher, Traffic Engineering Division, Road Department