
SUMMARY



Future Prospects and Strategies for National Arterial Road

Kim Ho Jeung, Yi Choonyong, Ko Yong Seok, Yoon Seo Youn, Kim Sang Rok

Key words: Future Prospect, Road Policy,
STEEP Analysis, National Arterial Road, Spatial Structure

The National Arterial Road Network Plan, the master plan for the road sector, was proposed in the 3rd Comprehensive National Development Plan in 1992. The National Arterial Road Network Plan aims to complete the construction of the 7×9 national network, which is composed of seven South-North and nine East-West corridors, by 2020, and 4,193 kilometers of the network is completed as of 2017.

More than 25 years have passed since the plan was established, but the responsive revisions of the plan that have been made according to economic growth and its spatial patterns across cities and regions was insufficient. For example, many highways encircling metropolitan cities were built to provide additional capacity for travel demand which increased in almost an explosive manner, but the congestion problem in the metropolitan areas has not been resolved yet. National arterial road plans, when revised for the future, need to

flexibly reflect the multi-faceted changes expected across society to technology in addition to economic growth, such as the rapidly decreasing and aging population, technological shock caused by introduction of self-driving vehicles, and ever-so-fluctuating political situation of the Korean Peninsula.

These plans should be developed addressing possible future scenarios taking account for various trends mentioned above. In order to predict macro-level changes in society in the future, STEEP (Society, Technology, Economics, Ecology, Politics) analysis was used to derive key factors affecting the road sector and to examine their impact.

This study analyzes the changes that need to be made for updating the national arterial road plans and envisions the future of arterial roads based on the scenarios for realignment of the spatial structure of the national territory from one of the recent report of KRIHS (Lee, 2014). Policy implications are also developed aiming at enhancement of mobility and accessibility in underdeveloped areas, and the roles of national arterial roads are suggest in different parts of the country depending on the scenarios.

Six megatrends and 18 factors and their implications on travel demand and required functions of arterial roads are examined by experts. Based on this result, roles of national arterial roads and measures to develop them in the future are derived for each scenario.

For Scenario 1, there are needs to enhance the function of arterial roads regarding long-distance travel and provide high speed service comparable to other high-speed transportation system such as rapid rail and to open road spaces for mix-use to enhance the nation's capability. Next, Scenario 2 requires efforts to maintain the function of the arterial road to connect metropolitans. For Scenario 3, strategic management measures characterized as choice and concentration are needed to provide a non-discriminatory service between

regions. Scenario 4 requires the establishment of a digital infrastructure in preparation for the hyper-connected era, as well as a combination of ground, underground and upper space.

With the focus on the future prospects for national arterial roads, this report proposes enhancing the role of the national government and developing a comprehensive road management system in order to cope with the changes of technology. Action strategies are also provided to support the policy implications effectively.