

04 Road Innovation by Simple Coloring

- Road Surface Color Guide Line

Hee Cheol SHIN | Jung-Hyun LEE, KOTI

1. What Is a Road Surface Color Guide Line?

To reduce traffic accidents, South Korea has been making a lot of attempts. One of them is the road surface color guide line. The road surface color guide line (RSCGL) is a road surface marking designed to help the drivers easily identify their traffic direction by drawing a colored line on the road surface. RSCGL is installed on expressways and the roads which carry heavy traffic and are likely to confuse the drivers easily. It aims to help the traffic flow smoothly and prevent traffic accidents by guiding the drivers along their intended proceeding direction more clearly.

Figure 1 Color Guide Lines in Geumjeong District of Busan



Busan Metropolitan Government:
https://www.geumjeong.go.kr/board/view.geumj?boardId=BBS_0000005&menuCd=DOM_000000124002002000&startPage=436&dataSid=850645

2. History of Installing the Road Surface Color Guide Lines

The man who came up with this idea in South Korea for the first time is Deputy GM Yun Deok-Seok of Korea Highway Corporation. In 2011 a passenger car and truck traffic accident took place due to the weaving phenomenon at Ansan Junction. The passenger car driver survived, but unfortunately, the truck driver was killed. While they were considering how to prevent road traffic accidents at the request of the upper-level government agency in order to make sure the same kind of accidents may not be repeated, he came up with the idea of coloring a line on the road surface while watching his children playing with crayon and paints at home. However, it was hard to apply that idea to the road surfaces in South Korea. At that time, the Road Traffic Act specified that four colors (white, yellow, blue, and red) shall be used on the road surfaces, and the other colors were against the Road Traffic Act. Therefore, based on the colors preferred by different sexes which are commonly known and the 'green expressway' concept which symbolizes eco-friendliness, he chose pink for the right-side road on which a passenger car driven by a female driver and green for the left-side road onto which a male truck driver intended to proceed.

Figure 2 Ansan Junction on West Coast Expressway, the No. 1 Color Guide Line in South Korea (Naver Map Screen Capture)



Innovation 24 Road Surface Color Guide Line (May 2011)

<https://www.innovation.go.kr/ucms/bbs/B0000076/view.do?nttlId=11015&searchWrd=&menuNo=300210&searchCnd=1&pageIdx=1#point2>

By getting positive cooperation from the police and utilizing the active administrative immunity system, Deputy GM Yun made efforts to apply the road surface color guide lines. As a result, the first road surface color guide lines were applied at Ansan Junction in South Korea. As the traffic accident reduction effect was proven after that, it became possible in 2021 to utilize pink and green for the road surface color guide lines under the Road Traffic Act.

3. Installation of the Road Surface Color Guide Lines

The color guide lines commonly used on ordinary roads are green and pink. For the one-direction exit, pink is used, and for a two-direction exit (two lanes), both green and pink are used. Light green indicates a road which leads to a service area or a resting place for drowsy drivers.

The blue road surface guide lines which can be seen at expressway tollgates are marked for ordinary passenger cars, and the orange ones are only for trucks which use the hi-pass system. The pink guide lines are for the drivers who do not use the hi-pass system. They may pay the fee with their transit card or hi-pass card by inserting their travel ticket into the machine through the unmanned payment system.

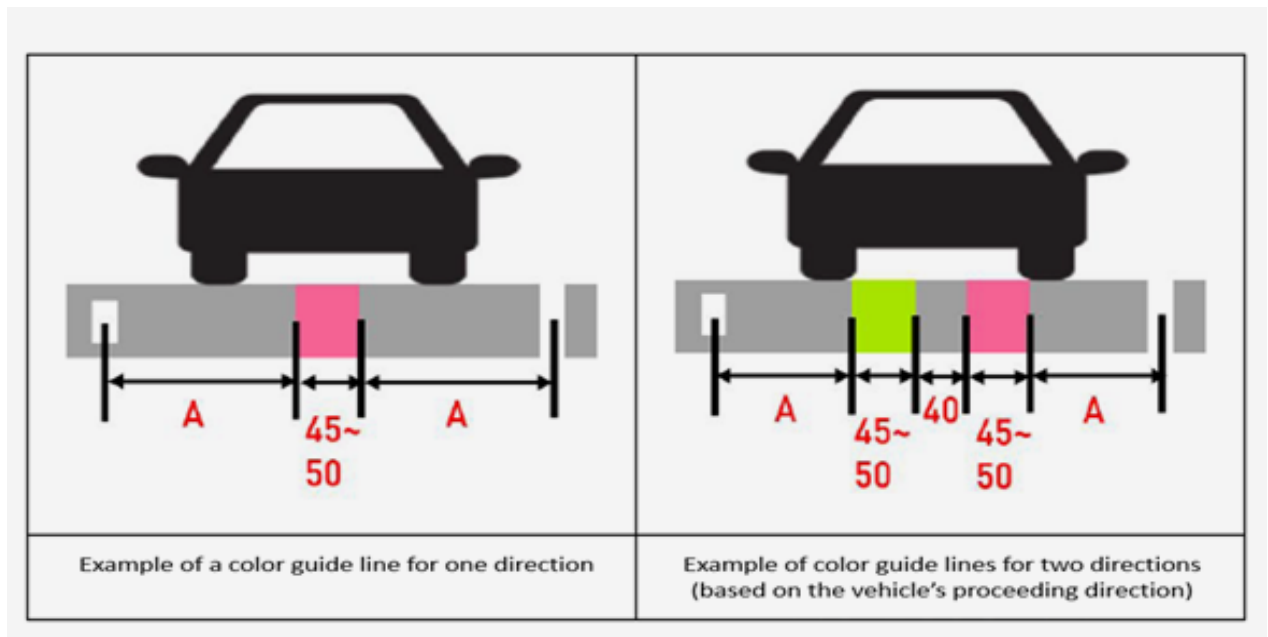
The painting width of the road surface color guide lines for a single direction shall range from 45cm to 50cm. The centerline of the guide line shall be aligned with the centerline of the lane. The painting width of the road surface color guide lines for two directions shall range from 45cm to 50cm. The centerline between the two color guide lines on the road surface shall be aligned with the centerline of the lane.

Figure 3 Classification of Road Surface Color Guide Lines for Ordinary Roads, Expressways and Tollgates



The road surface color guide lines in grade-separated intersections shall be installed in line with the running path up to 10m after the vehicle passes the advancement point from 100m ahead of the start point of the decelerating lane of the advancing road. The road surface color guide lines for at-grade junctions shall be installed in line with the running path until 5m after the vehicle passes the junction, from 50m ahead of the junction. But if there is a crosswalk within 5m after the vehicle passes through the junction, the color guide line shall be installed only until 1m ahead of the crosswalk.

Figure 4 Examples of Road Surface Color Guide Lines



Figures (3) (4): MLIT (2017.12) Installation and Management Manual for the Road Surface Color Guide Lines

4. Current Installation Situation & Effects of the Road Surface Color Guide Lines

Korea Highway Corporation (KHC) has installed road surface color guide lines on expressways, congested junctions, and interchanges since 2011. And it is expanding their introduction because their traffic accident reducing effect has been confirmed. According to KHC, it has installed 225 color guidelines at interchanges, 158 at resting places for drowsy drivers, 227 for junctions, and 257 for business offices. KHC has analyzed that at 76 sections with the road surface color guide lines, the traffic accident reducing effect amounts to about 27% when compared with the situation before their installation. Also, according to the Road Traffic Authority's traffic safety study volume 43-1, which covers the accidents-reducing effect analysis of the road surface color guide lines at at-grade junctions, after installing those color guide lines at five-way junctions, the number of accidents has declined by 31.8%, and the number of deaths and the seriously-injured by 39.2%. Although at four-way junctions, the installation of the color guide lines were not found to show a clear reducing effect, there was a tendency that the numbers of deaths and the seriously-injured, which are considered to be more serious, declined, too.