

Research about ventilation as well as illumination design method of small diameter tunnel

[Point]

Adoption of roads designated for small-sized cars has been studied as one of the strategies for increasing traffic capacity and reducing construction cost at the same time for the purpose of easing a traffic jam in an urban city. Cross-section surface is considered to be high in a tunnel designated for small-sized cars, and cross slope is considered to be large in some cases. Therefore, it is necessary to recognize emission of ventilation object substance in a heavy slope with regard to ventilation facility, and to recognize visibility in changed installation height as well as glare from lighting equipment with regard to lighting facility. In this study, emission of ventilation object substance that was discharged from small-sized cars in a heavy slope was researched by engine bench test, and set-up method was suggested for the emission of ventilation object substance, which was used for ventilation design of small diameter tunnel. Furthermore, visibility and glare from lighting equipment were studied by using a test design, and applicability of lighting method to small diameter tunnel was confirmed based on the existing lighting design method of a tunnel.

Keywords: road designated for small-sized cars, small diameter tunnel, ventilation design, lighting design, glare