

Strategies to Manage Advanced Highway Infrastructure in Response to the Paradigm Changes of Intelligent Transportation Systems (ITS)

Kwangho Kim Associate Research Fellow

Korea Research Institute for Human Settlements

Summary

1. As the ITS paradigm has changed, new requirements have emerged in relation to ‘expansion of collecting and providing traffic information based on the locations of individual vehicles’, ‘strengthening of the authorization as well as the security for information and communication’, and so on.

- The existing ITS is evolving into C-ITS (Cooperative Intelligent Transportation Systems), and furthermore highly automated vehicle systems are expected to be commercialized in the near future.

2. The existing practices of operating and maintaining advanced highway infrastructure are not adequate to meet the needs of the ITS paradigm’s changes.

- The existing maintenance activities pertain to retrofitting individual devices/systems or to maintaining their basic functions, and this short-term approach has limitations in satisfying the requirements of evolving ITS services.

3. In addition to the existing practices of operating and maintaining advanced highway infrastructure, strategic management with longer-term perspectives are needed to derive relevant policies at a higher level.

4. Strategies to enhance managing advanced highway infrastructure include ‘renovating the planning framework to strengthen longer-term strategies’, ‘institutionalizing the introduction of analytic procedures to support the strategic management’, and ‘improving the evaluation systems of operations and maintenance.’

Policy Implications

- ① Relevant laws need be amended to incorporate the strategic management schemes of advanced highway infrastructure into the regional ITS plans, which local governments are required to establish every 10 year.
- ② The central government needs to play a key role in establishing a guideline to analyze requirements for improving management of advanced highway infrastructure; and in helping local governments to adopt the guideline as well as to educate the personnel in charge of its implementation.
- ③ Maintenance of advanced highway infrastructure needs to be enhanced by reflecting hardware requirements (e.g. reduction in communication latency) newly emerged due to the changes of ITS paradigm.
- ④ Performance measures to link ‘Operations’ of ITS services with ‘Maintenance’ of relevant devices/ facilities need to be developed and evaluated.
- ⑤ Evaluations of traffic control centers need to be enhanced and expanded, so that the results of the evaluations can be stored to be effectively used as inputs to derive strategies for improving the existing operations and maintenance of advanced highway infrastructure.